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# Cosleeping Beyond Infancy

## CULTURE, ECOLOGY, AND EVOLUTIONARY BIOLOGY OF BED SHARING AMONG AKA FORAGERS AND NGANDU FARMERS OF CENTRAL AFRICA

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### Introduction

The term *cosleeping* is generally used both by academics, including medical researchers, and the public in general to refer to infants sleeping with or near their mothers or parents, on the same or different surfaces, but at least close enough for participants to detect and respond to each others' sensory signals and cues (McKenna, 1993). It is difficult to explain why infant cosleeping has in recent years become of great interest, but it could be a result of a cultural shift to breastfeed among Western industrialized mothers because breastfeeding is functionally interdependent with cosleeping (Gettler and McKenna, 2010). That is, because cosleeping makes breastfeeding so much easier for mothers, including allowing mothers to get more sleep (Volpe and McKenna, 2012), breastfeeding often is soon followed various forms of cosleeping. In Western societies, conversations largely revolve around whether cosleeping is safe, or at the very least what causes particularly one form of cosleeping, bed sharing, to be dangerous and how risks can be avoided (Ball and Volpe, 2012).

Although infant cosleeping is also considered in this chapter, as are issues of safety, though of a different kind, here we focus mainly on what is less well known: cosleeping throughout the juvenile period, from birth through adolescence. We specifically examine (in detail) the contexts of similarities and differences between two small-scale cultures, the Aka foragers and the Ngandu farmers.

Anthropologists and others have pointed out that infant cosleeping is nearly cross-culturally universal (Barry and Paxson, 1971; Konner and Super, 1987; McKenna, 1986; Morelli, Rogoff, Oppenheimer, and Goldsmith, 1992) and that it has a deep phylogenetic history—that is, infant cosleeping is practiced by all Old World monkeys and apes (Konner, 2010; McKenna, Ball, and Gettler, 2007). In so far as infant cosleeping facilitates breastfeeding and decreases the risk for sudden infant death (Gettler and McKenna, 2010), clearly it has adaptive value, especially

when one considers that the human infant is born neurologically the least mature primate of all and consequently is unable to thermoregulate (keep warm) efficiently enough to sleep alone. But what about sleep patterns after weaning? Mother–infant cosleeping is common in our closest biological relatives, the great apes, but little attention has been given to cosleeping beyond weaning among either humans or nonhumans. What we do know is that field studies with higher primates suggest that sharing a nest or space with the mother beyond weaning occurs but is not common (e.g., Anderson, 1984).

Primatologists define ape juveniles as prepubertal animals (Pereira, 1993) with the capability to forage and sleep separately from their mothers (Parker, 1999). The birth of a new sibling increases the likelihood that ape juveniles move out of their mother's nest, build their own nest, and sleep separately but nearby (e.g., Horvat and Kraemer, 1982). Chimpanzee infants are weaned at about 5 years old and usually sleep in a separate nest by 6 years old, whereas gorilla infants are weaned at 3 to 4 years old and sleep in a separate nest shortly thereafter (Watts and Pusey, 1993). Before weaning, great ape infants engage in nest-constructing play (Fruth and Hohmann, 1993; Goodall, 1962, 1968; MacKinnon, 1974; Schaller, 1963) and are able to build their own nest shortly after weaning. As great ape juveniles become increasingly self-sufficient, they seldom return to sleep near their mother's nest (Anderson, 1984, 1998). Among a species of lesser apes, the gibbons, "group members usually slept in separate trees, and except for females with infants, they never shared a sleeping space" (Reichard, 1998, p. 35).

Is human cosleeping beyond weaning consistent or inconsistent with our higher primate cousins? Are humans similar to apes, slowly moving into separate nests after weaning, or are they relatively unique, having juveniles continue to cosleep beyond weaning? Existing cross-cultural studies suggest humans are similar to the apes. A recent summary of the cross-cultural literature on cosleeping beyond the age of weaning (age 3 to 4 years) found that 10% to 23% of 5- to 11-year-old children co-slept, and only 2% to 4% of adolescents shared a space with others (Yang and Hahn, 2002). A minority of children past weaning co-slept, and this number declined substantially with age. However, most of the studies in the review were from urban industrialized cultures.

Anthropologists and developmental psychologists have conducted excellent overviews (Worthman and Melby, 2002) and quantitative studies of cosleeping beyond infancy, but existing field data are limited in that most of the studies have taken place in relatively modern, high-density, highly stratified cultures such as India (Shweder, Jensen, and Goldstein, 1995), Japan (Caudill and Plath, 1966; Latz, Wolf, and Lozoff, 1999), Korea (Yang and Hahn, 2002), China (Liu, Liu, and Wang, 2003), and Egypt (Worthman and Brown, 2007). Most of the families in these studies had access to electricity or other sources of energy to heat their homes, and they did not have to worry about animal predators invading their homes. Police and other state-level services were also available to help support parents in their role as protector of the safety and survival of their children.

Systematic and quantitative studies of cosleeping in relatively egalitarian hunter-gatherer or other small-scale cultures, which characterized most of human history, do not exist. Even if cosleeping beyond infancy exists in small-scale cultures, we do not know how frequently it occurs, the contexts in which it occurs, whom children sleep with, or what impact age and sex may have.

Theoretically, researchers use culture (i.e., preferences, values, and ideologies) to explain intercultural variability in cosleeping (Lozoff, Wolf, and Davis, 1985; McKenna, 2000). Shweder et al. (1995, p. 21) begin their comparative article on Indian and U.S. cosleeping by stating, "Our central claim is that the universal practice of determining 'who sleeps by whom' in a family household is a symbolic action, or nonverbal vehicle of meaning, that both expresses and realizes some of the deepest moral ideals of a cultural community." Several cosleeping studies compare a non-Western culture (e.g., Mayan, Indian, Japanese, Korean) with middle-class U.S. culture and often conclude that cultural preferences, values, or beliefs explain the cross-cultural variability—that is, non-Western cultures believe it is essential to promote the development of family bonds and interdependent relationships in their children and therefore co-sleep with their children, whereas Western parents value the development of independence and self-reliance and therefore place children in their own beds to help promote these parental cultural ideals. Most of the cosleeping researchers recognize that ecological constraints (e.g., size of house, number of rooms in a house, and climate) play some role in cosleeping, but most view house ecology as secondary. Many cite Caudill and Plath's (1966) classic study which clearly demonstrated that cosleeping among the Japanese was more about the moral imperative to co-sleep, specifically to foster familial interdependence, rather than the spatial ecology of a house, that is, the number of available rooms.

Our study of cosleeping differs from previous research in three ways. First, it compares cosleeping among two non-Western and non–socioeconomically stratified cultures—Aka foragers and Ngandu farmers. Anthropologists and developmental psychologists would characterize both groups as "interdependent" cultures, in part, because family bonds and social networks are highly valued in both groups, so it is not possible to apply the standard cultural explanation given above to cosleeping differences between the groups. Second, the study looks at cosleeping beyond infancy and across the juvenile period. As already mentioned, existing studies focus on infants and young children. Finally, the study is relatively distinct in that interactions between culture, evolutionary biology, and ecology are considered in explaining intercultural and intracultural diversity in cosleeping. Culture and ecology, to some degree, are considered in previous studies, but relatively minimal attention has been given to the evolutionary or biological component. This study was initiated to answer the following basic questions: How often does cosleeping occur in childhood (0 to 18 years)? Who co-sleeps with children? How do ecology (size of bed, heat sources), cultural ideologies (that distinguish the Aka and Ngandu), and evolutionary biology (genetic relatedness, incest considerations) influence cosleeping? Although limited by sample size and study duration, this may well be the first study

of its kind to provide preliminary observations and insights regarding the nature and contexts of cosleeping beyond infancy in humans.

## Ethnographic Locale and Contexts

The data for the paper come from Aka hunter-gatherers and Ngandu farmers in the southern forests of the Central African Republic. About 40,000 Aka live in the tropical rainforests in northern Republic of Congo and southern Central African Republic, but about 2,000 live in and around the village study area. About 15,000 Ngandu live mostly in the Central African Republic, and about 4,000 live in the study area. The Aka in this study have complex economic, ritual, and kinship relationships with the Ngandu (Hewlett, 1991).

To understand cosleeping among the Aka and Ngandu, it is essential to have an understanding of their foundational schema—cultural values and ways of thinking and feeling that pervade most domains of daily life. The Aka live in camps of 25 to 35 people and move camps several times a year. They rely on a wide variety of hunting and gathering techniques (see Hewlett, 1991, for greater detail). Three foundational schema pervade the lives of the Aka and many other hunter-gatherers: egalitarianism, autonomy, and sharing. An *egalitarian* way of thinking means others are respected for what they are, and it is not appropriate to draw attention to oneself or judge others as better or worse. Men and women, young and old, are viewed as relatively equal and have similar access to resources. Respect for an individual's *autonomy* is also a core cultural value and foundational schema. One does not coerce or tell others what to do, including children. Men and women, young and old, do pretty much what they want. If they do not want to hunt that day, they do not do it; if an infant wants to play with a machete, she is allowed to do so. A giving or *sharing* way of thinking also pervades hunter-gatherer life; Aka share 50% to 80% of what is acquired hunting and gathering, they share it with everyone in camp, and they share every day. Sharing of child care is also extensive; for instance, 90% of Aka mothers reported that other women nursed their young babies (Hewlett and Winn, 2014).

The Ngandu live in villages of 50 to 200 individuals and domesticate manioc, corn, plantains, and peanuts. They exchange some of their crops for meat and other forest products of the Aka. Women plant, maintain, and harvest the fields and provide the majority of the calories to the diet, whereas men fish, hunt, and trade. Foundational schema among the Ngandu include gender and age hierarchy, communalism, and material-economic dimensions to social relations. Women should defer to the requests of men, and the young should be respectful and listen to those older than them, whether older brothers and sisters or parents. The Ngandu are patrilocal and patrilineal and have strong clan organization. *Communalism* refers to the cultural value placed on putting the needs of the group, generally clan members or the extended family, over the needs of an individual. The third foundational

schema refers to the thoughts and feelings that interpersonal relations should have economic or material components. Material and economic dimensions of relationships are on par with or greater than social and emotional aspects of relationships. Just liking the person or just being a kind person is not enough to sustain a relationship. This contrasts with Aka relationships, in which greater emphasis is placed on social-emotional bonds.

Sanctions exist for foundational schema. Among the Aka, others will tease and joke about individuals' sexual, dancing, or singing abilities if they starts to act better than others or draw attention to themselves. If a child does not share, others make sounds, gestures, or comments. One Aka adolescent girl's earliest memory was of her mother giving her a bowl of food to share with others; she was hungry and ate all of it. Her mother said she was stingy, others teased her, and she started to cry (B. L. Hewlett, 2013). Children often hear stories about how people who do not share properly face sanctions (e.g., illness, death, death of a child, person who did not share was a sorcerer). Among the Ngandu, sanctions for not listening to or respecting parents or older individuals can also be harsh and may include corporal punishment. One adolescent girl said that one day she was asked by her mother to help in the fields, but she decided instead to go fishing with her friends. When she returned, her mother said, "if you do not want to help, you do not want to live here." She was kicked out of the house and went to live with her grandmother.

## Habitus and Daily Life

*Habitus* (Bourdieu, 1977) refers to the daily, lived experiences of people. The habitus is shaped by the foundational schema described above and helps to contextualize the cosleeping study.

### INTIMACY

Physical and emotional proximity are particularly important to the Aka (Hewlett, 1991; Hewlett, Fouts, Boyette, and Hewlett, 2011). When the Aka sit down in the camp, they are usually touching somebody. In terms of holding during infancy and early childhood, forager infants are held 91% of the day, whereas farmer infants are held 54% of the day (Hewlett, Lamb, Leyendecker, and Schölmerich, 2000). Forager 2-, 3-, and 4-year-olds were held 44%, 27%, and 8% of daylight hours, respectively, whereas farmer children of the same age were held 18%, 2%, and 0% of the day (Fouts and Brookshire, 2009).

The importance of emotional proximity to others is illustrated in two studies. In a study of conflicts between toddlers and older juveniles among Central African hunter-gatherers and farmers, Fouts and Lamb (2009) found that hunter-gatherer toddlers were substantially more likely to have conflicts over staying close to older juveniles, whereas farmer toddlers were more likely to have conflicts with older

juveniles over competition for objects or over the older juvenile hitting the toddler, which never occurred among the hunter-gatherer toddlers. This study illustrates early acquisition and manifestations of cultural values—emotional proximity to others among the Aka and the economic-material dimensions of social relations among the Ngandu.

In another study, Aka and Ngandu adolescents were asked about their experiences and feelings about the death and loss of friends and relatives (B. L. Hewlett, 2005). Forager expressions of grief emphasized their the love and emotional connections to the person, whereas farmer expressions of grief focused on what the lost relative gave or provided them, and the grief was often diminished once objects of the deceased were given to the adolescent.

## AUTONOMY

Aka children do pretty much what they want during the day, whereas farmer children are affected by the control of parents and older children. For instance, one study showed that Aka 3- to 4-month-old infants took the breast on their own to nurse during 58% of feeding bouts, in comparison to only 2% of feeding bouts among the Ngandu. Ngandu mothers decided when to nurse, not the infant. At weaning, hunter-gatherer mothers said the child decided when he or she wanted to wean, whereas farmer mothers said they decided when to wean and often used dramatic techniques, such as putting red fingernail polish on their nipples and telling their child it was blood in order to get the child to stop nursing. Hunter-gatherer mothers said that if they initiated the weaning, it would cause the child to get sick, whereas the farmers said that nursing too long causes the child to become lazy (Fouts, Hewlett, and Lamb, 2001). These are just a few examples of how foundational schema affect daily life—Aka parents respect the autonomy of the child, whereas Ngandu parents direct some parts of the child's daily life.

## TRUST OF OTHERS

The development of trust in others is important to some degree in all cultures, but the socialization for trust in several others is particularly pronounced among the Aka, which makes sense given their extensive sharing and giving. Aka infants and young children are breastfed on demand, averaging about four bouts per hour, whereas farmers average about two bouts per hour. Young Aka infants are often breastfed by women other than their mother, generally aunts and grandmothers (but sometimes even fathers offered their breast). Grandmothers who hold infants for long periods may breastfeed a young infant, whereas fathers with a fussy infant may offer their breast to an infant. Among the Ngandu, breastfeeding by other women is thought to cause infant sickness and was not practiced except under unusual circumstances (see Hewlett and Winn, 2014, for details of allomaternal nursing). Studies show that Aka caregivers are significantly more likely than

Ngandu caregivers to respond to infant crying and that Ngandu infants cry significantly longer and more frequently than do Aka infants (Hewlett et al., 1998, 2000). As mentioned above, Aka infants and young children were held twice as often as Ngandu, and this additional holding came from many different people—fathers, grandmothers, siblings, and others. In early infancy, mothers provide the most care, but all others together provide more holding than do mothers (Hewlett, 1991).

## MIXED ADULT–CHILD GROUPS

Konner (2010) indicates that after weaning, hunter-gatherer children move from a relationship with their mother to relationships with children in mixed-age playgroups. Our data question this representation and indicate that parents and other adults are frequently around children and even adolescents. Time with parents and other adults, generally grandparents, gradually declines with age, but in comparison with the Ngandu, the Aka spend considerably less time in child-only groups. Behavioral observations indicate that Aka children were much more likely to be proximal (defined as within an arm's distance) to more categories of people and parents and other adults than were Ngandu (Hewlett et al., 2011). By age 4 to 5 years, hunter-gatherers are still proximal to parents and adults 33% of the time, whereas farmer children are proximal to them only 6% of the day. Farmer children at this age spent most of their day, 59% of their time, in child-only groups, whereas hunter-gatherer children spent only 18% of their day in proximity to child-only groups (Fouts and Lamb, 2009). In another study, children in late childhood spent more time in mixed-age groups, but they were still within visual range of an adult 81% of the day, and parents and other adults were the nearest neighbor (defined as those equally close to the child) 33.1% of the day (Boyette, 2013).

### Aka and Ngandu Homes and Beds

Aka homes are usually constructed by women in 2 to 3 hours; they are generally dome shaped, made of bent saplings and large phrynium leaves, and about 6 feet in diameter and 3 feet tall (Figure 6.1). Aka also make rectangular homes of saplings and leaves, but these are often temporary structures made by males. A distance of 1 or 2 feet separates Aka homes, and the entire camp of five to seven homes is relatively compact, often occupying an area about 1,000 $ft^2$. The homes do not have doors, and children easily move between homes. By contrast, Ngandu homes are rectangular, about 20 × 30 feet on average, with mud walls and a thatch or a tin roof (Figure 6.2). Men construct the homes over several weeks or months, and the homes are anywhere from 10 to 100 feet apart from each other. They have doors that can be locked or secured, so fewer people, including children, move between homes. Interior rooms of Ngandu homes may have a wooden or cloth door for privacy.

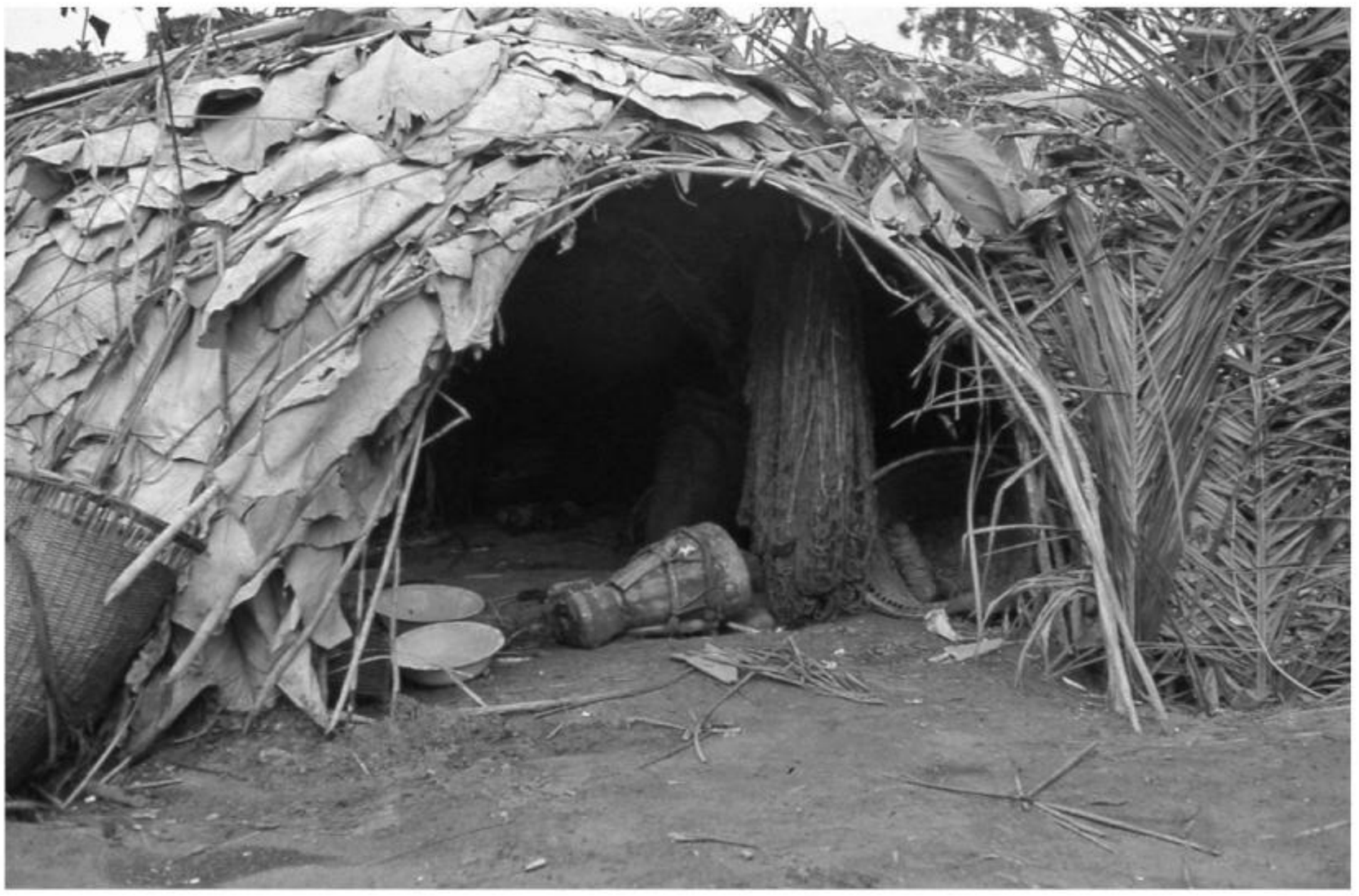

FIGURE 6.1 *Entrance to an Aka home with hunting net hanging inside.*

Table 6.1 summarizes the demography of the Aka and Ngandu homes in the study. Ngandu homes were larger, having about three bedrooms on average, and not surprisingly had more individuals per home, more beds per home, and fewer individuals per delimited space (room for Ngandu, home for Aka) than did Aka. Ngandu homes can be large, but only 15% (three homes) of the Ngandu homes had more than three bedrooms. Ngandu homes were also more likely to include extended (30% of Ngandu homes) or polygynous (15% of Ngandu homes) families. None of the Aka homes had these arrangements within a home; a second wife or extended family members had their own homes.

FIGURE 6.2 *Typical Ngandu home.*

TABLE 6.1 Demography of Aka and Ngandu Homes

| | Aka | Ngandu |
|---|---|---|
| Number of homes observed | 38 | 20 |
| Number of adults in all homes | 66 | 63 |
| Number of children <18 years old in all homes | 84 | 74 |
| Total number of individuals | 150 | 137 |
| Mean age of fathers | 40.4 | 38.3 |
| Mean age of mothers | 37.8 | 32.3 |
| Mean number individuals per home | 3.9 (range, 1–7) | 7.2 (range, 3–20) |
| Mean number of rooms per home | 1 (all one-room) | 2.7 (range, 1–6) |
| Mean number of people per room (Ngandu) or home (Aka) | 3.9 (range, 1–7) | 2.8 (range, 1–9) |
| Mean number of beds per home | 1.7 (range, 1–3) | 3.5 (range, 1–8) |

Aka beds are constructed from logs, leaves, or skins. Log beds can be on the ground or up off the ground by a few inches. It takes a few minutes to make a bed of leaves or skins and an hour or so to make a log bed off the ground. The Ngandu bed frame is made of logs, and the sleeping surface is usually made of woven strips of a forest liana or bamboo. Ngandu beds are generally a foot or more above the ground. Several people in the village make beds, they take several days to construct, and they cost about $3 to $5 U.S. Neither group uses pillows.

It should be noted that it does not take long to build an Aka home or bed. If an Aka wants to sleep alone, it is easy to make a new bed, and it only takes a few hours to build a new home. Although women usually build camp homes, both boys and girls by age 10 years know how to build their own home (men make rectangular or lean-to homes, and women build the sturdier dome-shaped homes).

## Methods

The first phase of this study began in 2005 and concentrated initially on the Aka foragers. The first author (BH) replicated Shweder et al.'s (1995) methodology and variable classification (at least part of it) with the Aka because no such study had ever been conducted with a hunter-gatherer population. Shweder et al. relied on adults' and children's reports of who slept next to whom. But in this study, BH walked down a trail shortly after sunrise to visit homes and asked people in each home to explain precisely where they slept and why they slept in that particular place. Sketch maps of sleeping arrangements were drawn, beds were measured, and Shweder's coding technique was used to record age and gender of who slept next to who (e.g., M45 D7 S10 F48 means a 45-year-old mother slept next to her 7-year-old daughter, who slept next to her 10-year-old brother, who slept next to the 48-year-old father) in each bed. BH walked down a particular trail into the forest and recorded data on every home in 7 successive camps along the trail. To evaluate

changes over time, 6 homes were visited 4 consecutive days, 10 homes were visited 3 consecutive days, and 14 homes were visited twice. The summary data (e.g., frequency of bed sharing, who sleeps next to children) presented in the study are based on the first observation day. When the Aka research was completed, we decided to conduct a comparative study with the neighboring Ngandu farmers. We thought the contrast would be useful because both groups occupy the same natural environment—the tropical forest—speak similar or the same languages, and observe each other on a regular basis. If one particular way of cosleeping was more "adaptive" in this environment, members of each group had plenty of opportunities to observe members of the other group and modify their behaviors. Twenty of 32 Ngandu homes in one section of the village were visited one time.

## Terminology

Considerable variability exists in how researchers define cosleeping. In general, it is defined as a practice whereby individuals sleep close to each other—either in the same bed, touching each other, or within an arm's reach of each other (e.g., when an infant sleeps in a separate crib or mat, but is within an arm's reach of the parents). Bed sharing is therefore one type of cosleeping whereby individuals share the same bed, mat, leaves, or hammock. Because most studies have been conducted with infants and young children in low-fertility populations, the assumption is often that the child is touching the mother or parents. Bed sharing is the focus of this study, and unless noted otherwise, the term *cosleeping* means bed sharing. We also use the term *co-rooming* to refer to situations in which individuals share a room but are in separate beds.

The term *small-scale culture* refers to groups that make a living by hunting and gathering, simple farming (slash-and-burn farming; no irrigation or intensive agriculture), or agropastoralism (raising domesticate animals along with some simple farming) and lack stratified political-economic classes or castes. The terms *hunter-gatherers* and *foragers* are synonymous.

## Results

### FREQUENCY OF BED SHARING

As Table 6.2 shows, cosleeping (in the form of bed sharing) was clearly normative for both ethnic groups and universal up to age 7 years. Bed sharing declined slightly with age, especially among the Ngandu and particularly with adolescents, but 67% of adolescents in both groups were still bed sharing. None of the Aka children slept in a bed in their own home, whereas 5% of Ngandu children, mostly adolescents, slept in a bed in their own room. This study is a snapshot in time, and anyone who

TABLE 6.2 Percentage of Aka and Ngandu children (0–18 Years), Infants (0–1 Years), Young Children (2–6 Years), Middle-Aged Children (7–11 Years), and Adolescents (12–18 Years) Who Bed-Shared, Co-roomed, or Had Their Own Bed in Their Own Room

| | Aka ($n = 84$) | Ngandu ($n = 74$) |
|---|---|---|
| **Bed-shared**—overall | 89% | 82% |
| Infants | 100% | 100% |
| Young children | 100% | 96% |
| Middle-aged children | 93% | 78% |
| Adolescents | 67% | 67% |
| **Co-roomed**: separate bed, but share room or home—overall | 11% | 12% |
| Infants | 0% | 0% |
| Young children | 0% | 4% |
| Middle-aged children | 7% | 17% |
| Adolescents | 33% | 17% |
| **Alone**: own bed in separate room or home—overall | 0% | 5% |
| Infants | 0% | 0% |
| Young children | 0% | 0% |
| Middle-aged children | 0% | 6% |
| Adolescents | 0% | 17% |

has worked with the Aka knows that, on occasion, children, adolescents in particular, may sleep in a different home they build on their own.

For comparative purposes, Table 6.3 summarizes cosleeping prevalence data from as many cross-cultural quantitative studies as we could find. It is obvious that infant and early childhood cosleeping is relatively common in East Asia and among some socioeconomic groups within the United States, but with the exception of rural Mayan infants, none of the prevalence rates comes close to that found with the Aka and Ngandu. Yovsi and Keller (2007) conducted a study of cosleeping among the Nso of Cameroon and state that they are a cosleeping culture, giving the impression of normative cosleeping in infancy, but they do not provide prevalence rates. Table 6.4 demonstrates the relative lack of data on older children and adolescent cosleeping and suggests that Egyptian adolescent cosleeping rates are not that different from those of Aka and Ngandu. Egyptian adolescents are similar to the Ngandu (and unlike Aka) in that they seldom co-sleep with their parents or other adults. Overall, Aka and Ngandu prevalence rates for most ages appear to be higher than those found in other cultures.

## DENSITY OF BED SHARING

Table 6.5 reports bed size in relationship to the number of people sharing them. Only 34 of 49 Aka beds were examined because it was not possible to accurately measure beds made of leaves or skins, that at times resembled a loose and undefined space on the ground. We were able to measure 69 of 70 Ngandu beds. Aka beds were particularly small and dense; the average Aka person had 4.4 square feet to sleep

TABLE 6.3 Cosleeping Studies From Birth to Age 6 Years

| Samples | Age | Definitions[a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| White middle-class mothers living in a U.S. city with infants 2 to 28 months ($n$ = 18) | 0–3 mo<br>After 6 mo | Include others (not exclusively parents) | 0.0<br>11.0 | 83.3<br>11.0 | Morelli, Rogoff, Oppenheim, & Goldsmith (1992) |
| Guatemalan Mayan mothers living in a rural community with infants 12 to 22 months ($n$ = 14) | 0–3 mo<br>After 6 mo | | 100.0<br>100.0 | 0.0<br>0.0 | |
| 1993–2000 Nighttime caregivers of infants born in the U.S. within 7 months before annual interviews ($n$ = 8,453) | | | 9.2 | . | |
| 1993–1994 ($n$ = 2,123) | 0–7 mo | Said "adult" bed (not parental bed)—usually at night, 2 weeks preceding the interview | 5.8 | . | Willinger, Ko, Hoffman, Kessler, & Corwin (2003) |
| 1995–1996 ($n$ = 2,100) | | | 7.5 | . | |
| 1997–1998 ($n$ = 2,126) | | | 10.7 | . | |
| 1999–2000 ($n$ = 2,228) | | | 12.5 | . | |
| Black ($n$ = 524) | | | 27.9 | . | |
| Asian/other ($n$ = 282) | | | 20.9 | . | |
| Hispanic ($n$ = 467) | | | 12.4 | . | |
| White ($n$ = 7,278) | | | 7.2 | . | |
| Predominantly Asian countries/ regions (P-A) | | | 64.7 | 86.5 | |
| China (CN) ($n$ = 7,505) | | | 67.6 | 88.7 | |
| Hong Kong (HK) ($n$ = 1,049) | | | 27.6 | 67.1 | |
| India (IN) ($n$ = 3,982) | | | 72.6 | 88.3 | |
| Indonesia (ID) ($n$ = 967) | | | 70.7 | 81.9 | |
| South Korea (KR) ($n$ = 1,036) | | | 61.4 | 83.4 | |
| Japan (JP) ($n$ = 872) | | | 69.7 | 88.1 | |
| Malaysia (MY) ($n$ = 997) | 0–36 mo | Behaviors in the last 2 weeks | 44.0 | 84.1 | Mindell, Sadeh, Wiegand, Hwei How, & Goh (2010) |
| Philippines (PH) ($n$ = 1,034) | | | 65.1 | 86.6 | |
| Singapore (SG) ( $n$ = 1,001) | | | 35.9 | 73.7 | |
| Taiwan (TW) ($n$ = 896) | | | 60.2 | 88.4 | |
| Thailand (TH) ($n$ = 988) | | | 77.2 | 94.5 | |
| Vietnam (VN) ($n$ = 1,000) | | | 83.2 | 94.3 | |
| Predominantly Caucasian countries (P-C) | | | | | |
| Australia (AU) ($n$ = 1,073) | | | 8.6 | 27.0 | |
| Canada (CA) ($n$ = 501) | | | 12.4 | 15.1 | |
| New Zealand (NZ) ($n$ = 1,081) | | | 5.8 | 17.8 | |

(*continued*)

TABLE 6.3 (Continued)

| Samples | Age | Definitions[a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| United Kingdom (UK) ($n$ = 800) | | | 5.0 | 26.0 | |
| United States (US) ($n$ = 4,505) | | | 15.1 | 21.8 | |
| Predominantly-Caucasian (P-C) countries: Australia, Canada, New Zealand, U.K., U.S. | | | 11.8 | 22.0 | |
| | 0–2 | | . | 58.0[c] | |
| | 3–5 | | . | 47.0[c] | |
| | 6–8 | | . | 21.0[c] | |
| | 9–11 | | . | 17.0[c] | |
| | 12–17 | | . | 11.0[c] | |
| | 18–23 | | . | 8.0[c] | |
| | 24–36 | | | 6.0[c] | |
| 1984–1989 Norwegian children control group ($n$ = 375) | 0–36 mo | | 4.0 | . | Arnestad, Andersen, Vege, & Rognum (2001) |
| 1990–1992 control group | | | 7.0 | | |
| 1993–1998 control group | | | 15.0 | | |
| White U.S. children ($n$ = 90) | 6–48 mo | Three times a week for the month preceding the interview | 19.2 | 16.0 | Wolf, Lozoff, Latz, & Paludetto (1996) |
| African-American U.S. children ($n$ = 94) | | | 57.8 | 47.2 | |
| White U.S. children breastfed 6 months or more ($n$ = 51) | | | 16.0 | 3.9 | |
| Italian children ($n$ = 66) | | | 42.4 | 75.8 | |
| Japanese children ($n$ = 62) | | | 58.1 | 67.7 | |
| Japanese children ($n$ = 56) | 6–48 mo | All or part of night, three or more times a week for the month preceding the interview | 59.0 | . | Latz, Wolf, & Lozoff (1999) |
| White U.S. children ($n$ = 61) | | | 15.0 | . | |
| Cleveland U.S. urban ($n$ = 150) children between 1 and 4 yr (white and African American) | 6–48 mo | More than once during the previous month before the interview | 53.0 | . | Lozoff, Wolf, & Davis (1984) |
| White children | | | 35.0 | | |
| African American children | | | 70.0 | | |
| U.S. white Americans bed-sharing ($n$ = 83) and co-rooming ($n$ = 96) | 6–48 mo | All night and more than once during the previous month | 6.0 | 10.0 | Lozoff and Klaus (p.c.) cited in Schachter et al. (1989) |
| | | Part night | 18.0 | . | |
| U.S. African-Americans co-rooming and bed sharing ($n$ = 30) | | All night | 46.0 | 50.0 | |
| | | Part night | 13.0 | . | |

(*continued*)

TABLE 6.3 (Continued)

| Samples | Age | Definitions[a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| Urban Hispanic-American, East Harlem, New York City, U.S. ($n$ = 210) | 6–48 mo | The parent had to be sleeping—more than 1 night per month and for more than 1 hour per day | 21.0 | 80.0 | Schachter, Fuchs, Bujur, & Stone (1989) |
| Basque women reflecting on their childhood ($n$ = 201) | 0–2 yr<br>3–5 yr | Presence of co-room. No measurement parameters (how many times in a week/month) | .<br>. | 22.5<br>22.7 | Crawford (1994) |
| Taiwan—subset who reported environmental factors that influence children's sleep ($n$ = 29) | 0–6 yr | Sleeping with parents (no specifics) | 37.9 | | Chou (2007) |
| Total Californian sample Euro-American families ($n$ = 205) | 5 mo<br>3 yr<br>4 yr<br>5 & 6 yr<br>5 mo<br>3 & 4 yr<br>5 yr<br>6 yr | No measurement parameters (how many times in a week/month) | 35.0<br>7.0<br>10.0<br>4.0<br>9.0<br>6.0<br>6.0<br>3.0 | .<br>.<br>. | Okami, Weisner, & Olmstead (2002) |
| U.S. California countercultural family lifestyle ($n$ = 154) | Before 6 yr | | 13.2 | . | |
| U.S. California conventional family lifestyles ($n$ = 51) | Before 6 yr | | 2.0 | . | |
| Worcester, Massachusetts, U.S. children ($n$ = 303) | 2–3 yr | At least once during the previous 2 months<br>At least once per month<br>Once per week<br>Several times per week<br>All the time | 55.0<br>16.0<br>15.0<br>14.0<br>11.0 | .<br>.<br>.<br>. | Madansky & Edelbrock (1990) |
| U.S.—17 EHS programs across the country ($n$ = 944) | 1 yr<br>2–3 yr | Presence of bed sharing at annual follow-up | 21.9<br>26.1 | .<br>. | Barajas et al. (2011) |

(*continued*)

TABLE 6.3 (Continued)

| Samples | Age | Definitions[a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| White, middle- and upper-income private patients in Greater Cleveland area, U.S. infants 2–5 yr old ($n$ = 119) | 0–1 yr | Presence of bed sharing | 0.0 | 3.0 | Litt (1981) |
| | After 1 yr | | 0.0 | 1.0 | |
| Black, lower middle, and lower income clinic patients in Cleveland, U.S. with infants 2–5 yr old ($n$ = 166) | 0–1 yr | | 13.0 | 42.0 | |
| | After 1 yr | | 16.0 | 9.0 | |
| Swiss children longitudinally followed between 1974 and 2001 ($n$ = 493) | 3 mo | Definition does not include body contact. Behavior 3 months before each follow-up interview. At least once per week | 5.9 | . | Jenni, Singgeler Fuhrer, Iglowstein, Molinari, & Largo (2005) |
| | 9 mo | | 6.6 | . | |
| | 3 yr | | 12.8 | . | |
| | 4 yr | At least once per week | 38.1 | . | |
| | 2–7 yr[d] | At least once per week for 1 or more years | 44.1 | . | |
| Korean families, city of Busan ($n$ = 427): co-sleepers ($n$ = 377) and non–co-sleepers ($n$ = 50) | 1–7 yr [d] | Bed sharing and room sharing have about the same meaning in Korea. More than three times a week for all of the night | 50.9 | 49.1 | Yang & Hahn (2002) |
| | 12–36 mo | | 85.0[c] | | |
| | 37–60 mo | | 80.0[c] | | |
| | 61–84 mo[d] | | 70.0[c] | | |
| Eastern Kentucky Appalachian children ($n$ = 107) | 2 mo–18.5 yr[d] | No measurement parameters (how many times in a week/month) | 35.6 | | Abbott (1992) |
| | 2 yr and younger | | 71.0 | | |
| | 2 yr, 1 mo to 4 yr | | 47.0 | | |
| | 4 yr, 1 mo to 5 yr | | 13.3 | | |

(*continued*)

TABLE 6.3 (Continued)

| Samples | Age | Definitions[a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| Egyptian family members—urban Cairo and a village, Marhum, Tanta District, Lower Egypt ($n$ = 614) | | Sleep events in a 7-day period. Definitions include other family members not solely parent and child | 77.4 | 84.0 | Worthman & Brown (2007) |
| Subset: age-stratified patterns of cosleeping in Egyptian families ($n$ = 428) | 2–10 yr[d] | Sleep events (parent–child cosleeping) | 34.0 | . | |
| | | Parent–child cosleeping at night (males) | 21.0 | . | |
| | | Parent–child cosleeping at night (females) | 51.0 | . | |

[a]*Bed sharing* is defined as parents and children sleeping in body contact with each other in the same bed for the majority of the night. Studies grouped children who co-slept with their parents occasionally or in extraordinary circumstances with non–co-sleepers. In the table, we present additional information regarding a study's bed-sharing definition.
[b]Refers to children *co-rooming*—sleeping in their parent's room in a separate bed or space. In the table, we present additional information about a study's co-rooming definition.
[c]We estimated the findings highlighted in a figure.
[d]The age range reported includes children older than 6 years.

TABLE 6.4 Cosleeping Studies of Children 6 Years and Older

| Samples | Age | Definitions [a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| Basque women reflecting on their childhood ($n$ = 201) | 6 yr and older | Presence of co-rooming. No measurement parameters (how many times in a week/month) | . | 20.8 | Crawford (1994) |
| Chinese elementary-school children ($n$ = 517) | 7–13 yr | A child's usual behavior within the recent weeks | 18.2 | 18.4 | Liu, Liu, & Wang (2003) |
| | 7–13 yr, boys | | 15.1 | . | |
| | 7–13 yr, girls | | 21.0 | . | |
| | 7 yr | | 55.8 | . | |
| | 8 yr | | 39.6 | . | |
| | 9 yr | | 18.4 | . | |
| | 10 yr | | 19.0 | . | |
| | 11–13 yr | | 7.2 | . | |

TABLE 6.4 (Continued)

| Samples | Age | Definitions [a,b] | Bed Sharing | Co-rooming | Reference |
|---|---|---|---|---|---|
| Chinese elementary-school children ($n$ = 517) | Grades 1–5 | A child's usual behavior within recent weeks | 26.4 | 21.6 | Liu, Liu, Owens, & Kaplan (2005) |
| Swiss children longitudinally followed between 1974 and 2001 ($n$ = 493) | 8 yr | Definition does not include body contact. Behavior 3 months before each follow-up interview. Bed sharing every night. | 5.1 | . | Jenni, Singgeler, Iglowstein, Molinari, & Largo (2005) |
| | | At least once a week | 21.2 | . | |
| Eastern Kentucky Appalachian children ($n$ = 107) | 5 yr, 1[c] mo to 9 yr<br>12 yr | No measurement parameters (how many times in a week/month) | 18.5<br>One boy slept with his siblings in a separate bed in the parental bedroom. | | Abbott (1992) |
| Egyptian family members ($n$ = 614)—from urban Cairo and a village, Marhum, Tanta District, Lower Egypt | 10–20 yr[d] | Sleep events in a 7-day period. Definitions include other family members, not solely parent–child cosleeping | 60.1 | 77.6 | Worthman & Brown (2007) |
| Subsample: age-stratified patterns of cosleeping in Egyptian families ($n$ = 428) | | Sleep events (parent–child cosleeping) | 7.0 | . | |
| | | Parent–child cosleeping at night (males) | 0.0 | . | |
| | | Parent–child cosleeping at night (females) | 16.0 | . | |

[a]Regular bed sharing is defined as parents and children sleeping in body contact with each other in the same bed for the majority of the night. Studies grouped children who co-slept occasionally or in extraordinary circumstances with non–co-sleepers. In the table, we present additional information about a study's bed-sharing definition.

[b]*Co-rooming* refers to children sleeping in their parent's room in a separate bed or space. In the table, we present additional information about a study's co-rooming definition.

[c]The age range reported includes children younger than 6 years.

[d]The age range reported includes adults older than 18 years.

TABLE 6.5 Bed Sizes and Density of Bed Sharing

| | Number of Beds Measured | Proportion of Single Beds in Sample | Mean Size of Beds | Mean Space per Person | Relationship Between Size of Bed and Number of Individuals in Bed |
|---|---|---|---|---|---|
| **Aka** | 34 | 0.15 | 10.71 $ft^2$ (0.99 $m^2$) | 4.37 $ft^2$ (0.41 $m^2$) | $R^2 = 0.56$** |
| **Ngandu** | 69 | 0.35 | 22.33 $ft^2$ (2.07 $m^2$) | 12.84 $ft^2$ (1.19 $m^2$) | $R^2 = 0.09$** |
| **U.S.** (queen bed) | | | 33.33 $ft^2$ (3.10 $m^2$) | 16.65 $ft^2$ (1.55 $m^2$) (2 people) | |
| *t*-Test between Aka and Ngandu | | | $t = -9.9$[a](101 df) | $t = -9.6$[a](84 df) | |

(about a 1- × 4-foot space). By comparison, the average middle-class American individual sharing a queen-sized bed has almost four times as much space—16.7 square feet. Aka bed size was highly correlated to the number of people in a bed, and the number of people in the bed explained 56% of the variability in Aka bed size. A statistically significant relationship also existed among the Ngandu, but it only explained 9% of the variability. This is primarily a result of Ngandu individuals, usually older adult males, sleeping alone in large beds. Ngandu beds are significantly larger than Aka beds, and Table 6.6 shows that more people on average slept in Aka than in Ngandu beds.

## WHO SHARES A BED WITH A CHILD?

Figure 6.3 considers with whom infants, young children, middle-aged children, and adolescents shared a bed. First, although seldom emphasized in previous studies, children in both groups generally co-slept with genetically related kin—parents, grandparents, or siblings. None of the Ngandu children and only 4% of Aka children slept with someone who was not genetic kin. The importance of biological kin cosleeping was clearly evident with Ngandu in polygynous homes or where the mother or father had children from a previous marriage—children from the same mother and father slept separately (own beds and rooms, if available) from other children. This study is only a slice in time; our long-term informal observations are generally consistent with this result, but field researchers know that on occasion

TABLE 6.6 Number and Age of People in Measured Beds

| | Mean Number of Adults | Mean Number of 0- to 11-Year-Olds | Mean Number of 12- to 18-Year-Olds | Mean Total Number of People in Bed |
|---|---|---|---|---|
| Aka | 1.23 | 1.03 | 0.41 | 2.70 |
| Ngandu | 0.94 | 0.84 | 0.24 | 2.01 |
| *t*-Test between groups | $t = 1.96$[a] (70 df) | $t = 1.07$ NS (67 df) | $t = 1.28$ NS (55 df) | $t = 2.87$[b] (54 df) |

[a] $p<.05$
[b] $p<.01$

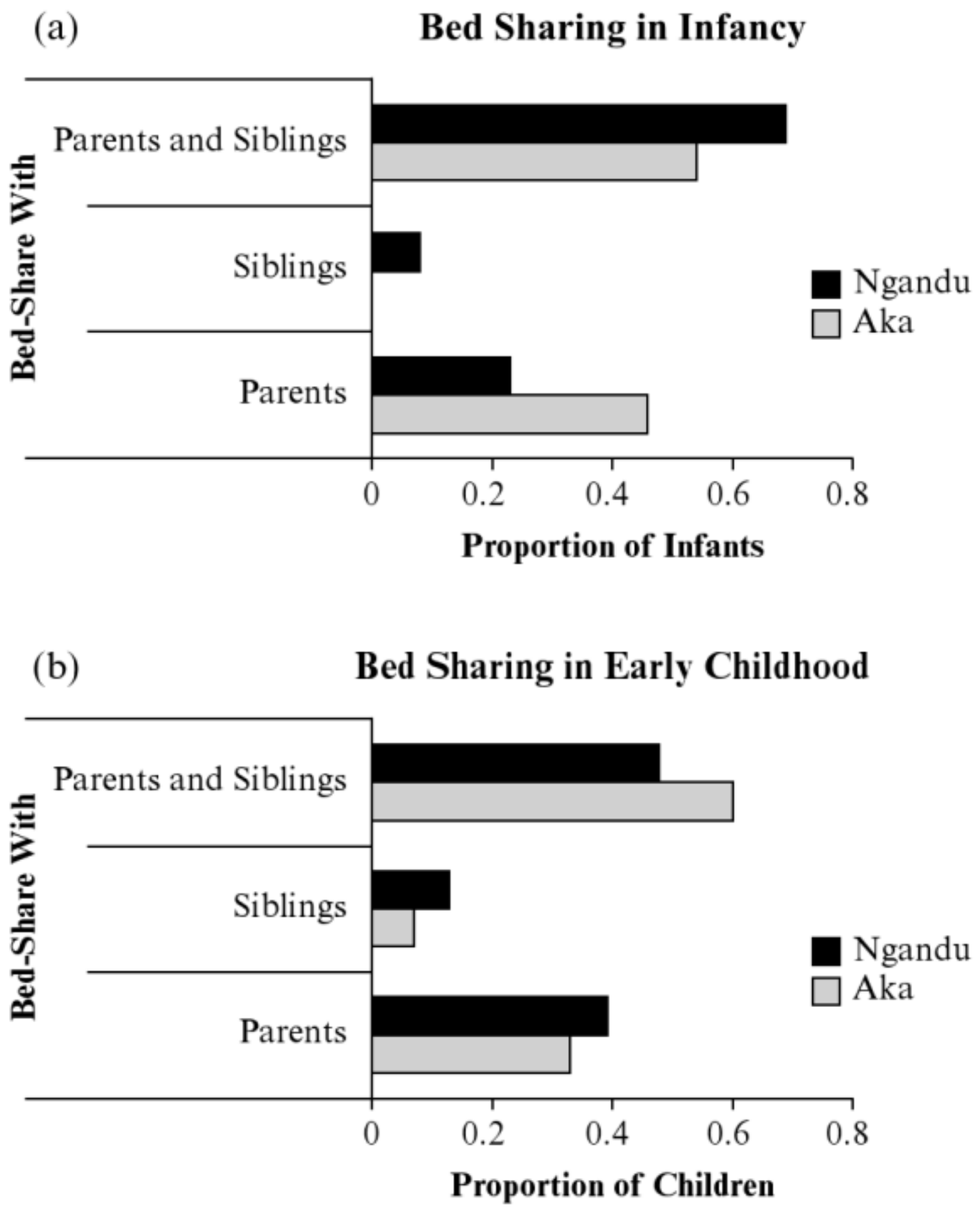


FIGURE 6.3 *Aka and Ngandu bed sharing in (a) infancy (0–1 years old), (b) early childhood (2–6 years old), (c) middle childhood (7–11 years old), and (d) adolescence (12–18 years old).*

children, especially adolescents when they travel, co-sleep with nongenetically related individuals. Second, although grandparents can be important caregivers in small-scale cultures, only 8.0% of Aka children and 9.8% of Ngandu children shared a bed with a grandparent, usually, but not always, the grandmother. The "parent" category in Figure 6.3 includes the limited number of grandparents who co-slept with children.

Figure 6.3 reflects the facts that (1) infants and young children in both groups frequently co-slept with parents and siblings and (2) Aka middle-aged children and adolescents were more likely than Ngandu children of the same age to co-sleep with parents or both parents and siblings, whereas Ngandu children in these age categories were more likely to co-sleep with siblings.

Table 6.7 examines the sex of individuals with whom children share a bed with and whom they are touching. Children who bed-share may not actually be touching others in a bed because they may be placed on the edge of the bed, touching only one person, or may sleep with several people, touching only the two people immediately next to them. Touching is therefore a subcategory of bed sharing in Table 6.7.

The table shows that children in both groups and of all ages regularly bed-shared and slept next to both males and females. Infants bed-shared less with males than females, but by early childhood, sex differences were minimal in both groups. Ngandu males (mostly fathers) bed-shared and touched infants and young children less than Aka males did, but the differences disappeared in middle childhood and adolescence because Ngandu children bed-shared with male siblings and Aka bed-shared with male siblings and adults (fathers).

It should be noted that Aka father cosleeping with infants is underestimated because several fathers did not sleep in the same bed with their wife and infant because they wanted to decrease the temptation to have sex with their wives, which

TABLE 6.7 Proportion of Individuals Who Bed-Share/Sleep Next to (i.e., Touch) Children

| | **Males (All Ages)** | **Females (All Ages)** | **Both Males and Females** |
|---|---|---|---|
| **Infants** | | | |
| Aka | .50/.50 | 1.00/1.00 | .50/.42 |
| Ngandu | .42/.25 | 1.00/1.00 | .42/.25 |
| **Young Children** | | | |
| Aka | .78/.56 | .83/.72 | .61/.33 |
| Ngandu | .62/.30 | .91/.87 | .43/.26 |
| **Middle-Aged Children** | | | |
| Aka | .69/.65 | .88/.65 | .62/.31 |
| Ngandu | .71/.64 | .79/.64 | .50/.29 |
| **Adolescents** | | | |
| Aka | .64/.43 | .79/.64 | .43/.07 |
| Ngandu | .83/.67 | .58/.33 | .33/.17 |

TABLE 6.8 Percentage of Children by Gender and Age Who Slept Next to Their Parents

| | Aka | Ngandu |
|---|---|---|
| **Early Childhood** | | |
| Mother slept next to daughter | 80% | 75% |
| Mother slept next to son | 46% | 27% |
| Father slept next to son | 38% | 7% |
| Father slept next to daughter | 40% | 25% |
| **Middle Childhood** | | |
| Mother slept next to daughter | 40% | 25% |
| Mother slept next to son | 45% | 0% |
| Father slept next to son | 27% | 0% |
| Father slept next to daughter | 20% | 0% |
| **Adolescence** | | |
| Mother slept next to daughter | 33% | 50% |
| Mother slept next to son | 0% | 0% |
| Father slept next to son | 20% | 0% |
| Father slept next to daughter | 0% | 0% |

is taboo until the infant is able to walk well. If parents have sex before this time, the infant can get sick and die. Consequently, fathers made beds next to their wives and infants, but the bed was often within an arm's reach of the family. He was in a separate bed, so it was not bed sharing and not considered in this table, but it does fall within the usual definition of cosleeping, in which case the Aka rate of father cosleeping in infancy would be above 80%.

Table 6.8 examines the frequency with which mothers and fathers slept next to their children of the same and opposite sex in the three age groups. Aka mothers and fathers slept next to their children more frequently than Ngandu parents at all ages except adolescence, when Ngandu mothers were somewhat more likely to sleep next to their daughters than were Aka mothers. Mothers in both ethnic groups were more likely to sleep next to their children than were fathers. Ngandu fathers never slept next to their older children, whereas 20% to 30% of Aka fathers slept next to their older sons or daughters. The table also provides empirical support for Aka and Ngandu cultural beliefs in the incest taboo (parents should not sleep next to their sexually mature adolescent of the opposite sex): Aka and Ngandu fathers never slept next to their adolescent daughters, and Aka and Ngandu mothers never slept next to their adolescent sons.

## SLEEPING IN YOUR OWN BED

Children in both groups sometimes slept in their own beds. Ten Aka children (12% of all Aka children), and 13 Ngandu children (18% of all Ngandu children) slept in their own beds during the observation period. Eighty percent of these Aka children were male, and 80% were adolescents; whereas among the Ngandu, 62% were

male, and 38% were adolescents. Aka adolescents often slept on some leaves in their parents' home next to the fire. Solitary sleeping among the Ngandu is influenced, in part, by the number of rooms in a house; only 15% of Ngandu homes had four or more bedrooms, but 54% of the children in their own beds lived in these larger homes. It is important to remember that among the Aka, sleeping in your own bed seldom means you are very far from someone because Aka homes are small.

## WHERE DO MOTHER AND FATHER SLEEP?

Taken together, the data indicate that children often sleep with at least one parent, especially among the Aka. But it is not clear where husband and wife sleep on the bed in relation to their children—do they sleep next to each other with children to the side or do they place the children between them? The Shweder et al. study (1995) gives the impression that husband and wife sleeping next to each other may not be important in non-Western cultures. He finds that Americans view the husband–wife couple as "sacred" in that they almost always sleep next to each other regardless of the number of beds in a house, but that by comparison the Indian husband and wife regularly slept apart. Another cross-cultural study by the Whitings (1975) also suggests that hunter-gatherer couples should sleep together more than horticultural couples, such as the Ngandu, because (1) foragers are mobile, and it takes more time and energy to build separate places for husband and wife to sleep each time they move than it does for sedentary farmers; and (2) foragers are less likely than farmers to have strong clan organization and warfare to defend stored food items and are therefore less likely to have separate sleeping locations for males. The Whitings also found that couples were more likely to sleep apart in warmer climates and together in colder climates (i.e., where winter temperatures drop below 50° F).

Our data do not support the Whitings' predictions. Aka forager couples slept "apart" (separate beds) 44% of the time, whereas only 7% of Ngandu farming couples slept apart. Thirty-two percent of the Aka cases involved couples with young infants and, as described above, fathers made beds within an arm's reach next to or perpendicular to the bed with mothers and infants. In the other 12% of cases, husband and wife had their own beds next to each other, and each parent slept with some of their children. In our view, Aka couples are, by classic definition, cosleeping in most cases, as are most Ngandu couples. The Ngandu do have strong patriclans and value aggressive males, but these conditions do not lead to separate sleeping locations. Also, as mentioned, Aka homes are quick and easy to build, so if husband and wife want to sleep apart, it does not take much time to make it happen.

We did not take ambient temperatures during the night, so it is difficult to evaluate the role of temperature in husband–wife cosleeping. According to Whitings'

climate hypothesis, husbands and wives in both groups should sleep apart, but this is not the case.

Mixed evidence existed for Shweder et al.'s suggestion that husband–wife proximity is not as important in non-Western contexts. Contrary to his predictions and unlike the Indian setting, husband and wife in both ethnic groups co-slept, either in the same bed or within an arm's reach of each other. But at the same time and consistent with Shweder et al.'s representation in India, Aka and Ngandu husband and wife often did not sleep next to each other even though they may have been sharing a bed or within an arm's reach of each other—48% of Aka couples and 33% of Ngandu couples who shared a bed did not sleep next to each other because their children slept between them.

Other Aka and Ngandu differences existed in husband–wife sleeping arrangements. Middle-aged Ngandu couples with middle-aged children or older often slept in a bed separate from their children (27% of Ngandu husband–wife sleeping arrangements), whereas Aka couples never did this. This is why older Ngandu children were more likely than Aka children to sleep with siblings. Ngandu couples with young children were more likely than Aka couples (33% Ngandu couples, 8% Aka couples) to sleep next to each other, with the child or children sleeping next to the mother; Aka parents were more likely to put the children between them.

## FIRES AND THERMOREGULATION

Heat and protection from predators or biting insects (e.g., ants, flies, mosquitoes) are important functions of fire at night. Keeping warm at night is important for evening sleeping, even in the tropical forest. The Aka stay warm by keeping a fire going all night or using a cotton cloth, which is often worn today by Aka women. The person next to the fire is responsible for keeping it going during the night. Table 6.9 examines who slept next to the fire, and it is usually the father or mother.

TABLE 6.9 Who Sleeps Next to the Fire? Cultural Models or Patterns About When Father, Mother, and Children Sleep Next to the Fire ($N = 64$)

| Cultural Model | Number of Cases Consistent With Prediction | Number of Cases Inconsistent With Prediction |
|---|---|---|
| The father sleeps next to the fire when his wife and children share the bed with him, or he sleeps in his own bed because he has an infant or has several children (3 or more). | 23 | 0 |
| The mother/grandmother sleeps next to the fire when (a) the father is in his own bed, (b) the father is not present, or (c) she is divorced or single. | 21 | 4 |
| If children sleep next to the fire, it is usually a male child older than 7 years; he simply decides to sleep next to the fire alone or with other male children. | 11 | 5 |

The table evaluates three cultural models, or predictions, about who should sleep next to the fire. If a husband shares a bed with his wife and children, he should usually sleep next to the fire. His wife sleeps on the other side of the bed with children in between them, and she has a cloth to keep her warm. He keeps the fire going, which is near the front of the home so that if predators or other threats arrive, he is the first to deal with them. This prediction and the other father prediction in the table were consistent with all cases of fathers next to the fire. The prediction for mothers being next to the fire was correct 84% of the time. Three of the four exceptions were when the father shared the bed but the mother slept next to the fire rather than the father, often because she wanted to because she was cold. The prediction for when children sleep next to the fire was correct 69% of the time. The exceptions included four cases in which female children older than 7 years decided to sleep in their own bed or with others next to the fire. In the other case, an 8-year-old boy slept next to the fire with his father next to him.

Most Aka adolescents co-slept, but 33% of them slept in their own bed, but not in their own home by themselves. During the day, Aka girls may build small homes and stay in them much of the day, and boys may build shelters with a bed, but when it comes time to sleep, they move into their parents' home because of the warmth provided by the fire or sleeping next to others. It takes considerable time and energy to collect enough firewood and keep a fire going all night. Several teenagers said they ended up sleeping in their parents' house because they got cold.

Today the Ngandu seldom use fires in their homes to provide heat or protection. When the first author started to conduct research in the early 1970s, it was normative among the Ngandu, but today most families have kerosene lanterns that provide light, but not much heat, and several cotton cloths. Families try to keep the lanterns burning during of the night, not so much for heat but rather for protection from others (both spiritual and physical) who may try to enter their house. Flashlights are available and used to check disturbances in or outside the home. All members of the family have cotton sheets to help keep them warm.

## CHANGING SLEEPING ARRANGEMENTS

Thirty Aka homes were observed for up to 4 consecutive days for a total of 82 home observations. Sixteen of the homes had some change (e.g., change of bed or who slept next to whom) in sleeping arrangements. Forty-one days with at least one change in the home's sleeping arrangements were possible (i.e., from observation day 1 to observation day 2) and the survey found 25 homes with at least one change in sleeping arrangement from the previous day (61% of possible days). This limited survey indicated that changes in Aka sleeping arrangements occur regularly—about every other day.

## LOCAL EXPLANATIONS FOR SLEEPING ARRANGEMENTS

Worthman (2007, p.133) states that, "who sleeps with whom reflects the social order and informs the emotional-regulatory content of relationships." What happens at night reflects and is consistent with cultural values and ways of thinking and feeling. The foundational schema and habitus described in the first section of the chapter represent the social and social-emotional nature of relationships in these two ethnic groups, and they dramatically affected cosleeping arrangements and how people explained why individuals slept where they did.

### The Aka

When asking Aka parents why children slept where they did, the standard answer was, "this is where the child wants to sleep." For instance, a 12-year-old boy started the evening in a *bokala* home (constructed by and occupied by adolescent males), but got cold and decided on his own to move back into his parents' home. An 8-year-old girl who was sleeping next to her mother moved across camp to sleep with her father's first wife because she said she loved her. In another case, an elderly grandmother was sleeping alone in her own home and when asked why she was alone said, "I prefer the grandchildren to sleep with me but they no longer come." This contrasts with a 10-year-old boy who said, "I prefer to sleep with my grandmother because I love her; she gives me a lot and takes good care of me." Another 6-year-old boy who shared a bed with his 9-year-old sister and parents said, "I love her [mother] so much I want to be next to her." His father slept in the same bed, but two people away. Many of the changes in sleeping arrangements have to do with individuals moving to be closer to someone else or to get closer to the fire.

The flexibility and variability in Aka bed-sharing arrangements are similar to the daily changes that take place in camp composition—individuals or families move in and out of camp every day. This is, in part, why it is easy to move into an Aka camp—changes occur daily, so it not unusual for someone, including an anthropologist, to move in. According to the Aka, most of the variability of who sleeps by whom is based on individual choice and reflects foundational schema. It is important to respect the autonomy of each individual; status differences are minimal, so no individual can command another what to do (i.e., age egalitarianism), and individuals are expected to give, which may mean sharing proximity.

Infants, of course, do not decide where to sleep, and parents often put them between them to keep them warm, so they will not roll into the fire, and as one Aka father said, "I put our baby between us so he can get the smell of his mother and can turn and get my smell."

Aka parents said that they co-slept with their children because children should always sleep next to them. As mentioned in the habitus section of the paper, staying physically close to each other is a core feature of Aka daily life. They also said they kept their children between them to keep them warm and

protect them from any dangers. Parents said they wrap their legs over their children to keep them warm.

In terms of why Aka fathers were most likely to be next to the fire, they said fathers should be closest to the opening of the home for protection from leopards, strangers, or other dangers in addition to keeping the fire going throughout the night. Although this was generally the case, mothers said, and observational data confirmed, that they would not hesitate to change positions with their husband so that they could be next to the fire. Again, the respect for autonomy and minimal status hierarchy (i.e., gender egalitarianism) contributed to the flexibility.

### The Ngandu

Ngandu explanations for sleeping arrangements also reflected foundational schema. When parents were asked why children slept in particular beds, they consistently said this is where they told children to sleep or this is where they put them. When a grandmother was asked why her grandson was sleeping with her, she said she had brought him to her home; he did not decide on his own. Ngandu parents regularly command their children to do particular tasks, and this includes where to sleep.

Like the Aka, several Ngandu said they placed infants between them so as "not to invite sex" and maintain the postpartum sex taboo. If they have sex before the infant walks well, the infant can get sick and die. In terms of having an infant and younger children between them, they said it was to keep them warm and so that the "children can rest comfortably." A few other parents said infants and young children were placed between them so that they would not fall out of the bed (Ngandu beds can be a foot or more off the ground).

In terms of why some children were in separate beds, some parents said their children kept fighting, so they put them in separate beds, whereas others said their children were big and needed their own bed.

It is also important to note that when Ngandu parents were asked why their children sleep between them, they said there was no reason, this is simply the way they did it. Anthropologists are often looking for cultural rationale, but for many people it is a matter of habit and social learning without an explicit rationale.

Finally, like the Aka, several Ngandu said that the father should sleep closest to the door to protect the family.

## Discussion

The study identified both similarities and differences in bed sharing among the Aka foragers and Ngandu farmers.

### SIMILARITIES BETWEEN GROUPS

1. Bed sharing after weaning was normative for children in both groups, even into adolescence. Humans in small-scale cultures were relatively distinct

from other higher primates in their cosleeping patterns after weaning, whereas humans in most modern, high-density, highly stratified, urban industrialized cultures were somewhat closer to the great ape patterns in that juveniles often slept separately after the age of weaning.

2. Children in small-scale cultures bed-shared with genetically related kin, primarily parents and siblings. Grandparents seldom bed-shared with children.
3. Children of all ages regularly bed-shared and slept next to both males and females.
4. Parents never co-slept next to their sexually mature adolescent of the opposite sex.
5. Husband and wife in both ethnic groups co-slept, either in the same bed or within an arm's reach of each other. Even though husband and wife with young children often co-slept, they did not always sleep next to each other because their children were placed between them.
6. Mothers in both ethnic groups were more likely to sleep next to their children than were fathers.

## DIFFERENCES BETWEEN GROUPS

1. Aka hunter-gatherer homes, living spaces, and beds were substantially more proximal, smaller, and denser (i.e., more people per unit space) than were Ngandu farmers'.
2. Middle-aged and adolescent Aka children were more likely than Ngandu children to sleep with parents and siblings, whereas Ngandu children of the same age seldom slept with parents and were more likely to sleep with only siblings. Ngandu parents often stopped sleeping with children in middle childhood.
3. Aka fathers were more likely to sleep next to their older children than were Ngandu fathers.
4. Aka children often made the decisions about where to sleep at night, whereas Ngandu parents usually told their children where to sleep.

## EXPLAINING COMMONALITIES

Why is cosleeping beyond infancy and young childhood common and normative in these small-scale cultures? The prevalence of cosleeping at all ages appears to be greater in these two small-scale cultures than that found in other cultures. The differences are especially pronounced after infancy. The variability may result from differential risks for child morbidity and mortality. Parents in previous cosleeping studies in the United States, Japan, China, Korea, and India had access to relatively modern medical care for their children (e.g., vaccination programs, antibiotics), and children were not raised in environments where predators or poisonous snakes were potential threats. Juvenile (younger than 15 years) mortality rates among the Aka

and Ngandu are 30% to 45%, so many parents lose one-third to one-half of their children on average before they reach age 15 years. By comparison, mortality rates for children younger than 15 years in the above-mentioned countries are less than 8%. Substantial differences also exist in total fertility rates; Aka and Ngandu women have four to six children in their lifetimes, whereas women in the urban industrialized countries of previous studies have one to three live births. Many families in the urban industrialized cultures also have access to electricity or other sources of heat, in addition to an array blankets and other material items to keep warm.

For most of human history and in small-scale societies today, children who co-sleep after weaning are probably more likely to survive than children who do not co-sleep. Children who do not co-sleep are at a greater risk for morbidity and mortality caused by predators, poisonous snakes, and strangers entering camp, and do not have others to help with thermoregulation. Cosleeping beyond infancy is adaptive in this context.

As Shweder et al. (1995) found in India, cosleeping beyond infancy protects and monitors vulnerable juveniles as well as keeping them warm. Parents often place children between them for these purposes. Cosleeping in these contexts is part of parental investment; parents invest time and energy throughout the night to help ensure their children's safety and warmth. Parental investment through cosleeping in urban industrialized settings is substantially reduced because of lower risks for morbidity and mortality and the availability of alternative sources of heat.

An evolutionary perspective (i.e., enhancing inclusive fitness) also helps to explain why cosleeping generally occurs with genetically related individuals and why incest avoidance with cosleeping is a human universal. The finding that mothers are somewhat more likely to co-sleep than fathers is also consistent with evolutionary explanations in which parental investment theory indicates men and women have different reproductive strategies (Trivers, 1972). Women invest somewhat more time in energy cosleeping next to children, whereas some fathers sometimes sleep in a nearby bed closer to the front of the home to protect the family.

Like the Aka and Ngandu, incest avoidance was an important criterion in predicting Indian cosleeping patterns (Shweder et al., 1995), but Aka and Ngandu were different from the Indian study in that "female chastity," that is, not allowing adolescent females to sleep alone, was not an issue in either group.

We were somewhat surprised to find that children infrequently co-slept with grandparents, given the attention paid to the "grandmother hypothesis" (Hawkes et al., 1998). This may be because adult mortality is also high in both groups, and relatively few grandmothers are available given the relatively large number of children per woman.

## EXPLAINING INTRACULTURAL AND INTERCULTURAL VARIATION

Foundational schema among the Aka, egalitarianism and respect for autonomy, and the Ngandu, sex and age hierarchy, contributed to intercultural variability in

various dimensions of cosleeping. Aka values of autonomy and age egalitarianism were reflected in Aka children's decisions about where they wanted to sleep, whereas the Ngandu value of showing respect and deference to parents was reflected in parents making decisions about where their children should sleep.

Ngandu age hierarchy was also demonstrated in the fact that older parents often stopped sleeping with middle-aged children, whereas Aka parents continued to co-sleep with their older children and some adolescents. Higher status accorded men compared with women among the Ngandu was also evident in that fathers were especially unlikely to co-sleep with middle-aged and adolescent children, whereas this was not pronounced among Aka fathers. These cultural differences in gender and age roles contributed to the fact that middle-aged and adolescent children were much more likely than their Aka counterparts to co-sleep with siblings rather than mixed-age and mixed-sex groups. These differences are also reflected during daylight hours because Ngandu children are much more likely than Aka children to spend the day with other children, whereas Aka children are more likely to spend time with both adults and children.

Aka also highly value physical proximity to others, and this was reflected in the size of their beds and the average space each person had in a bed. The average Ngandu bed was twice the size of any Aka bed, and an average Ngandu person had about three times more space in a bed on average than did an Aka individual. Aka were also more likely than Ngandu to have more people in a bed, even though their beds were smaller on average.

Greater economic wealth influenced intracultural variation among the Ngandu. Three of the 20 Ngandu homes were occupied by relatively wealthy individuals—the former mayor, a retired schoolteacher with a pension, and a merchant. These homes were larger, had more rooms and beds, and consequently had more individuals sleeping alone in their own bed in their own room, or in their own bed with others in the room.

The expansion of family also influences intracultural diversity, as reflected by the fact that as more children are born, modifications take place in sleeping arrangements. For example, in both groups, young couples with an infant often put the infant between them. As more children arrive, Aka beds get bigger (strong relationship between number of people in a bed and bed size) to accommodate the increase in family size, whereas among the Ngandu, older children are placed with their siblings. When children become adolescents, some Aka boys and girls build their own homes, but they often return to their parents' home because it takes time and energy to keep a fire going. They get cold and return to their parents' home. In both groups, a minority of adolescents slept in their own bed.

It is worth pointing out that the size of houses and beds illustrates some of the dynamic ways that new or novel social or physical environments are created by participants who alter, or reconstruct, the niche to which all members must then become adjusted, either in an acute or long-term way, an example of *cultural*

*niche construction*. Existing literature often discusses house size (e.g., number of beds or rooms in the house) as an "ecological constraint" in regard to intracultural cosleeping decisions, but in reality, these features were subjected to the same cultural processes (i.e., they were adopted or chosen) and were contiguous with specific socially transmitted and learned behaviors—becoming part of the niche to which members of the group continue to adjust or adapt. We mention this only because culture and ecology are often separate discussions of cosleeping, but they clearly influence each other.

## SPECULATION ON SOCIAL-EMOTIONAL DIMENSIONS OF COSLEEPING

The evolutionary scenario for cosleeping beyond infancy in small-scale cultures may make some sense, but one has to ask, Why do the great apes not co-sleep with their juveniles after weaning? Would it not increase juvenile survival? It is beyond the scope of this chapter to adequately address this question, but we propose an additional evolutionary and adaptive explanation. Critical differences exist between ape and human juveniles after weaning. Ape juveniles start to forage on their own, provisioning from their mother is minimal, and sharing food with others is rare. By contrast, human juveniles after weaning continue to be provisioned and cared for by parents and other adults. Humans are cooperative breeders, but apes are not; and extensive food and child care sharing are integral to forager life, whereas this is not the case among our higher primate cousins. Apes do not need to learn to cooperate and share, but it is essential among humans. How do children learn to cooperate and share so extensively? We suggest that the close physical proximity and regular cosleeping throughout the juvenile stage contributed substantially to the coevolution of theory of mind and empathy and the consequent trust necessary for extensive cooperation and sharing beyond the nuclear family.

Today cosleeping, in general, and beyond infancy, in particular, is in decline possibly because sharing, cooperation, and trust are simply not as important as they once were in hunter-gatherer societies. If regular cosleeping is associated with the development of trust, sharing, and cooperation, the subsequent predictions follow (*arrows* refer to which group should practice cosleeping more than the next group):

1. Hunter-gatherers → farmers → urban industrialists
2. Interdependent cultures → independent cultures
3. Poor → wealthy

Although speculative, our goal is to stimulate additional research on cosleeping beyond infancy, especially in small-scale cultures.

### IMPLICATIONS FOR WESTERN PARENTS

1. Cosleeping or bed sharing after infancy appears to be normative in the small-scale cultures that likely characterized most of human history, so it should not be considered unnatural, deviant, or unusual. At a minimum, we suggest that human bodies and minds are adapted to cosleeping beyond the age of weaning. Based on our reading of the limited number of ethnographic descriptions of cosleeping beyond infancy in hunter-gatherers, the way of life that characterized most of human history, cosleeping beyond infancy appears to be common, as it was in this study. However, little is known about the costs or benefits of cosleeping beyond infancy in the modern context.
2. We do not know the adaptive value or design of cosleeping after weaning in contemporary urban industrialized cultures. Research in urban industrialized cultures has shown that cosleeping in infancy promotes successful breastfeeding and may lead to a lower prevalence of sudden infant death syndrome (Gettler and McKenna, 2010).
3. We do not know about the social-emotional dimensions of cosleeping beyond infancy. Bed sharing likely enhances trust of self and self with others (i.e., secure and safe while sleeping) as well as intimate knowledge and understanding of others with whom one co-sleeps. For parents in today's world, cosleeping beyond infancy may provide an additional opportunity to spend time with their children.

## Conclusion

Although the sample size and length of study are admittedly limited, this is the first systematic study of cosleeping beyond infancy in a hunter-gatherer and a small-scale farming culture. Our study suggests that cosleeping beyond infancy may be common in the high fertility mortality small-scale cultures that characterized most of human history. Future studies with more attention given to the ethnography of sleeping arrangements, typically ignored in most cross-cultural research, will be needed to affirm or correct the speculations we have put forth here. We hope that this work will stimulate just such needed additional research.

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{ Commentary }

# Intertwining the Influences of Culture and Ecology Broadens a Definition of the Importance of Closeness in Care

Wendy Middlemiss

In their work, Hewlett and Roulette help us to consider co sleeping as a context of care, a foundation for socialization, and an aspect of our developmental niche. This is a helpful focus for a topic that is often considered in regard to none of these concerns. As Hewlett and Roulette note, "culture and ecology are often separate discussions of cosleeping, but they clearly influence each other." In this research, the authors provide a window into the influences of culture and ecology in their description of cosleeping in the Aka and Ngandu communities.

Of particular note in regard to current Western views of cosleeping are the sleeping contexts in the Ngandu community. Parallel to many urban industrialized communities, increases in wealth and access to larger space were associated with decreases in frequency of bed sharing or cosleeping—with children at the age of middle childhood and older often sleeping away from parents. This bears resemblance to changes evidenced in many Western societies with industrialization. More wealth, more space, less contact between mothers, fathers, and their children.

Interestingly, however, the Ngandu community described differs in a very fundamental way from Western societies, with distinct dissimilarities evidenced in the interactions of culture and ecology. In the Ngandu community, ecological changes were associated with adaptations in some aspects of the sleeping context. However, with these adaptations, the cultural base of shared sleeping spaces was retained—thus retaining continued support for the development of cooperative and shared experiences through continued shared sleep space with siblings. Thus, in comparison to many Western societies, the need for interaction, that is, the provision of closeness; the building of a cooperative understanding; and the meeting of children's and parents' needs for warmth and safety did not dissipate with the added wealth and space. With this continued cosleeping, the Ngandu families retained an important element of their cultural milieu—allowing, as the authors propose, a sleeping context that supports the "coevolution of theory of mind and empathy

and the consequent trust necessary for extensive cooperation and sharing beyond the nuclear family."

When we turn to Western urban industrialized communities' beliefs regarding cosleeping, we quickly move from a question of whether cosleeping beyond infancy is normative to a question of whether cosleeping at any age is acceptable. This shift in focus moves away from the consideration of cosleeping as a context of care to a view of cosleeping as a practice that may undermine healthy development of needed skills. Ironically, and sadly, in this refocusing of the role of cosleeping, we shift away from acknowledging the importance of the shared, cooperative, trusting interactions, the developmental niche of infants that identifies these interactions as essential to biological and emotional growth and wellbeing. This aspect of care and consideration of related implications is lost to the goal of independent functioning.

A review of the current literature around cosleeping clearly bears out these differences in views between Western and Ngandu communities. In Western communities, cosleeping and bed sharing are defined as maladaptive (Simard et al., 2008), intrusive, resulting from parents' inability to set limits (Weinraub et al., 2012), and dangerous (see American Academy of Pediatricians policies for summary). The basis for these distinctions does not consider issues of socioemotional development or the necessary interaction between caregiver and child to assure health and development. Thus in Western cultures, consideration of sleep arrangements is divorced from considerations of the benefits and the normative nature of these close, responsive interactions. This framework for building of infants' capacity for independent regulation is attempted on a stark foundation of independent care from early ages. As Hewlett and Routlette note, and science will readily confirm, this early nonresponsiveness to need is associated with less positive social and emotional health at later years.

The divorcing of the normative practices of responsiveness and protection of young from sleeping practices results in parents' reports of confusion, discomfort, and distress (Huey and Middlemiss, 2012), with chosen sleep arrangements devoid of shared sleep and responsiveness at nighttime. The confusion stems from the conflict between a normative drive to be responsive as a way to build a sense of trust and cooperativeness and mandates to encourage self-settling sleep at extraordinarily young ages. This disconnect between caring and the cultural message to remain distant generates stress related to engaging in a behavior that does not resonate with the contextual, necessary role of parent as protector and provider (Middlemiss, Granger, Goldberg, and Nathans, 2012).

Little time is spent considering how this cultural focus has developed—even less time is spent considering the cost. However, when we look at the research, there are strong indicators that taking away parents' flexibility in providing care that may be determined appropriate or inappropriate based on considerations other than independence, causes stress for mothers (Middlemiss et al., 2012; Morgenthaler et al.,

2006) and may constrain interactions that build that necessary attachment, which will underlie children's developing strengths—emotionally and socially.

The beauty of Hewlett and Roulette's work is that it provides us the opportunity to step back from the view of cosleeping common in Western cultures. When we step back and look, we can see so much about how the Western view may have come to the fore and what may be the costs for our children's and societies' wellbeing. With a broader frame, we ask different questions because we take ourselves out of a standard cultural explanation. Lessons may be learned if we look carefully at the care choices in the Ngandu communities. Despite a focus on compliance, hierarchy based on age and gender, and living spaces contributing to greater likelihood of sleeping alone, there is still an extended cosleeping period and an assurance of a setting in which infants and young children are kept close for safety and care.

Thus, as the Ngandu gained in prosperity, they retained a balance between the larger space and the developmental niche of early care and socialization. In this way, the choices regarding sleep weren't focused away from infants' development and fragility, and they weren't focused away from parents' and communities' natural propensity for early care to support later strengths.

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