

SPECIAL EDITION REPRINT • EDITED BY PEGGY O'MARA AND JAMES MCKENNA

Mothering®

Sleeping WITH YOUR baby

THE WORLD'S TOP SCIENTISTS SPEAK OUT

PHOTOS BY DOUG MERRIAM



In 2002, the Consumer Product Safety Commission came out with a recommendation that only cribs and playpens were safe places for infants to sleep. The report, sponsored in part by the Juvenile Products Manufacturers Association, manufacturers of cribs and playpens, ran counter to the research and expert opinion that Mothering magazine has been involved with for years. Mothering rallied the best researchers and studies to counter this erroneous and commercially corrupted misinformation. We dedicated our entire September/October 2002 issue to this subject. Our magazine completely sold out, and this reprint is a condensed version of the fall 2002 classic that continues to be in high demand.

Edited by Peggy O'Mara, publisher of Mothering, and James McKenna, PHD, professor at Notre Dame, this booklet contains the latest research and information on cosleeping from the free press.

CONTENTS

- 1 INTRODUCTION**
- 3 BREASTFEEDING AND BEDSHARING: STILL USEFUL (AND IMPORTANT) AFTER ALL THESE YEARS**
James J. McKenna
An internationally renowned University of Notre Dame sleep researcher examines the biological imperative of cosleeping.
- 11 SOLITARY OR SHARED SLEEP: WHAT'S SAFE?**
Patricia Donohue-Carey
A perinatal health educator exposes the inadequacies of the CPSC study and provides a sleep safety checklist.
- 17 RESEARCHING CULTURAL BELIEFS: THE COMPLEXITY OF PARENT-CHILD COSLEEPING**
Kathleen Dyer Ramos
Exploring how collectivism and individualism create context for cosleeping.
- 20 COSLEEPING IS TWICE AS SAFE: HOW THE STATS REALLY STACK UP**
Tina Kimmel
A first-time examination of the Pregnancy Risk Assessment Monitoring System demonstrates the safety of cosleeping.
- 23 BEDSHARING: RESEARCH IN BRITAIN**
Helen L. Ball
Why parents cosleep with their babies and how cosleeping encourages breastfeeding success.
- 26 ROOMING-IN AT THE HOSPITAL: ASSESSING THE PRACTICAL CONSIDERATIONS**
Martin Ward-Platt and Helen L. Ball
Two English researchers question how to create an optimal environment for newborns in hospitals.
- 29 THE NEW ZEALAND EXPERIENCE: HOW SMOKING AFFECTS SIDS RATES**
Barry Taylor, Sally Baddock, Rodney Ford, Ed Mitchell, David Tipene-Leach, and Barbara Galland
A multicultural study discovers that maternal smoking during pregnancy is a contraindication to cosleeping.
- 31 BEDSHARING AMONG MAORIS: AN INDIGENOUS TRADITION**
David Tipene-Leach and Riripeti Haretuku
How promoting bedsharing and discouraging maternal smoking helped lower the Maori SIDS rate.
- 33 WHERE SHOULD BABIES SLEEP AT NIGHT? A REVIEW OF THE EVIDENCE FROM THE CESDI SUDI STUDY**
Peter Fleming
The world's top SIDS researcher explains a prominent English study on sudden infant death.
- 35 SLEEPING LIKE A BABY: HOW BEDSHARING SOOTHES INFANTS**
Miranda Barone
A psychologist investigates the significance of infants' startle reflex and other sleep activity.

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No one would suggest that because sleeping in a crib can be hazardous under certain conditions, no baby should sleep in a crib. By analogy, therefore, it is equally illogical to suggest that because under certain circumstances bed-sharing can be hazardous, parents should not bedshare with their babies. Given the near universality of the practice of bedsharing at some stage, it is far more logical to identify the conditions under which bedsharing is hazardous and to give parents information on how to avoid them. —PETER FLEMING, *Professor of Infant Health and Developmental Physiology, University of Bristol, UK*

B Y P E G G Y O ' M A R A

IN SEPTEMBER 1999 AND MAY 2002, THE US CONSUMER PRODUCT Safety Commission (CPSC) made pronouncements that seriously put into question the safety of sleeping with a baby in an adult bed. The first pronouncement specifically cautioned against cosleeping, while the second described the hidden hazards in adult beds. Both statements were based on retrospective, subjective analyses of death certificates and did not refer to any other scientific evidence. Almost at once, parents spoke more fearfully about the family bed, and the assumption that it was unsafe began to seep into our culture.

The family bed has often been questioned in recent times, but its use is quite common, especially among breastfeeding mothers. Prior to 1999, the family bed was about choice. Some families chose it; others did not. Now, however, with its safety questioned, it has become not a

social or lifestyle issue, but a medical and legal one.

Since May, I have become alarmed by how many people accept the CPSC mantra as truth. They do so unthinkingly, believing naively that they are getting the whole story. I began to have conversations with internationally renowned sleep researcher Jim McKenna about what we could do about this misinformation. I was concerned about the parents I knew who were confused and about the marketers who were using this confusion to material advantage. Jim talked of hospitals that were changing their policies, based on the belief that bedsharing is unsafe.

Jim and I lamented the fact that the CPSC had not chosen to present evidence-based recommendations cognizant of social realities. He knew of other countries that had already faced these challenges successfully. There were models, and there was much more evidence

than was being presented to the American public. Jim suggested we publish a special issue of *Mothering* devoted to the scientific evidence regarding infant sleep. He contacted many of the world's foremost experts in this area, researchers in the United Kingdom, New Zealand, Australia, and at the University of California-Berkeley, the University of Notre Dame, and other US universities. They worked on a tight deadline, contributing original research papers geared to a lay audience.

While the family bed is an issue *Mothering* has covered for many years, that coverage has been mostly personal. Now it is time to publish the science; in fact, it is our responsibility to do so. I'm quite certain that you will find it presented nowhere else in such an accessible way. You will be as surprised as I was to discover that the evidence says just the opposite of the CPSC recommendation. Not only is it safe to sleep with your baby, it is unsafe not to. Research shows that the majority of parents sleep safely with their babies at some time during the night, and that a baby is safest when sleeping in close proximity to mom.

We hope these unique and historic articles will be of service to you as you make your own decisions as parents. We don't want you to make them without the whole story. Here it is.

B Y J A M E S M c K E N N A

On May 3, 2002, the Consumer Product Safety Commission (CPSC), in cooperation with the Juvenile Products Manufacturers Association (JPMA), announced the first stage of a campaign aimed at discouraging parents from ever leaving infants alone to sleep on adult beds (a good thing) and further, to alert parents to what the group considers to be the "hidden dangers" of adult beds. In the process of delineating these hidden hazards, rather than giving parents information about how to eliminate them, the CPSC implies that they can only be eliminated if babies sleep in cribs. The May 3 press release avoided saying "Never sleep with baby" (a tactical mistake the CPSC made two years earlier); nevertheless, the overall message communicated to parents and health institutions was that all forms of cosleeping should be discouraged.

Neither in the press conferences nor in any interviews or public presentations was it stressed that the rights of parents to choose to cosleep should be protected or that, when done safely, cosleeping can be an appropriate and healthy choice. Moreover, the CPSC continues to provide the public with a biased and selective interpretation of the inherent dangers associated with infants sleeping with their mothers and fathers. The CPSC's interpretation is not supported by international scientific data, and the commission appears not to be interested in any contrary views or evidence.

BY REFUSING TO POINT OUT THAT COSLEEPING, AND COSLEEPING in the form of bedsharing, can be practiced either safely or unsafely, and that sleeping next to a baby is not inherently dangerous, especially for a breastfeeding, sober mother, the CPSC misses opportunities to

educate millions of parents about how to cosleep safely. Its actions suggest instead that parents are neither educable nor intelligent enough to make their own decisions about how, or whether, to cosleep. Hence, the current campaign supports and builds on the approach taken by former CPSC chairwoman Ann Brown two years ago when she said, "Don't sleep with your baby or put your baby down to sleep in an adult bed. The only safe place for babies to sleep is in a crib that meets current safety standards and has a firm, tight-fitting mattress."

This special issue of *Mothering* is committed to bringing a full, critical, scientific perspective on the issue of sleeping arrangements from some of the world's leading scientists on the subject. We believe that a very different discourse is needed, one that neither condemns cosleeping or bedsharing, nor condemns crib sleeping or what most parents end up practicing, a mixed strategy combining cosleeping and solitary crib sleeping.

Our approach, first and foremost, acknowledges and respects the unique needs of different infants, as well as the unique needs, goals, and philosophies of different families. We argue against the validity of the conclusions drawn from the biased data used by the CPSC and lament the distorted interpretation and public misuse of those data. We challenge the accuracy of the CPSC reports, the particular inferences drawn, and the legitimacy of the sample from which universal principles about the outcomes of cosleeping and bedsharing were drawn; it is well known that the sample represents, for the most part, babies cosleeping in dangerous ways, in dangerous places (couches, sofas), and alongside inappropriate sleeping partners (other children or desensitized parents).

The stand taken by the CPSC presents an image to the public of a mother's body — particularly a breastfeeding mother's body — as being no more responsive to her infant in bed than the inert mattress on which she sleeps. The assumption that a mother's body is little more than a lethal wooden rolling pin, out of her own control or that of her infant, is itself immoral. It is one thing to present "hidden dangers"; it is altogether a very different matter, indeed a cultural perversion, to suggest that it is the mother herself who is the "hidden danger."

However well-meaning, the organizers of this campaign have chosen to distort, dismiss, and/or ignore significant aspects of the mother-infant relationship, which derives its biological legitimacy in part from the overall contributions that can be provided by close physical contact in the form of cosleeping with breastfeeding. Furthermore, while it is true that adult beds were not designed for infants, technically, neither were cribs!

One irrefutable scientific fact conveniently ignored by the CPSC and the JPMA is this: The only true object or entity around which the human infant was designed to sleep is the mother's body. Yes, it is true that it can be dangerous for infants to sleep alone, whether on beds or in cribs; but place a committed, breastfeeding mother nearby or alongside, and the infant's survival chances are actually increased. This is the difference that the CPSC and the JPMA fail to articulate. We are sure that the following articles will provide you with a great deal of intellectual and practical armament to challenge this offensive attack on parental and infant rights.

BREASTFEEDING

Still Useful (and Important) after All These Years

& BEDSHARING

B Y J A M E S M C K E N N A



Mothers and infants sleeping side by side, also known as cosleeping, is the evolved context of human infant sleep development. Until very recent times, for all human beings, it constituted a prerequisite for infant survival; outside of the Western industrialized context, for the majority of contemporary people, it still does. Because the human infant's body continues to be adapted *only* to the mother's body, cosleeping with nighttime breastfeeding remains clinically significant and potentially lifesaving.

This is because, of all mammals, humans are born the least neurologically mature (25 percent of adult brain volume), develop the most slowly, and are the most dependent for the longest period of time for nutritional, social, and emotional support, as well as for transportation. Indeed, in the early phases of human infancy, social care is synonymous with physiological regulation. That is, holding, carrying, and/or caressing an infant, and emitting odors and breath in his or her proximity, induce increased body temperature, less crying, greater heart rate variability, fewer apneas, lower stress levels, increased glucose storage, and greater daily growth.¹

Moreover, since the content of human milk is relatively low in fat and protein and high in sugar, which is metabolized quickly, and since human infants are unable to locomote on their own, continuous contact and carrying, with frequent breastfeeding day and night, is required. Thus, any biological scientific study that attempts to understand “normal,” species-wide, human infant sleep patterns without considering the vital role of nighttime contact in the form of breastfeeding and maternal proximity must be considered inadequate, misleading, and/or fundamentally flawed.²

Cosleeping: The Importance of Taxonomic Distinctions

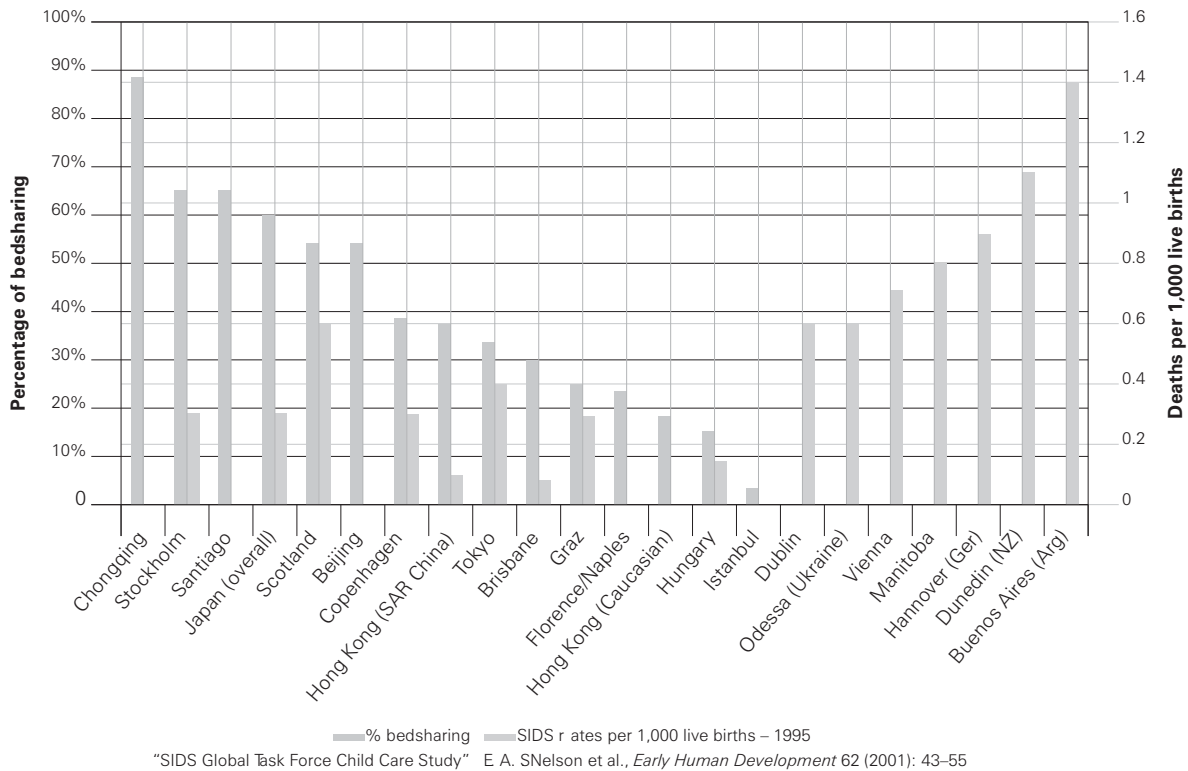
Much of the controversy surrounding the question of the safety of mother-infant cosleeping involves the ways in which investigators define and conceptualize it. Cosleeping is not, as the Consumer Product Safety Commission (CPSC) assumes, a single, coherent practice. Rather, it is best thought of as a generic, diverse class of sleeping arrangements composed of many different “types” of practices, each of which requires proper description and characterization before the issue of safety and “outcomes” can be understood.

A safe cosleeping environment must provide the infant with the opportunity to “sense” and respond to the caregiver's signals and cues, such as the mother's smells, breathing sounds and movements, infant-directed speech, invitations to breastfeed, touches, and any “hidden” sensory stimuli, whether intended or not.³ Moreover, to be designated “safe,” the physical and social cosleeping environment must involve a willing and active caregiver who chooses to cosleep specifically to nurture, feed, or be close to the infant in order to monitor or protect him or her.

The cosleeping environment also must be carefully constructed to

FIGURE 1

SIDS Rates (1995) per 1,000 Live Births in Relationship to Percent Bedsharing



avoid known hazardous conditions, recently revealed by epidemiological studies.⁴ Dangerous types of cosleeping include sleeping with infants on sofas or couches, bedsharing with mothers who smoke, and positioning toddlers next to infants. Parents or caregivers desensitized by drugs or alcohol create an unsafe cosleeping environment. Other dangerous cosleeping environments occur when an infant sleeps with a larger person on a soft mattress or is placed on large pillows in a bed with a parent.^{5,6,7}

While all forms of bedsharing are examples of cosleeping, bedsharing is only one of perhaps hundreds of different ways to cosleep practiced around the world. For example, some parents in Latin America, the Philippines, and Vietnam sleep with their infant in a hammock, or place the infant in a hammock to sleep next to them, while they sleep on mats or beds. Some parents place their infant in a wicker basket and put the basket on a bed, between the parents. Other parents sleep next to their infants on bamboo or straw mats or on futons (as in Japan). Some place their infant on a cradleboard, keeping the infant within arm's reach; others cosleep by roomsharing, having the infant sleep on a different surface, such as in a crib or bassinet, which is kept next to the parental bed, within arm's reach.

Cosleeping Has Not Outlived Its Biological Usefulness

Although forms of infant sleeping vary enormously from culture to culture, the potentially beneficial physiological regulatory effects of maternal contact on human infants during sleep do not. Up to one degree

of temperature can be lost when a newborn human is removed from the mother's stomach following birth, even when the infant is placed in an incubator with ambient temperatures set to match the mother's body temperature.⁸ Richard found that among 11- to 16-week-old infants, solitary-sleeping infants exhibited lower average axillary skin temperatures than breastfeeding infants sharing a bed with their mothers.⁹ Thoman and Graham discovered that even mechanical breathing teddy bears placed next to apnea-prone human newborns have the effect of reducing apneas by as much as 60 percent, in addition to physically drawing the infant subjects to sleep in direct contact.¹⁰ Moreover, when resting on their mothers' (or fathers') chests, skin-to-skin, both premature and full-term infants breathe more regularly, use energy more efficiently, grow faster, and experience less stress.^{11,12,13}

Clinical Outcomes Depend on How Cosleeping Is Practiced

Exactly how cosleeping may be beneficial or dangerous to the infant varies as a function of the particular social and physical environment (family circumstances) within which it is expressed. This is why there is no single outcome associated with forms of cosleeping, especially in urban Western cultures, and why there is so much debate about whether cosleeping, especially in the form of bedsharing, is safe.

For example, in industrialized urban societies, among middle- to upper-class families where bedsharing and breastfeeding occur among nonsmoking mothers, infant mortality, including deaths from SIDS, is low. The most recent international study of childcare practices in rela-

FIGURE 2

Increased Bedsharing Does Not Lead to Increased SIDS in Japan

The data reinforce positive relationships between bedsharing, breastfeeding, supine sleep, and decreased SIDS.

relationship to SIDS rates, conducted by the SIDS Global Task Force, shows dramatically that low SIDS awareness and low SIDS rates are associated with the highest cosleeping-bedsharing rates (see Figure 1).

At the most recent International SIDS Meeting in Auckland, New Zealand, Sankaran et al. presented data from Saskatchewan, Canada, showing that where breastfeeding and forms of cosleeping coexist, SIDS deaths are reduced.¹⁴ This finding is consistent with a study in South Africa indicating that bedsharing babies have higher survival rates than solitary-sleeping babies.¹⁵ In Hong Kong, where cosleeping is the norm, SIDS rates are among the lowest in the world.^{16,17} The same is true in Japan, where rates of not only SIDS but infant mortality in general are among the lowest in the world, according to the Japan SIDS Family Organization's 1999 report.¹⁸ Moreover, as shown in Figures 2–5, during a span of about four years in Japan, where maternal smoking has decreased while breastfeeding, cosleeping, and supine (faceup) infant sleep have increased, SIDS rates have decreased—the exact opposite of what bedsharing critics would predict.

In many other Asian cultures where cosleeping is the norm, including China, Vietnam, Cambodia, and Thailand, SIDS is either unheard of or rare.^{19,20,21} In one study conducted in

bed, and the rest of her sample planned to have the infant sleep alongside the bed. One informant represented many when she stated that the baby is “too little to sleep alone” and that cosleeping “makes babies happy.”²³

In contrast, in Western urban subgroups, cosleeping is associated with increased risks to the infant, especially but not exclusively when it occurs in association with maternal smoking, drug or alcohol use, chaotic lifestyles, lack of education and opportunities, prone sleeping, and other dangerous factors.²⁴ For example, bedsharing deaths (which often erroneously include couch-sleeping deaths in the CPSC data bank) are especially high in the US among poor African Americans living in large cities such as Chicago, Cleveland, Washington, D.C., and St. Louis—the four cities from which data used to argue against the safety of all cosleeping, regardless of circum-

stances, emerge.^{25,26} Moreover, epidemiological studies show consistently across cultures that among economically deprived, indigenous groups, such as the Maori in New Zealand, Aborigines in Australia, Cree in Canada, and Aleuts in Alaska, bedsharing and other forms of cosleeping can be associated also with increased risks to infants and increased infant deaths.^{27,28}

The SIDS Global Task Force accounts for these differences in bedsharing outcomes in a way consistent with my own view, pointing to factors such as parental smoking, drug and alcohol use, infants sleeping prone on soft mattresses, infants

sleeping alone on adult beds with gaps or ledges around the bed frame or between the mattress and a wall or piece of furniture, dangerous furniture or furniture arrangements, and infants sleeping next to toddlers or on sofas with obese adults.

Perhaps it is best to conceptualize outcomes related to bedsharing in terms of a benefits-risks continuum (see Figure 6). For example, if mothers elect to bedshare for purposes of nurturing and breastfeeding and are knowledgeable about safety precautions (e.g., use stiff mattresses, do not over-wrap the infant, lay babies supine, etc.), we can expect that bedsharing will be protective or reduce SIDS risks. But when bedsharing is not chosen as a childcare strategy but rather is a necessity because there is no other place to put the baby, and mothers smoke, take drugs, and do not place an adult in between a toddler and a baby sharing a bed, increased risk of SIDS or asphyxiation can be predicted.

FIGURE 3

Sleep Environment and Bedsharing in Japan

Source: Ministry of Health and Welfare

	1996	1998
Room-sharing	89%	100%
Bedsharing	46%	60%
Mother-Only Bedsharing	73%	86%
Pillow Use	59%	58%
Soft Mattress	8%	6%

FIGURE 4

SIDS Rate and Infant Mortality

Rate: Japan (per 1,000) Live Births

	1995	1996	1997	1998
Infant Mortality	4.3	3.8	3.7	3.6
SIDS Rate	.44	.38	.41	.33
Bedsharing	—	46%	—	65%
Supine Sleep	—	85%	—	95%
Exclusive Breastfeeding	—	53%	—	67%

Australia, an immigrant Vietnamese mother was told about SIDS, with which she was unfamiliar. She said, “The custom of being with the baby must prevent this disease. If you are sleeping with your baby, you always sleep lightly. You notice if his breathing changes.... Babies should not be left alone.” Another Vietnamese mother added, “Babies are too important to be left alone with nobody watching them.”²²

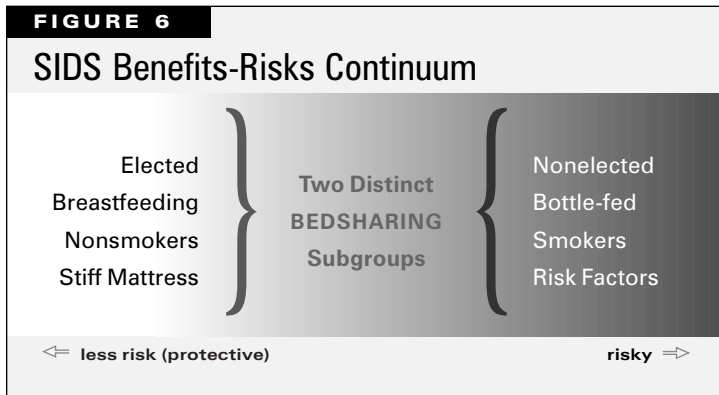
Of 40 Chinese women interviewed at Guangzhou University Hospital by SIDS researcher Elizabeth Wilson, more than 66 percent of new mothers intended to have their infants sleep with them in the marital

FIGURE 5

Maternal Smoking Implicated Further in Bedsharing Deaths

In Japan maternal smoking declined from 9 percent in 1996 to zero mothers smoking in 1998.

Source: SIDS Family Association; Child Care Practices Survey. Stephanie Fukai, International SIDS Meeting, Auckland, New Zealand, 2000



Solitary Infant Sleep: A Historical Novelty

Emotions, designed by natural selection and controlled by the limbic system of the brain, motivate infants and children to protest sleep isolation from parents by crying. These emotions undoubtedly evolved to ameliorate what was throughout our evolution a life-threatening situation: separation from the caregiver.²⁹

In recent decades, Western childcare strategies have favored early infant autonomy. Health professionals teach that parents should condition infants to sleep alone throughout the night with minimal parental intervention, including breastfeedings (according to some advice givers, the fewer number of breastfeeds the better).^{30,31} Parents are encouraged by some health professionals to “train” their infants to “soothe themselves back to sleep.” Pediatric sleep advisers say that infants should never be permitted to fall asleep at the breast or in the mother’s arms, even though this is the very context within which the infant’s “falling asleep” evolved. As many parents will attest, this advice proves highly problematic.

The exaggerated fear of suffocating an infant while cosleeping may stem, in part, from Western cultural history. During the last 500 years, many economically destitute women in Paris, Brussels, Munich, and London (to name but a few locales) confessed to Catholic priests of having murdered their infants by overlying, in order to control family size. The priests threatened excommunication, fines, or imprisonment — and banned infants from parental beds.^{32,33}

The legacy of this particular historical condition in the Western world probably converged with other changing social mores and customs (the emphasis on privacy, self-reliance, and individualism), providing a philosophical foundation for contemporary cultural beliefs and making it easier to find dangers associated with cosleeping than to find (or assume) hidden benefits. The proliferation throughout Europe of the idea of romantic love, coupled with the belief in the importance of the husband-wife relationship, also may have promoted separate sleeping quarters. This physical separation, especially of the father from his children, also was seen as maximizing the father’s ability to dispense religious training and to display moral authority.

Cosleeping and Solitary Sleeping Arrangements: Effects on Children

As I have noted elsewhere, the first published studies of people who coslept as infants contradict conventional Western assumptions that

cosleeping leads to negative psychological, emotional, and social outcomes later in life.^{34,35,36} A recent cross-sectional study of middle-class English children shows that children who never slept in their parents’ beds were more likely to be rated by teachers and parents as “harder to control” and “less happy” and exhibited a greater number of tantrums. Children never permitted to bedshare also were more fearful than those who slept in their parents’ beds.³⁷

Other findings point to further advantages of cosleeping over solitary sleeping. A survey of college-age subjects found that males who coslept with their parents between birth and five years of age had significantly higher self-esteem, experienced less guilt and anxiety, and reported greater frequency of sex. Males who coslept between 6 and 11 years of age also had higher self-esteem. For women, cosleeping during childhood was associated with less discomfort about physical contact and affection as adults.³⁸ Another study found that women who coslept as children had higher self-esteem than those who did not.³⁹ Indeed, cosleeping appears to promote confidence, self-esteem, and intimacy, possibly by reflecting an attitude of parental acceptance (see Figures 7 and 8).

A study of 86 children on military bases revealed that cosleeping children received higher evaluations of their comportment from teachers than solitary-sleeping children and that they were underrepresented in psychiatric-care populations compared with children who did not cosleep. The authors stated:

Contrary to expectations, those children who had not had previous professional attention for emotional or behavioral problems co-slept more frequently than did children who were known to have had psychiatric intervention and lower parental ratings of adaptive functioning. The same finding occurred in a sample of boys one might consider Oedipal visitors (e.g., three-year-old and older boys who sleep with their mothers in the absence of the father)—a finding which directly opposes traditional psychoanalytic thought.⁴⁰

FIGURE 7

Scientific Studies of the Long-Term Effects of Elected (Nonreactive) Cosleeping

- Cosleeping children underrepresented in psychiatric populations, compared with solitary sleepers living on a military base (Forbes, Weiss, and Folen 1992)
- Increased comfort with sexual identity (Crawford 1994)
- More independent (than solitary-sleeping toddlers) and increased control of emotions and stress (teacher and parent reports, Heron 1994)
- 1,411 adult subjects across five ethnic groups exhibited varied findings, including cosleepers expressing a “greater satisfaction with life” (Mosenkis 1998)
- Higher self-esteem (males); more comfortable with affection (females) (Lewis and Janda, 1988)

FIGURE 8

Short-Term Benefits of Cosleeping

MOTHER

- More sleep (in minutes) and increased nightly satisfaction
- Increased sensitization to infant's physiological-social status
- Increased comfort with and ability to interpret behavioral cues of infant
- Increased sucking behavior of infant maintains milk supply
- Increased prolactin levels lead to longer birth interval (WHO)
- Increased ability to monitor and physically manage and respond to infant needs
- More time with baby for working parents

INFANT

- Increased breastfeeding (total minutes and number of nightly sessions)
- Increased infant sleep duration
- Less crying time
- Increased sensitivity to mother's communication
- More light (stage 1–2) sleep, less deep (stage 3–4) sleep appropriate for age
- Increased ability to read maternal behavioral cues

References: McKenna et al. 1997, Mosko et al. 1996a, 1996b, 1997, Richard et al. 1996

The largest and possibly most systematic study to date, involving more than 1,400 subjects from five ethnic groups in Chicago and New York, found far more positive than negative adult outcomes for individuals who coslept as children. The results were the same for almost all the ethnic groups (African Americans and Puerto Ricans in New York; Puerto Ricans, Dominicans, and Mexicans in Chicago). An especially robust finding, one that cut across all ethnic groups, was that cosleepers exhibited a greater feeling of satisfaction with life.⁴¹

Physiological Studies of Mother-Infant Pairs

A study at the University of California-Irvine School of Medicine quantified differences in the sleep behavior and physiology of 70 Latina mothers and infants. More than 200 eight-hour polysomnographic recordings were made of mothers and their infants sharing a bed or sleeping apart in adjacent rooms over three successive nights. We specifically compared how the solitary sleep environment and the bedsharing environment affected two kinds of mother-infant pairs: those who routinely bedshared at home and those who routinely slept apart.

In randomly assigned order, each mother-infant pair spent two nights sleeping in their routine (home) sleeping condition and one night sleeping in the nonroutine condition; that is, routine bedsharing pairs slept in different rooms, routine solitary sleepers bedshared. All mothers and infants were healthy and nearly exclusively breastfeeding. The infants ranged in ages from 11 to 15 weeks (the peak age for SIDS).

We found that bedsharing doubled the number of nightly breastfeeds and tripled the total nightly duration of breastfeeding (see Figures 9 and 10). Bedsharing also correlated with shorter average intervals between breastfeeding sessions. Among our 70 nearly exclusively breastfeeding mothers, we found that the average interval between

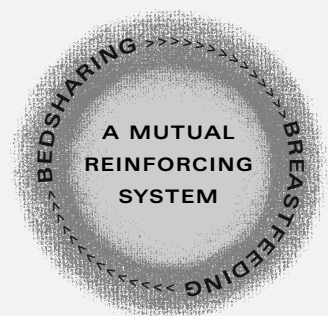
breastfeeds was approximately an hour and a half on the bedsharing night—the approximate length of the mothers' (adult) sleep cycle. That is, infant nighttime nutritional needs and feeding cycle while cosleeping correlated with the general length of the ultradian (subcycle of sleep) sleep cycle (90–120 minutes) of the human adult—a correlation never before observed or proposed. When sleeping in separate bedrooms (but still within earshot), the breastfeeding interval was at least twice as long.⁴²

The supine position is the universal sleep position for infants, having evolved specifically to facilitate and make possible nighttime breastfeeding. Indeed, our studies reveal that without instruction, routinely bedsharing breastfeeding mothers practically always placed their infants in the safe supine position, probably because it is difficult, if not impossible, to breastfeed a prone sleeping infant. From our infrared video studies of bedsharing mothers and infants, it appears that supine infant sleep maximizes the infant's overall ability to control its microenvironment, and especially to elicit breastfeeds.^{43,44} In addition to permitting the infant to move toward and away from the breast, back sleeping permits the infant to remove blankets covering its face, turn to face toward or away from the mother, touch its face, wipe its nose, and, without a great deal of effort, suck on its fist or fingers, thus making loud sounds that will awaken its mother, who often then breastfeeds the infant (see Figure 10).

Our studies also suggest that supine infant sleep in the breast-

FIGURE 9

Infant-Parent
Cosleeping with
Breastfeeding:
An Integrated
Adaptive System



feeding/bedsharing context maximizes the chances of the baby detecting and responding in synchrony with the mother's movements, sounds, and touches, and vice versa.^{45,46,47} The supine position of the infant promotes easy and constant communication between infant and mother, thus furthering mutual attachment and trust (a prerequisite for healthy infant development); in addition, it may stimulate the infant, through olfactory cues, to want to breastfeed more frequently, therein

FIGURE 10

An Adaptive System

BREASTFEEDING + COSLEEPING



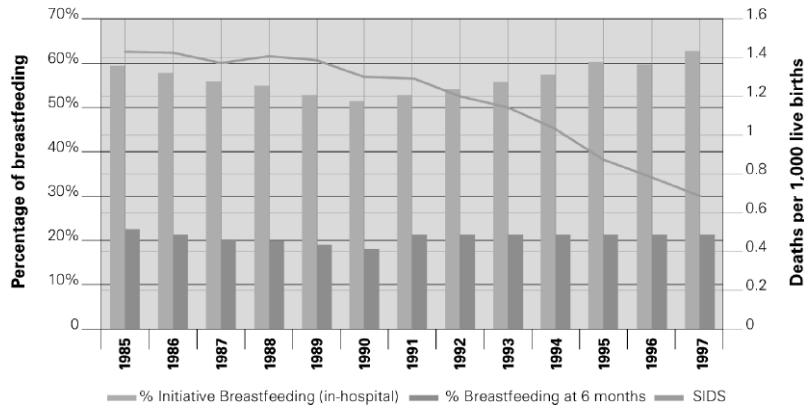
SUPINE INFANT SLEEP



OPTIMAL SLEEP, INCREASED AROUSAL, AND
BREASTFEEDING

FIGURE 11

SIDS Rates and National Breastfeeding Rates



further suppressing the mother’s ovulation. This model constitutes yet another reason to view the mother-infant relationship not simply in terms of how mothers regulate their infants, but rather how mothers and infants mutually regulate each other’s physiology, including the mother’s reproductive status.

The increased breastfeeding that accompanies bedsharing raises the possibility of enhanced immunological protection for the infant from potentially dangerous bacteria and viruses. Because bedsharing in the context of a breastfeeding mother leads to the use of the single most important defense against SIDS, the supine infant sleep position, we argued that the combination of breastfeeding and bedsharing may provide and enhance potentially significant health gains for the baby and nonsmoking mother alike, including reducing the infant’s chances of dying from SIDS. Indeed, since the back-to-sleep campaign in 1992, which no doubt largely accounts for the significant reduction of SIDS to the present, breastfeeding rates have increased to historic highs (see Figure 11). If, as studies indicate, breastfeeding promotes the choice to bedshare, and more American parents are bedsharing than ever before, then perhaps these practices have also contributed to the reduction of SIDS since 1992. Most American breastfeeding mothers do not smoke and have access to safety information. Hence, the American situation of high breastfeeding, high supine infant sleep, reduced maternal smoking among this group, and safe bedsharing could well parallel the situation in Japan, discussed above, and as reported in Figures 2–5.

Infant-Parent Sleep Difficulties

Because infant sleep biology changes much more slowly than cultural values, sleep environments that are optimal for infants may not be the ones encouraged by the culture. Moreover, widely accepted infant sleep management strategies may be sufficient for some infants and children but unsuitable for others. Some families may apply norms established for bottle-fed, solitary-sleeping infants to their own children when it is inappropriate to do so, leading parents to conclude either that their parenting skills are deficient or that their child is uncooperative.

Ironically, this situation best describes what occurs in developed

countries such as the US, Great Britain, and Australia, where as many as one out of every three otherwise healthy children may have problems falling or staying asleep, after having first been conditioned to sleep alone.⁴⁸ Rather than infant or caregiver deficiencies, such high percentages probably reflect overconfidence in the validity of our definitions and expectations about how infants should sleep, and the rigidity with which parents interpret and apply messages offered by health professionals.

Indeed, parents’ rigid expectations concerning how their infants should sleep can be used to predict the likelihood that infant/child sleep problems will manifest: The more rigid the expectations, the more likely it is that parents will report dissatisfaction with their child’s sleep behavior.⁴⁹ Night awakenings constitute a problem only for parents who expect their children to sleep

through the night.

It is only in the last century or so, and in a relatively small number of cultures, that parents and health professionals have become concerned with how infants should be conditioned to sleep. And only in Western cultures are infants thought to need to “learn” to sleep, in this case alone and without parental contact. Most cultures simply take infant sleep for granted.

The Cultural/Scientific Bias against Cosleeping

It has been easy for public officials to conclude that the problems associated with cosleeping are not worth solving, in part because of our society’s unique cultural history. In popular parenting books and child-care magazines, cosleeping may be (1) described as if it were a homogenous concept, (2) ignored completely, or (3) presented in terms of the likely or inevitable “problems” that could arise, especially the danger of suffocation. Sometimes cosleeping is explicitly discouraged; at other times the message is subtler. The most frequently cited reasons for recommending separate sleeping quarters for parents and children include preservation of the marriage; promotion of the child’s individualism and autonomy; avoidance of incest and suffocation; promotion of the child’s social competence; and strengthening of the child’s gender and sexual identities.

Indeed, where a problem or potential problem with cosleeping can be identified, rather than being considered simply something to be solved, it becomes an argument against the practice, as if all families who cosleep will experience the same problem. Furthermore, problems associated with cosleeping are presented as if they cannot be solved in the same manner as, for example, problems associated with solitary sleep.

Throughout the literature, cosleeping is described as the cause of marital discord, although data from Sweden refute this notion.⁵⁰ Cosleeping is also cited as the cause of sibling jealousy; while possibly true, it is probably only one of many causes. Parents are warned that cosleeping creates a “bad habit,” one that is “difficult to break.” Cosleeping is said to confuse the infant or child emotionally or sexually, or to induce overstimulation: “Sleeping in your bed can make your child feel confused and anxious rather than relaxed and reassured.



Even a young toddler may find this repeated experience overly stimulating.⁵¹ But no evidence is offered to show how, when, and under what circumstances this happens; nor is there any acknowledgment that perhaps understimulation could be a more serious clinical and psychological problem.

A child needs to sleep alone, it is said, in order to establish a lifetime of good sleep hygiene, as well as to create a sense of self and comfort with aloneness, skills that presumably foster self-reliance and a strong sexual identity, all “moral goods.” Again, not only is no evidence presented that supports these statements, but new evidence from a number of studies shows the opposite. In fact, when bedsharing occurs in the context of ongoing healthy social relationships, toddlers and children are more independent, not less, and when they’re older, they have stronger sexual identities, not weaker ones, and are able to handle stress better (see Figure 7).

Scientific paradigms do not change quickly or easily. The concept of infant-parent cosleeping is not readily assimilated by those who have spent their scientific lives documenting the normality of solitary infant sleep and accepting uncritically the alleged deleterious consequences of cosleeping. Probably few researchers, clinicians, and parents routinely coslept with their own parents, a factor that would

strongly influence their comfort with the practice. Perhaps an appreciation of diverse childcare practices, including cosleeping, will come only with the growing populations of non-European immigrants in Western countries. As demographics on that score suggest, the question is not if the paradigm will change, but how soon.

Conclusions and Recommendations

The vast majority of scientific studies on infant behavior and development conducted in diverse fields during the last 100 years suggest that the question placed before us should not be “Is it safe to sleep with my baby?” but rather, “Is it safe not to do so?” An objective reading of the CPSC’s own database leads to a very different conclusion than the one it reached—namely, that no infant should sleep outside of the supervision and company of a responsible adult caregiver.

The issue is too complex to recommend in a sweeping way that all families should bedshare; still, any public safety campaign should recommend that at the very least every infant should be placed, preferably within arm’s reach, sleeping on a different surface, alongside a responsible adult caregiver. Room-sharing alone reduces the infant’s chances of dying from SIDS fourfold, according to the largest epidemiological study of SIDS yet undertaken.⁵²

Recall that, until recent history, nighttime breastfeeding and infant and maternal cosleeping functioned in tandem in all societies, and that both patterns remain an inevitable and inseparable system for most people today, including a growing number of Western parents. When practiced safely, cosleeping with breastfeeding (whether bed-sharing or not) represents a highly effective, adaptive, integrated childcare system that can enhance attachment, communication, nutrition, and infant immune efficiency thanks to the increased breastfeedings and the increased parental supervision and mutual affection that accompany this practice. Moreover, bedsharing and breastfeeding contribute indirectly to maternal and infant health by maximizing the intervals between succeeding births, therein lessening sibling competition for limited maternal resources. Cosleeping infants appear more content than those who sleep (or try to sleep) by themselves. With increased maternal contact and feeding, crying is significantly reduced, and, contrary to conventional thinking, maternal and infant sleep can be increased. Consequently, less energy is siphoned away from essential infant activities such as growth and defense against infectious disease.

As renowned child psychotherapist D. Winnicott said half a century ago, “There is no such thing as a baby; there is a baby and someone.” Perhaps no childcare practice better reflects this truth than that of a human infant sleeping and breastfeeding next to its mother’s body, enjoying her loving and protective responses. For these reasons, neither governmental regulatory agencies, associations of crib manufacturers, nor medical authorities, many of whom confuse their personal preferences and ideologies for science, will ever be able to deny parents and infants what they want to do naturally—and that is to sleep and feed side by side.

NOTES

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SOLITARY OR SHARED SLEEP

What's Safe?

B Y P A T R I C I A D O N O H U E - C A R E Y



For more than ten years, I have been helping expectant families prepare for birth and early parenting. During this period I have become accustomed to hearing strong and conflicting positions on many topics, including epidural anesthesia, circumcision, and the best age for weaning. But no subject has been more challenging than that of bedsharing.

Biologic Model versus Cultural Message

Nighttime solitary infant sleep is not practiced in traditional societies, and even during daylight hours it is the exception. Babies are kept near their mothers. Shared nighttime sleep may take the form of bedsharing (actually sharing the same sleep surface) or cosleeping (when the baby is within arm's reach of its mother, but not on the same sleep surface).

According to Katherine Dettwyler, adjunct professor of anthropology at Texas A&M University, "Many people in the United States assume that non-Western cultures cosleep or bedshare because limited resources prevent them from creating separate sleep areas for their children. This is simply not true. Mothers in non-Western cultures traditionally sleep with their children to monitor them and keep them safe, to facilitate breastfeeding, and simply to be near them."¹ If shared sleep is the behavioral template from earliest human history, why, of late, are some voices seeking to erode its legitimacy?

The American cultural values of independence and control explain a great deal of the societal encouragement of parent-infant separation and the priority placed on parental convenience. (Think of the many products designed to spell parents from their children during daylight hours, such as the swing, infant seat, playpen, jumper, activity center,

and walker.) Since bedsharing literally embodies maternal-infant interaction in order to meet a child's nighttime needs, it may appear both out of sync and just plain unattractive.

These overarching cultural messages have long been apparent. What is less clear is the percentage of US infants who have slept in cribs versus adult beds versus a bit of both. Breastfeeding rates decreased dramatically after World War II, and the primary motivation for keeping one's baby nearby at night was considerably diminished.

Solitary sleep for babies gradually became normal; eventually, for many parents, it seemed preferable. Distance between baby and mother was deemed good, even healthy. "Sleep" had come to mean "sex," and concerns that bedsharing might threaten marital intimacy took on a priority greater than the traditional wisdom of being close to one's baby in the night. Somewhere along the line, fear of attaching too deeply to one's child also became a preoccupying, if subconscious, message. Threaded throughout these elements was the long-held fear that babies who shared a bed with their parents might become victims of suffocation through overlying.

But as breastfeeding rates in America began climbing again, reaching nearly 62 percent in 1982, the pragmatic value of bedsharing was revived.²

The Government Weighs In

In September 1999, the Consumer Product Safety Commission (CPSC) recommended against placing children under two years of age in an adult bed, based on its analysis of information on the deaths of children under the age of two for the years 1990 to 1997.^{3,4} The CPSC warned that using an adult bed as a young child's sleep environment put the child at risk for overlying, strangulation, and suffocation. Young children, the agency advised, should be put only in safety-approved cribs.

Numerous critics (among them pediatricians, anthropologists, and at least one key individual within the agency) quickly pointed out the many shortcomings of the study on which the CPSC recommendation was based:

Inability to Apply Findings and Compare Risks: The study did not allow for statistical inferences because its admittedly anecdotal data did not control for demographic variables such as race, ethnicity, age, family unit structure, and social/economic status. Without such controls, a study cannot define who is at risk. Its conclusions can describe and analyze patterns of injury and death within the population comprising the database, but they cannot be statistically applied to the general population. The data also lacked the means to compare the risk of adult beds with the risk of other sleep environments — including the safety-approved cribs the CPSC was recommending.

Problems with the Diagnosis of Overlying: Diagnostic information from the CPSC databases on suffocation due to overlying was criticized because of the dependence on subjective descriptive data from death-scene investigations. In the absence of physical signs of injury, SIDS (sudden infant death syndrome) deaths can be indistinguishable from deaths due to overlying. Therefore, some death certificates listing “overlying” as the cause of death may actually represent SIDS deaths. Moreover, in some parts of the country, death certificates are completed by persons (e.g., coroners) who may have little medical training, while in others, specialists in forensic science complete death certificates.

Death-scene investigation forms also vary widely from state to state. Some make detailed inquiries into deaths in cribs as well as adult beds; others ask numerous questions about adult beds but few about cribs. In the latter template, the inference is that inquiry needs to be pursued only when death occurs in the adult bed. Thus, personal and social biases can also impact diagnosis.

Uncertain Rates of Impaired Arousal: Only two death certificates in the study listed alcohol consumption as a factor in the overlying diagnosis. The study's authors, however, noted that “death certificates often provide limited information in this regard, and therefore it is not known whether alcohol consumption was a contributing factor in other cases.”⁵ Asked about the study, Dettwyler stated, “Rates of drug abuse are higher in the United States than in any traditional societies where people breastfeed and cosleep.” Given that an earlier report (mentioned in the study) had found that alcohol consumption was involved in a significant number of overlying cases, it appears very likely that the rate of alcohol or drug-related impairment may be higher than was reported and that this would affect the real rate of death from overlying. One can only imagine the additional guilt and

related disincentive that a parent of a suffocated child would experience in divulging drug-impaired behavior to a death-scene investigator.

Missing Information: Several key variables were not consistently featured in the study's data and therefore could not be analyzed. For instance: Were young infants placed prone (tummy down) for sleep? Was the mattress soft and/or sagging? Was the baby found lying upon a soft surface, such as a pillow? How many persons were bedding together? Were young children sleeping with the infant who died? Did the mother smoke during her pregnancy or at the time of the child's death? Was either parent (or both) significantly obese or suffering from extreme fatigue? Was there any history of abuse or previous infant death in the family?

The CPSC researchers did not frame the significance of this missing data, choosing instead to focus solely on the location of these children at the time of death. Thus, advising against bedsharing became the main message the CPSC delivered to the American public.

Public Health Message or Product Promotion?

In May 2002 the CPSC, in conjunction with the Juvenile Products Manufacturers Association (JPMA), released a second recommendation against putting a baby to sleep in an adult bed. This time the announcement was part of a new “national safety campaign.” The campaign, promoted first through an agency media release, includes a video news release, pamphlets, and posters, and targets new and expectant parents, daycare providers, hospitals, and health departments. Retail outlets of infant products will also participate in disseminating the message that infants should sleep only in safety-approved cribs.

Neither CPSC acting chairman Thomas Moore, in his statements in a CNN article, nor the agency's own announcement to the media made mention of the anecdotal nature of the data the agency used for this recommendation.^{6,7} In fact, the CPSC's advice was based on the same anecdotal data as the 1999 study and was, therefore, characterized by the same inherent limitations described above. Unlike the CPSC's 1999 statement, the 2002 recommendation refrained from making an overt pronouncement against bedsharing. It did, however, mention the risk of a child dying due to overlying as an inherent “hidden hazard” of an adult bed and instructed the public to put babies into safety-approved cribs for sleep—thereby giving the critical, if unintended, impression that bedsharing cannot be safely practiced.

The CPSC's internal memorandum of May 22, 2002, issued by Joyce McDonald of the agency's Division of Hazard Analysis, however, clearly states that the reports from the databases are anecdotal, not statistical in nature.⁸ In response to questions submitted by e-mail, the division's director, Russell Roegner, confirmed that the same three databases used in the 1999 study had again been used for the May 2002 analysis and that the data were anecdotal, not statistical.

As it did in 1999, the CPSC chose to highlight the location at the time of death rather than the presence of discrete risk factors in these cases. While still not forming a complete picture, this additional information (had it been available) would have better described the situations surrounding these deaths. I, and many others, would have been grateful for the CPSC's national safety campaign message had it read, “Do not

put a baby or young child alone in an adult bed.” Leaving a young child unsupervised in an adult bed is not a practice endorsed by anyone on either side of the debate about bedsharing.

Where Is the CPSC Spending Its Energies?

One of the criticisms leveled at the CPSC warnings about bedsharing has been that this issue is fundamentally a parenting matter, not a product concern. In 1999 Mary Sheila Gall, then vice-chair of the agency, made just this point when she characterized the CPSC’s recommendation as “overreaching by a federal regulatory agency.”⁹

One might suppose that the CPSC has turned its attention (overtly in 1999 and somewhat more subtly in 2002) to warnings about bedsharing because it has ensured that infant products over which it has regulatory authority are demonstrably safe. Unfortunately, such an assumption is incorrect. In her book *It’s No Accident: How Corporations Sell Dangerous Baby Products* (Common Courage Press, 2001), E. Marla Felcher exposes what few parents would guess—the fact that infant products can be sold without safety standards in place and without field (actual use) testing.

While some infant products have mandatory safety standards guiding their design, many rely on voluntary standards with which the manufacturers are not required to comply. Furthermore, some infant products, such as front and back infant carriers and baby swings, lack even voluntary standards.¹⁰ Not until June 2002 were voluntary standards for cradles and bassinets developed and seriously considered for adoption by infant product manufacturers.¹¹ So while a particular adult bed might not be safe for a baby, neither might a new infant product purchased at the local retailer where a poster for the CPSC/JPMA national safety campaign is on display.

Barriers to Information

Expectant and new parents often can feel overwhelmed by the amount of information they are expected to acquire about birth options; caregiver’s styles; the warning signs of preeclampsia, preterm labor, and newborn illness; the typical schedule of well-baby appointments and vaccinations; indicators of adequate infant fluid and calorie intake; and infant CPR.

Concern about parental overwhelm, however, does not discourage learning in our society if the targeted message serves a tacit cultural priority. Imagine a governmental agency suggesting that it would be best to keep young children out of motor vehicles, since they were designed for adult transportation. An argument could be made that the information parents need to understand regarding car seat safety is too voluminous, making parental compliance unlikely and car travel for young children unacceptably risky. The American Academy of Pediatrics (AAP) website houses a 13-page document entitled “Car Safety Seats: A Guide for Families 2002” (www.aap.org/family/carseatguide.htm), which includes three diagrams, answers to more than ten FAQs, more than 20 detailed reminders, and a table comparing more than 70 different infant and toddler safety seats.

According to the National Highway Traffic Safety Administration, car accidents are the number-one killer of children over the



age of one. Additionally, more than 80 percent of car safety seats are thought to have been installed incorrectly, rendering them ineffective, and in approximately 30 percent of car crashes, car seats cannot prevent death or serious injury.^{12,13} Yet despite these sobering realities, our acknowledged and institutionally supported cultural priority is to travel with our children as safely as possible. We are willing to accept the hazards of car transportation. Why doesn’t optimizing the safety of bedsharing elicit the same response from the CPSC to support families who wish to sleep together as safely as possible?

I have been told that the information I compiled in 1999 about how to maximize the safety of bedsharing is too lengthy and complex, that parents won’t be able to fully comply; yet the safety checklist in question was one page in length, compared to the AAP’s 13-page overview on car seat safety. Other examples of dismissive attitudes toward parent education about bedsharing are similarly instructive. A colleague once heard the obstetrician responsible for coordinating care for low-income women at their medical center state that the parents of the community in question were “uneducable” and that, therefore, cribs and cribs only should be recommended.¹⁴

In 1999 I asked SIDS researcher Fern Hauck at the University of Chicago and Phipps Cohe of the SIDS Alliance if they thought a safety-approved “family bed” could be designed. Both answered that it could be done, but immediately expressed concerns that once a family got such a bed home, they could make modifications—to bedding or mattress or the bed’s placement in the room—that would render it unsafe. I pointed out that the very same dangerous modifications can be, and in fact are made to safety-approved cribs.

Individuals and agencies are quick to marginalize the benefits of bedsharing. Parents frequently comment that their children’s nighttime care (particularly breastfeeding) is made easier by bedsharing. For a

host of important health reasons, many individuals and agencies encourage mothers to breastfeed, and compelling data exist to suggest that bedsharing may very well reinforce breastfeeding. Yet these same parents are often told that by bedsharing, they are putting their children at risk.

Many families report that they get more sleep when bedsharing with their young children. Mothers who work outside the home often find that bedsharing helps them feel more connected to their infants. Attachment is critical to relationship and emotional health; yet these mothers may be told they are inappropriately compensating for day-time separation from their babies.

Pediatric pulmonologist and researcher James Kemp of the Washington University School of Medicine in St. Louis maintains that since the oft-mentioned benefits of bedsharing (enhanced breastfeeding and maternal-infant bonding) are not yet part of the body of epidemiological data, they are not admissible to the bedsharing dialogue.¹⁵ But studies of bedsharing mothers and infants have contributed compelling data suggesting that the relationship between bedsharing and breastfeeding is one of reinforcement and enhancement.^{16,17,18} These studies, taken together with childrearing practices in present-day traditional societies and the body of knowledge regarding lactation physiology, make a logical case supporting the frequently reported maternal perception that bedsharing enhances breastfeeding. In our e-mail exchange, Kemp said that he is in favor of more investigations of “primitive cultures where close sleeping is practiced safely” because “Americans do not know how to sleep safely in close proximity to their babies.”

It is time to do away with the notion that a mother and baby’s needs are somehow pitted against one another, that in their core interactions, such as eating and sleeping, what is good for one is inherently hazardous to the other. Our biological design is not so fickle or so fragile. It is time to realize that answers about infant sleep location do not come in a one-size-fits-all package. Unequivocal advocacy of either separate or shared sleep for all families, in all places, at all times, should be rejected. The issues are just not that simple. Yet that is often how recommendations, from individuals and agencies alike, are framed.

Where an infant or young child should sleep needs to be determined after an individual family takes a careful look at its own values associated with shared sleep as well as any present risks to sharing sleep safely. Factors that can be changed (type of bed frame, linens and blankets, room temperature, placement of the bed in the room) need attention. Risks that cannot be readily eliminated (impaired arousal due to alcohol or other drug use, extreme exhaustion, reluctance of one partner to take responsibility for the baby’s well-being in the adult bed) need to be understood as clear dangers. When such risks are not present, mothers need to be supported in their intuitive desire to be near their babies. The last thing that American mothers need is another degree of separation from their core mothering instincts.

Bedsharing is not going to go away. In addition to the reasons already discussed, many parents practice shared sleep because they regard separate sleep as a careless and insensitive way of behaving toward their infant. These parents need and deserve to have all the available information as the basis of their decision.

NOTES

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FOR MORE INFORMATION

Back to Sleep Campaign: 800-505-CRIB; www.nichd.nih.gov/sids

The Danny Foundation: 800-83-DANNY; www.dannyfoundation.org

Kids In Danger: 312-595-0649; www.KidsInDanger.org

National Safe Kids Campaign: 202-662-0600; www.safekids.org

US Consumer Product Safety Commission: 800-638-2772; www.cpsc.gov

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Sleep Environment Safety Checklist

The following list was compiled from various sources, including the AAP policy statement on SIDS risk and the AAP book *Caring for Your Baby and Young Child, Birth to Age 5*.^{1,2} While not officially endorsed by any one group, it represents a thorough range of currently recognized precautions aimed at maximizing infant safety in cribs and, for those parents who choose to bedshare, adult beds.

Recommendations That Apply to Infant Sleep in Both Cribs and Adult Beds

- Use a firm mattress. A soft mattress can result in infant suffocation.
- There should be no gaps between the mattress and the frame of the crib or bed. Infants and small children can become wedged in gaps and asphyxiate.
- Bedding should fit tightly around the mattress. Fitted sheets that become loose from a corner can cover and smother a baby.
- Avoid strings or ties on all nightclothes (both baby's and parents'). These pose a strangulation risk.
- Avoid soft bedding and other items, including comforters, pillows, featherbeds, stuffed animals, etc. Each of these poses a risk of suffocation.
- Keep baby's face uncovered to allow ventilation.
- Put baby on his or her back to sleep. Babies sleeping on their backs are less likely to become victims of SIDS.
- Adults should avoid smoking. Exposure to tobacco, both pre- and post-delivery, is associated with a higher risk of SIDS.
- Avoid overheating the room in which the baby sleeps and avoid overdressing the baby. Overheating is associated with an increased risk of SIDS.
- Avoid placing a crib near window treatment cords or sashes. These pose a strangulation risk.

Advice Specific to Cribs

- When baby learns to sit, lower the mattress level so that he or she cannot fall out or climb over the side rail.
- When baby learns to stand, set the mattress level at its lowest point and remove crib bumpers.
- When baby reaches a height of 35 inches or the side rail is less than three-quarters of his or her height, move the baby to another bed. Babies can fall from their cribs if the side rails are not at the right level in relationship to the mattress surface.
- Crib bumpers should have at least six ties, and these should be no longer than 6 inches in length. Bumper ties that are too long can pose a strangulation risk.
- Hang crib mobiles well out of reach and remove them when baby starts to sit or reaches five months of age, whichever comes first. Mobiles become strangulation or choking hazards if baby can reach them.
- Remove crib gyms when baby can get up on all fours. Babies can become entangled in these and risk strangulation.
- Keep baby warm by dressing him or her in a blanket sleeper. If you use a blanket, make sure your baby's head remains uncovered during sleep.³

Additional Recommendations for Bedsharing

- A parent's very long hair (at or approaching waist-length) should be pulled back and fastened. The hair can become wound about the baby's neck, posing a strangulation risk.
- Adults using alcohol or other drugs, those taking over-the-counter or prescription medications that may cause them to sleep too soundly, and those suffering from extreme exhaustion should not bedshare. Such adults may not be aware of the baby in the bed, creating a risk of overlying and suffocation.
- Head/footboard railings should have spaces no wider than those allowed in safety-approved cribs. As with cribs, these spaces can become places for baby to become entrapped and suffocate.

- Refrain from using bed rails with infants under one year. Babies can become wedged between the mattress and the side rail, resulting in suffocation.
- Refrain from allowing siblings in bed with an infant less than one year old. Very young babies are at a greater risk of overlying and suffocation by older siblings.
- Do not bedshare in a waterbed. The surface of a waterbed can prevent ventilation if a baby moves to a facedown position.
- Avoid placing an adult bed directly alongside furniture or a wall. Babies and young children can become trapped between the bed and other furniture or a wall and suffocate.

General Advice Regarding Infant Sleep

- Do not sleep with baby on sofas or overstuffed chairs.
- Do not put baby to sleep alone in an adult bed.

(Both of these practices put baby at risk for wedging, entrapment, and suffocation.)

Parents who choose to bedshare with their infants must be proactive. They must evaluate their sleep environment and make it as safe as possible for their baby. Both parents should feel comfortable with the decision to place baby in the environment that is chosen, whether crib or adult bed, and should be committed to following that environment's safety precautions, as noted above. No one sleep environment can guarantee that a baby will be risk free, but there are ways of reducing risk in both cribs and adult beds.

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— PATRICIA DONOHUE - CAREY

THE COMPLEXITY OF PARENT-CHILD COSLEEPING

Researching Cultural Beliefs

B Y K A T H L E E N D Y E R R A M O S



Controversies concerning parent-child cosleeping abound in both the popular parenting advice literature and professional scientific literature. Previous researchers have suggested that an understanding of the familial and cultural context of children's sleep might help resolve some of the controversy. The two studies described here are attempts to explore the context of cosleeping.

Why Do Some Families Share Sleep?

Anthropologists have observed that cosleeping is common in collectivistic cultures (where the needs of the group are considered more important than the needs of individual group members), and solitary sleep is common in individualistic cultures (where the needs of individuals generally overshadow the needs of the larger group).^{1,2,3,4} Some people assume that the relationship between sleep and belief systems generalizes to specific families—that parents of solitary-sleeping children endorse individualism and want their children to learn to sleep alone so they will learn to behave independently. Alternatively, the reasoning goes, parents of cosleeping children endorse collectivism and share sleep specifically to teach children that families function, even in sleep, as a whole rather than as separate individuals.

To test the truth of this assumption, I surveyed 215 mothers with a child between the ages of six months and five years.⁵ I asked them about their family sleeping arrangements and their beliefs with regard to individualism and collectivism. The mothers were recruited from childcare facilities in two California cities.

The majority of mothers (63 percent) endorsed cosleeping for

newborns, but endorsement was much less common (15 percent) for toddlers and quite rare (5 percent) for preschoolers. Black mothers were more likely than white mothers to endorse cosleeping, with Latinas in the middle. Single mothers were more likely than married mothers to endorse cosleeping. Mothers with less education and lower incomes were more likely to endorse cosleeping. All of this was consistent with the findings of prior researchers. Contrary to expectations, however, no evidence was found of a relationship between individualism and solitary-sleeping endorsement, or between collectivism and cosleeping endorsement. This suggests that parental beliefs about where their children should sleep do not reflect these broad cultural belief systems.

A majority of mothers, whether their children coslept or not, reported believing that cosleeping is good for their ability to comfort their children (79 percent), for family closeness (73 percent), and for their children's emotional health (70 percent). In addition, a majority reported feeling that cosleeping interfered with their own sleep (69 percent), their partner's sleep (67 percent), and the adult relationship (66 percent). These are common arguments for and against cosleeping,



but they don't seem to be mutually exclusive. Most mothers surveyed think that cosleeping has both advantages and disadvantages.

However, beliefs on two issues tended to distinguish cosleepers from solitary sleepers. Mothers of cosleepers were more likely than mothers of solitary sleepers to believe that cosleeping keeps children physically safe and helps children get a good night's sleep. These may be more important considerations for parents than cultural issues. Parents' beliefs about the appropriateness of cosleeping were strongly associated with the actual sleeping arrangements of their children.

Most of the children studied (74 percent) had coslept in the previous month. However, as other researchers have suggested, it appears that there are various types of cosleeping arrangements.⁶ Slightly more than half the cosleepers in this study were intentional cosleepers; that is, the parents wanted to cosleep. Slightly less than half of the cosleepers in the study were reactive cosleepers; that is, cosleeping occurred in reaction to existing childhood sleep problems.

As predicted, intentional cosleepers tend to cosleep all night long, whereas reactive cosleepers tend to cosleep for only part of a night. Reactive cosleepers have more sleep problems (resisting bedtime, night waking) than do intentional cosleepers or solitary sleepers. Additionally, mothers of reactive cosleepers are the least satisfied with their child's sleeping arrangements. This distinction between reactive and intentional cosleepers is described in more detail in the second study. Surprisingly, mothers of reactive cosleepers do not differ from mothers of intentional cosleepers on their individualism and collectivism scores.

The biggest surprise, however, was the relationship between individualism/collectivism and actual sleep behavior. Contrary to expectations, the more individualistic a mother, the less often her child sleeps alone, and the more collectivistic a mother, the less often her child cosleeps. It is possible that individualism and collectivism operate very differently at the individual level than at the cultural level. Perhaps cultural individualism creates a norm for solitary sleep, and cultural collectivism creates a norm for cosleeping. At the individual level, however, individualism may allow parents to ignore or defy the social norm, while collectivism may predispose parents to follow the norm with regard to family sleep. If this is indeed true, it will require researchers to seriously reconsider widely held assumptions about what cosleeping means in families.

In addition to the influence of cultural beliefs, family sleeping arrangements also seem to be driven by practical concerns about safety and sleep quality. It remains to be determined to what extent family sleeping arrangements are influenced by expert advice, past experience, and pragmatic considerations (infant temperament, breastfeeding status, size of parents' bed).

Different Types of Cosleepers

The distinction between reactive and intentional cosleeping seems valid. To document the degree of accuracy in these descriptions, I put a survey about family sleeping arrangements on-line and invited members of parenting e-mail discussion groups to share with me

what sleep is like in their homes.⁷ Within a few weeks, 767 parents with at least one child age five or younger completed my survey. They were mostly white, well-educated women in the US, but ideologically they were quite diverse. Based on their responses, I divided my participants into three groups: solitary sleepers, intentional cosleepers, and reactive cosleepers. As I suspected, the intentional and reactive cosleepers were very different from one another; but there were also some surprises.

As expected, reactively cosleeping children had more sleep problems than did either solitary sleepers or intentional cosleepers. That is, after all, why they were cosleeping. However, intentional cosleepers and solitary sleepers were equally unlikely to have sleep problems. This challenges the widely held assumption that cosleeping itself causes sleep problems. More frequently than the other children, intentional cosleepers slept in their parents' bedroom all night long. Reactive cosleepers, more frequently than the others, shared sleep for only part of the night. Parents of intentional cosleepers reported the greatest satisfaction with their family sleeping arrangements, and parents of reactive cosleepers reported the least. These findings were all consistent with what I expected. They suggest that there are two kinds of cosleeping: intentional cosleeping, previously described by family bed advocates as blissful, and reactive cosleeping, previously described by solitary sleep advocates as dreadful.

There were some surprises that challenge the simplicity of that distinction, however. While reactive cosleepers have more frequent sleep problems than other children, only 13 percent of parents of reactive cosleepers report that sleep problems occur frequently or always. Furthermore, few parents of reactive cosleepers (13 percent) actually report dissatisfaction with their family sleeping arrangements — far from the popularly portrayed picture of miserable parents. For most parents, reactive cosleeping is simply a fact of life, neither a tremendous burden nor a great gift. As one of my respondents stated: “It is not what I planned, but my daughter really needs to be with me, and I need to get my sleep. It works for us.”

On the other hand, intentional cosleeping isn't exactly the blissful experience sometimes described. More than 20 percent of intentionally cosleeping parents reported some disagreement with their adult partner over sleeping arrangements, and half reported that their child has sleep problems at least occasionally. Several parents added comments to their surveys, offering insight into the difficulties of cosleeping. One mother wrote, “I just want you to know that it's hard. Sometimes I'd like to cuddle with my husband, but there's a child between us. Sometimes I get awakened with a kick in the chest. But I know I'm doing the right thing for my child, and it is precious to wake up to his sweet smile. But I want you to know that it's not always easy.”

What We Don't Know

Understanding of cosleeping will come slowly. At this point we know very little, although most parents (and researchers) have opinions. At times like this, when a practice is fiercely debated, it is essential to recognize what remains unknown. The research I have described suggests that cultural beliefs have little influence on sleep, that the relationship

between cultural beliefs and behavior is quite complex, and that there are very different types of cosleeping. Now let's consider the questions that remain unanswered:

- Does cosleeping with an infant actually interfere with parents' sleep any more than having an infant in the next room? What about cosleeping with a toddler? Are mothers and fathers affected differently?
- Does cosleeping improve the quality of the parent-child attachment and thereby promote healthy independence, or does it teach children to disregard boundaries, making them dependent and fearful? Alternatively, is cosleeping completely unrelated to children's emotional development?
- Do adult relationships suffer when children sleep with parents? Do parents have fewer opportunities for intimacy or conversation? Or does the presence of children in a family bed strengthen the bonds between the adult partners?

It is important to acknowledge that no one really knows the answers to these questions. Many of us have opinions based on our own personal experiences, our ideological assumptions, stories we have heard, or just what seems reasonable and likely. But the truth is that none of us can really know for sure. In fact, the scientific community has very little evidence on these important questions. Consequently, arguments for or against cosleeping must be acknowledged to be speculative and not definitive. While the social and medical sciences continue to advance our understanding of children's sleep, there is still a long way to go.

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HOW THE STATS REALLY STACK UP

Cosleeping Is Twice As Safe

B Y T I N A K I M M E L



The Consumer Product Safety Commission (CPSC) and the Juvenile Products Manufacturers Association (JPMA, the crib manufacturers' lobby) recently launched a campaign to discourage parents from placing infants in adult beds or sleeping with them, based on data showing that infants have a very small risk of dying in adult beds.^{1,2} The CPSC implies that infants in adult beds are at greater risk than infants in cribs, but as we know, and as they know, babies also die in cribs.

What we need to do is calculate the relative riskiness of an infant sleeping in an adult bed versus a crib. We can do that by dividing a measure of danger for each situation by the prevalence, or frequency, of that situation, and then comparing them. (Oddly, the CPSC never presents relative risks.) Using government figures, we can perform a rough calculation to show that infants are more than twice as safe in adult beds as in cribs. This is aside from the many other advantages of cosleeping or bedsharing, such as increased breastfeeding and physiological regulation, the experience of having slept well, parents' feeling of assurance that their child is well and happy, the enhanced security of psychological attachment and family togetherness, and family enjoyment.³

Let's begin by looking closely at the CPSC data. The anti-cosleeping campaign is based on a dataset that contains the 2,178 cases of unintentional mechanical suffocation of US infants under 13 months old for the period 1980 to 1997. CPSC-authored articles about these data reflect only the small portion of deaths that occurred in adult beds.⁴ However, these data also have been published with summaries of the

cause-of-death codes on all 2,178 cases.⁵ This complete dataset is further summarized in Table 1.

Of these 2,178 infant suffocation deaths, we are certain of only 139 occurring in an adult bed. For 102 of these, we know that a larger person (presumably a sleeping adult) was present, because the cause-of-death code is "overlain in a bed." That does not tell us exactly what caused the death—that is, whether the baby died and then was lain on, or died as a result of being lain on. We can assume that the 37 deaths involving waterbeds occurred in adult beds, since few child waterbeds exist. That gives us a total of 139 infant suffocation deaths known to have occurred in adult beds in these 18 years.

The same data show that 428 infants died due to being in a crib. It is likely that there were preventable risk factors (such as using a crib in need of repair) involved in these crib-related deaths. But that doesn't change our calculations, because the deaths did occur. Similarly, our calculations do not change due to the preventable risk factors (such as intoxication) involved in adult-bed deaths (and other overlying). Note

TABLE 1

Unintentional Infant Suffocations,

US, TOTAL FOR 1980–1997

Grouped Cause of Death	Number
Adult bed	139
Overlain in a bed	102
Oronasal obstruction, waterbed	37
Crib	428
Wedging between mattress and crib frame	193
Entrapment with suspension in crib/cradle	64
Compression: collapsed crib	13
Other	158
Other overlain	78
On a sofa	67
Other	11
Other infant furniture	34
Entrapment with suspension in high chair	21
Other	13
Other beds/bedding	739
Wedging between bed/mattress and wall	285
Oronasal obstruction: pillow	65
Oronasal obstruction: plastic bedding	17
Other	372
Miscellaneous	760
Oronasal obstruction: plastic bag	208
Hanging by blind/drapery cord	30
Other	522
Total	2,178

Note: All ages 0–13 months combined.

Source: US Consumer Product Safety Commission Death Certificate File, as published by Drago and Dannenberg. See Note 5.

that advocates are raising public awareness to increase the safety of both these sleeping arrangements, with the hope that all these deaths will decrease.

We can't use the other 739 bed- or bedding-related cases in our analysis, because the place of death is not specific enough; these deaths may have occurred in a large adult bed, a single-size adult bed, a child's bed, or a misused crib. Nor can we include the remaining 760 deaths, as we have no idea whether they took place in a sleep situation at all. We also know nothing about the presence or absence of an adult, although a nearby, aware caretaker could have prevented many of these deaths.

So for only 567 (139 plus 428) of the deaths do we know whether they took place in an adult or infant bed. Thus, from 1980 to 1997, 75 percent of the mechanical suffocation deaths of US infants with a known place of occurrence took place in cribs, while 25 percent took place in adult beds.

While it is tempting to make the observation that three times as many babies died in cribs as in adult beds, if three times as many babies were actually sleeping in cribs as in adult beds, the risk would be the same in either place. Based only on this crude death-certificate data, we do not know which is safer. We still need to know how many babies were actually in adult beds or cribs—that is, an estimate of how common cosleeping was.

To estimate cosleeping prevalence, we can turn to the CDC's Pregnancy Risk Assessment Monitoring System (PRAMS).⁶ PRAMS has been surveying mothers of infants, usually between two and six months of age (but occasionally up to nine months), since 1988. Approximately 1,800 new mothers are sampled each year in each participating state. The sample is rigorously selected to represent essentially every birth in the state, and the response rates are high (70 to 80 percent). Most of the 100 or so PRAMS questions involve prenatal and well-baby care and stressors.

States have the option of adding their own questions and have asked about cosleeping. The basic question asked is, "How often does your new baby sleep in the same bed with you? Always; Sometimes; Never." (Some states add "Almost always.") PRAMS data, therefore, can be used to ascertain cosleeping prevalence in participating states and may be the only data of this kind.

Table 2 shows the results of this question on the PRAMS survey from 1991 through 1999, the most recent data available.

We see from these data that roughly 68 percent (100 percent minus the 23 to 43 percent who "never" coslept) of babies in these states enjoyed cosleeping at least some of the time. Data from the United Kingdom are similar: Helen Ball's Sleep Lab found that around 7 percent always coslept, 40 percent did so for part of the night, and 33 percent never coslept.⁶

Now let's try to estimate a single cosleeping prevalence rate from these data. Let's say that babies who "sometimes" cosleep do so about half the time. Over all the years of this sample, around 42 percent of babies coslept "sometimes." Let's also say that "always" or "almost always" means 90 percent of the time. Roughly 26 percent of infants coslept "always" or "almost always." Adding "always/almost always" (90 percent of the time x 26 percent of babies) to "sometimes" (50 percent of the time x 42 percent of babies), we get 44 percent of babies ages two to nine months who were cosleeping at any given time, presumably in an adult bed.

Now we can use these figures based on CPSC and PRAMS data to calculate the riskiness of these two sleep arrangements, although it's important to understand the limitations of doing so. For example, these PRAMS data are from only five states (although more will be available in the future), while the CPSC data are from the entire US. The years in which the PRAMS cosleeping data were collected are not the same as those covered by the CPSC dataset, although they overlap. The CPSC covers infants zero to thirteen months, while PRAMS asks about infants two to nine months. The CPSC collects demographic details such as state, income, race, and age of mother (as does PRAMS), as well as time of the death, but they are not easily available to do a more detailed analysis. One or both of these data sources lacks information on impairment of

TABLE 2

MOTHER-INFANT COSLEEPING PREVALENCE RATES,
SELECTED STATES, 1991–1999

Q: How often does your new baby sleep in the same bed with you?

		Almost Always Always*	Sometimes*	Never*	Number of State Births
1991	Alaska	15.9	42.0	42.1	11,686
1992	Alaska	19.1	42.6	38.3	11,726
1993	Alaska	21.4	41.5	37.1	11,073
1994	Alaska	20.6	47.3	32.1	12,079
1995	Alaska	24.6	43.8	31.6	10,081
1996	Alabama	30.8	38.7	30.5	61,514
	Alaska	32.9	41.5	25.6	10,176
	West Virginia	18.7	39.2	42.1	19,621
	<i>weighted avg.</i>	28.4	39.1	32.5	91,311
1997	Alabama	29.4	41.3	29.3	60,921
	Alaska	35.2	41.5	23.3	9,710
	Colorado	10.4	50.1	39.5	52,050
	West Virginia	19.6	40.1	40.3	20,466
	<i>weighted avg.</i>	21.5	44.4	34.2	143,147
1998	Alabama	32.0	38.7	29.3	62,074
	Alaska	36.1	38.2	25.7	9,926
	Colorado	14.6	47.8	37.6	59,577
	West Virginia	21.0	38.8	40.2	20,747
	<i>weighted avg.</i>	24.0	42.2	33.8	152,324
1999	Alabama	32.0	36.6	31.4	62,122
	Alaska	38.5	39.1	22.5	9,950
	Colorado	14.4	48.0	37.5	62,167
	Oregon	34.9	41.7	23.4	45,204
	West Virginia	20.4	37.1	42.5	20,728
<i>weighted avg.</i>	30.7	40.6	28.7	200,171	
Total weighted avg.		25.8	41.9	32.3	643,598

* In percentages

Note: State data are weighted by sample strata. Averages are weighted by state births. Infants are two to nine months old. All races, incomes, ages of mothers, regions combined. Due to rounding, percentages may not equal exactly 100.

Sources: State PRAMS programs; National Center for Health Statistics

caretaker and other known sleep risk factors, exact sleeping and furniture arrangements during different times in the night, overcrowding and other motivation for cosleeping or crib sleeping, clinical pathology findings, previous health of the infant, etc. Plus, a complete risk analysis should include all causes of infant deaths, including SIDS.

Nonetheless, these data are important population-based sources of information on sleep risks that we would not have otherwise. So let's go ahead and use them to estimate a risk ratio for cosleeping. We take the 25 percent of the suffocation risk in the CPSC data linked to being in an adult bed and divide it by the 44 percent of babies who were actually in adult beds. Then we

divide that fraction by a similar fraction for cribs, i.e., 75 percent divided by 56 percent. (If we multiplied each of these fractions by an overall infant death rate, we would have the actual risk for each group.)

This result shows that it was actually less than half (42 percent) as risky, or more than twice as safe, for an infant to be in an adult bed than in a crib. Based upon these calculations using the CPSC's own data, we can say that crib sleeping had a relative risk of 2.37 compared with sleeping in an adult bed.

Therefore, cosleep with impunity—but, of course, be sure to follow the safe cosleeping guidelines described in this issue of *Mothering*.

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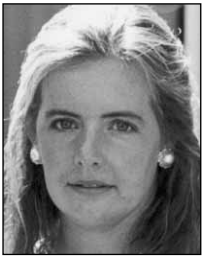
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Bedsharing

RESEARCH IN BRITAIN

BY HELEN L. BALL



Much has been written about the pros and cons of parent-infant bedsharing, but why parents sleep with their babies has not been the subject of much research. In order to explore this and other aspects of bedsharing, researchers at the Parent-Infant Sleep Lab, Department of Anthropology, University of Durham used a combination of sleep diaries and interviews to study nighttime caregiving in a randomly generated sample of 253 families with newborn infants in the north-east of England. Parents completed a week's worth of structured sleep diaries during their babies' first and third months and were interviewed at the end of both months.

In our analyses, parents and infants were identified as bedsharers if the infant slept in an adult bed with one or both parents for any portion of a night or nights for which the diaries were kept. Subcategories of bedsharing were defined as:

- habitual bedsharing (infant slept in parental bed all night, every night)
- combination bedsharing (infant slept in more than one place, but slept in parent's bed for at least part of night on at least two nights per week)
- occasional bedsharing (infant slept in parent's bed once a week or less)
- Non-bedsharing families were those in which infants never slept with parents in an adult bed.

We found that parents and infants in the study bedshared regularly. More than half of the babies (54 percent) bedshared on at least one sleep-diary night during the first month, third month, or both. In interviews, 70 percent of parents reported that they had bedshared with their baby at least once by the time he or she was four months of age. (Figure 1 shows the proportion of habitual, combination, and occasional bedsharing during the infants' first month of life.)

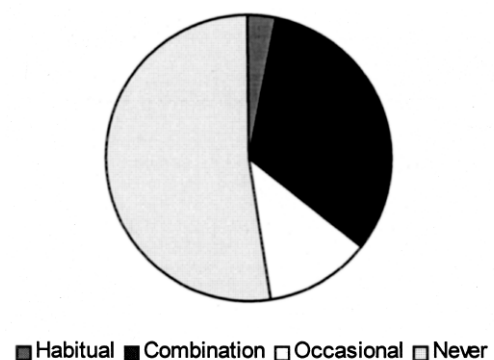
Parents slept with their babies for a variety of reasons, including family-bed ideology (one that encourages children to sleep with their parents whenever they wish), enjoyment of being in close contact, necessity due to lack of space, and anxiety regarding infant health or safety. Among families in our study for whom bedsharing was unrelated to breastfeeding, settling a baby who was having trouble sleeping was a prevalent (55 percent) reason for bedsharing. In these cases,

infrequent bedsharing occurred when a baby who was unhappy at being put to sleep alone protested until the parents, desirous of sleep, allowed him or her into bed.

The most common reason given by parents for bedsharing, however, was the ease and convenience of nighttime breastfeeding. Breastfeeding and bedsharing are closely intertwined, and the existence of a strong and clear relationship between the two is supported by numerous studies.¹⁻⁸ In the present study, 65 percent of those mothers who had ever breastfed bedshared (at least occasionally), compared to 33 percent of mothers who had never breastfed. For infants who were breastfed for a month or more, the association with bedsharing was even greater: 72 percent of these parents and infants were bedsharers, compared to 38 percent of other babies.⁹

FIGURE 1

Types of bed-sharing in first month



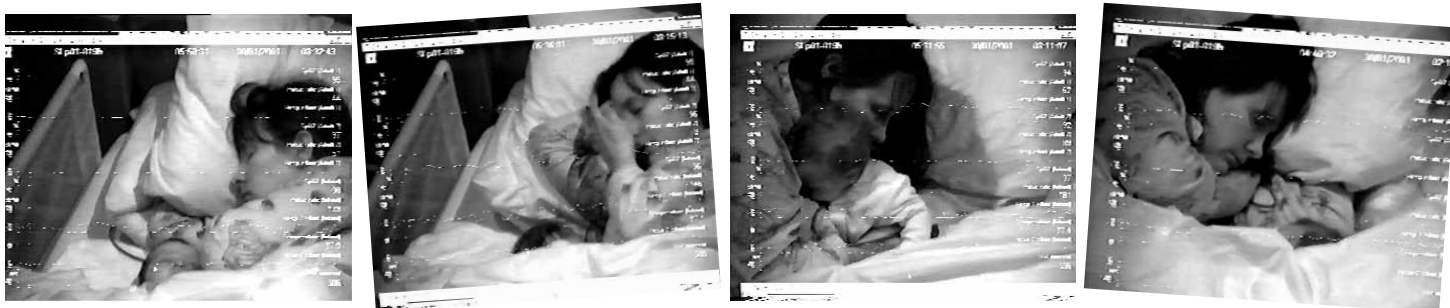
Mothers in the sample who were unprepared for the greater frequency with which breastfed babies wake to feed during the night in comparison with formula-fed babies cited “baby feeding too frequently at night” and “mother needs more sleep” as reasons for giving up breastfeeding in the early weeks. But those who continued breastfeeding, and particularly those who had had experience with previous children, used bedsharing as a means to ameliorate frequent nighttime feeds; many said that, when bedsharing, they barely needed to wake up in order to latch the baby on the breast.¹⁰ The majority of breastfed babies who slept in their

month, only 29 percent did so during the third month. This relationship between infant age and bedsharing is confirmed by an Australian study that found a significantly greater proportion of younger infants (2 to 12 weeks) than older infants (13 to 24 weeks) bedsharing.¹⁵

Approximately 25 percent of formula-fed infants slept with their parents. Around half of these families did so regularly, for ideological reasons, lack of space, or enjoyment; the remainder brought their infants into bed only on rare and specific occasions (such as during infant illness or irritability, or due to temporary lack of space, such as when traveling).

neously adopted a distinctive lateral position facing the infant, with her knees drawn up under the infant’s feet and her upper arm positioned above the infant’s head.²⁰⁻²² This position facilitates the baby’s easy access to its mother’s breasts, and babies orient themselves toward their mother’s breasts for most of the night. It also provides several safety benefits:

- The baby is flat on the mattress, away from pillows.
- The baby is constrained by the mother’s knees and arm, so that it can’t move up or down the bed.
- The mother controls the height of bed covers over the baby.



Above: A videotape of mother and baby bedsharing in Helen Ball’s sleep lab.

parents’ bed were not there all night; most of these parents employed a strategy we call “combination bedsharing,” with the baby starting the night alone in a crib or bassinet, being moved into bed at the time of the first breastfeed, and remaining there for the rest of the night.

Several midwives were reported to have taught new mothers, especially mothers who had delivered via cesarean, how to breastfeed their infants lying down during their postpartum stay in hospital. Around a third of all mothers who ever breastfed reported that they slept with their infants in their hospital beds.

Although at least one researcher cautions against the rare possibility of accidental asphyxia associated with breastfeeding-related bedsharing,¹¹ breastfeeding mothers commonly bedshare as a means to alleviate the sleep disruption of nocturnal breastfeeding—a fact acknowledged in the American Academy of Pediatrics position statement on bedsharing.¹²

Because there is a sharp decline in breastfeeding rates between birth and six months in both the UK and the US,^{13,14} it makes sense to expect that neonates will be more likely to bedshare than older infants. We found that while 47 percent of babies bedshared during their first

The circumstances of irregular or occasional bedsharing are such that safety considerations and potential risk factors might be quite different for these families than for those who practice regular breastfeeding-related bedsharing. In video-observational studies, several researchers have begun to distinguish differences in the bedsharing relationships of mothers and infants who normally sleep together compared with those who do so occasionally. In one study, regularly bedsharing mothers responded to their infants more rapidly than did mothers who did not normally bedshare.¹⁶ Other studies found that irregularly bedsharing mothers and non-breastfeeding mothers turned their backs on their infants while bedsharing, while regularly bedsharing, breastfeeding mothers did not.^{17,18} Mothers who were regular bedsharers slept in closer proximity to their infants than did mothers who did not bedshare regularly.¹⁹

In a further study, we videotaped regularly bedsharing parents and infants sleeping together at home and compared the bedsharing behavior of 10 sets of breast- and formula-feeding mothers and infants. Breastfeeding bedsharers slept together in a characteristic manner that has been independently described by several researchers: The mother sponta-

- It is very difficult for the baby to be rolled on by either parent, as the mother’s elbow and knees are in the way.
- The mother is close enough to monitor the baby’s temperature and breathing continually.

Bedsharing families who did not breastfeed slept together differently, particularly with respect to the physical orientation to the infant. Mothers who had never breastfed did not curl up around their infants for sleep and did not, therefore, use their own bodies to make a constrained space in the bed for the baby. These mothers primarily positioned their infants at face height in the bed, either between or propped up on the parents’ pillows. Mothers also spent a much smaller proportion of the night facing their infants, and although infants were still oriented toward their mothers for the majority of the night, the mother’s position meant there was less face-to-face orientation. It seems that the mothers who didn’t breastfeed slept with their infants as if they were sleeping with another adult (faces at same height, no protective sleeping position, less persistent orientation toward infant).

As would be expected, feeding frequency and duration differed significantly between breastfeeding and formula-feeding bedsharers; the latter fed on average once per night, while

the former fed at least twice and sometimes four or more times in a night. Feeding frequency is related to arousal frequency and arousal synchrony between bedsharing mothers and infants, with breastfeeding mothers and infants experiencing significantly greater arousal frequencies during the night than formula-feeding mothers and infants, together with more synchronous arousals.²³

The predominant location in the bed for all infants was in the middle, between both parents. Breastfed infants also spent time sleeping on the outside of the mother, while formula-fed infants tended not to be moved around the bed. The changing location of the breastfed infants reflects the fact that some mothers moved their babies to facilitate feeding from a particular breast. (It was apparent, however, that some mothers were able to feed from either breast while remaining in the same position.)

The other principal difference observed involved infant sleep position. Formula-fed infants predominantly slept supine, while all but one breastfed infant spent the majority of the night in a lateral position, probably because it facilitates breastfeeding. The supine infant sleeping position is now recommended in all Western countries due to the increased risk of cot death among infants sleeping prone.^{24–32} The lateral sleep position, although recommended in the US until recently, has been discouraged in the UK for almost a decade, as several case-control SIDS studies have indicated that it is associated with a greater risk of SIDS than supine sleep.^{33–36}

The issue is complicated by the fact that epidemiological studies examining sleeping position have not done so in the context of bedsharing. Several researchers have noted that infants sleeping alone who are positioned laterally may roll forward into the prone position, thereby increasing their risk of SIDS.^{37–39} An infant sleeping in a lateral position next to its mother, however, would be unable to roll forward. It is currently unknown whether lateral sleeping in this context is also associated with an increased SIDS risk. The relationship between the sleeping position of babies who practice breastfeeding-related bedsharing and SIDS risk is a topic that requires further exploration.

The presence of a father in the bed did not present any universal pattern or implications for bedsharing infants. The vast majority of fathers of both breast- and formula-fed

infants faced away from their infants for the majority of the night, and their presence did not alter the proximity or orientation of the mother-infant dyad. We did note great individual variation in paternal arousability in response to infants during the night.

Clearly, bedsharing is not homogeneous. Parents and infants in the UK bedshare regularly and for a variety of reasons, including convenience, ideology, enjoyment, necessity, and anxiety. The primary reason is ease of nighttime breastfeeding. It should not be assumed, even within an ethnically homogeneous population, that all parents who bedshare with their infants do so in the same way, or for similar reasons. Circumstance and motivation must be considered in assessments of bedsharing safety, and parental reasons for bedsharing must be acknowledged in formulating advice for parents.

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ROOMING-IN

Assessing the Practical Considerations at the Hospital

BY MARTIN WARD-PLATT AND HELEN L. BALL



Many mothers share a bed with their babies in the early months of the infant's life, particularly for breastfeeding. Although this practice is controversial among health professionals, it has been found to be beneficial in several ways: It reduces sleep disruption caused by frequent nighttime breastfeeds, promotes breastfeeding by encouraging frequent suckling, facilitates continued breastfeeding, soothes fractious infants, and promotes sleep for mother and baby.^{1,2,3,4,5}

Many hospitals are now making a commitment to “baby-friendly” practices that encourage the early establishment and continued promotion of breastfeeding. Some are also developing policies on “bedding-in”—mother-infant bedsharing on the postnatal ward.⁶ In addition, baby-friendly guidelines require hospitals to allow mothers uninterrupted skin-to-skin contact for at least half an hour following delivery, to encourage breastfeeding within the first hour, and to advise mothers to keep their babies close to them at all times.⁷ The obvious extension to this practice is to help mothers maintain skin contact with their infants by bedsharing on the postnatal ward.

By allowing mothers to comfort, feed, and care for their babies in bed, bedding-in may assist the establishment of breastfeeding while helping mothers get more rest.^{8,9} In one British hospital, introduction of a bedding-in policy resulted in a halving of the rate of supplementation with artificial formula.¹⁰ Hospital bedding-in policies can provide a framework of guidelines through which some mothers can be allowed, even encouraged, to keep their babies in bed with them, both day and night, while on the ward.

There is currently no published research on the effects of bedsharing on mothers and infants in the immediate postnatal period, either in the hospital or the home environment. There are a number of well-

known contraindications (smoking, alcohol consumption, use of drugs that affect sleep) and safety issues (careful use of duvets and pillows, avoidance of soft sleeping surfaces and sofa-sharing) relevant to bedsharing at home. But there are other factors that come into play on the hospital ward, from simple aspects of the physical environment (e.g., height and width of the hospital bed) to the complexities of how analgesics used during delivery affect both mother and infant, including whether or not such drugs are safe in a cosleeping context.

The first potential harm is accidental falls from the bed. Because of the height and narrowness of most hospital beds and the hardness of hospital floors, the consequences of a newborn falling from an adult bed can be serious. Bed width and height also require assessment, as babies may be more precariously positioned in high, narrow beds than in lower, wider ones. Most hospital bedding-in policies prescribe the use of some form of crib side when an adult bed is used with an infant. Traditional railing-type crib sides are inappropriate, because a baby can fall, or become trapped, between the bars. Solid, padded crib sides, which overcome these problems, are available. Crib sides designed for use by solitary-sleeping toddlers may present a safety hazard to neonates because of the possibility of entrapment between the crib side and the bed mattress.

Relatively new on the market are three-sided infant bassinets, based on the design of a standard hospital bassinet, that can be attached to the mother's bed and locked in place. These allow easy access to the infant for breastfeeding and caregiving but provide a separate surface on which the infant can sleep. Comparative observations of the movements and interactions of mothers and newborns sleeping together in different types of hospital beds (e.g., wide delivery beds versus standard ward beds) would enable a scientific assessment of the benefits of wider and lower beds for bedsharing.

A second issue is that the ability of a newly delivered mother to respond to her baby is likely to be a critical determinant of the safety of bedsharing. The effects of opiate analgesics on infant behavior in the first few postnatal hours are well known. Infants exposed to pethidine show delayed and reduced sucking behavior and are drowsy and unresponsive in comparison with nonexposed infants.^{11,12,13} Unfavorable effects on the physiology and behavior of the newborn infant last up to three days after birth.¹⁴ There is evidence from older infants that bedsharing is unsafe when parents have used drugs or alcohol, but little is known about the effects that opiates in labor may have on a mother's handling of her baby, or how long these would last.

Skin-to-skin contact has been shown to be analgesic for newborns and helps infants recover rapidly from birth-related fatigue.

The third issue is the effect of bedding-in on the quality of maternal and infant sleep. Hospital research has shown that mothers who are separated from their infants at night do not sleep any better than mothers whose babies remain at their bedside, while babies separated from their mothers sleep considerably less than do those sleeping beside their mothers.^{15,16,17} This information drives the current practice of encouraging rooming-in, rather than removing infants to the nursery at night in order to give the mother a good night's sleep. We therefore need to confirm whether mothers and infants who sleep together during the immediate postnatal period achieve more or less sleep than those who share the same room but not the same bed.

The issue of maternal and infant sleep links with that of maternal and infant fatigue after labors of differing intensity and stressfulness. Research data on postpartum maternal fatigue in relation to length of labor is sparse, and information on the effects of a long and exhausting labor on the first postpartum maternal sleep is nonexistent.¹⁸ So there are no data upon which to make judgments as to the safety of mothers and babies bedsharing after exhausting deliveries.

Another issue is that of maternal satisfaction. A recent Norwegian study found that insufficient sleep and rest is a source of dis-

satisfaction for many women on postnatal wards.¹⁹ The development of maternal confidence in infant caregiving is also likely to be a strong determinant of mothers' satisfaction with their postnatal stay.

In terms of caregiving, would bedding-in on the first or second night after delivery have an impact on the establishment of breastfeeding? While this seems likely, there is only a little direct evidence to suggest that it is true.²⁰ The effects of skin-to-skin contact and suckling within a short time of birth are well known, but research into the optimal method for reinforcement of these practices over the subsequent days has rarely included research on bedsharing.

There are clear benefits of prolonged skin-to-skin contact ("kangaroo care") between mother and infant in the immediate postnatal period. In many respects, mother-infant bedding-in is an extension of this prolonged contact for the duration of the hospital stay. Unfortunately, much of the research on this has been done on premature babies, and it is not clear how far this research can be extrapolated to term infants. Skin-to-skin contact has been shown to be analgesic for newborns and helps infants recover rapidly from birth-related fatigue.^{21,22} It encourages spontaneous breastfeeding, promotes continued breastfeeding, and helps to conserve energy, all of which increase

the well-being of the newborn infant.^{23,24,25} In addition, preterm neonates seem to sleep longer, experience less agitation and less instability of heart rate and breathing, and have more stable oxygenation.²⁶

Skin-to-skin contact was also associated with a significant increase in maternal oxytocin levels in two Swedish studies, suggesting that uterine contraction may be enhanced and milk ejection improved, to the benefit of both mother and infant.^{27,28} Furthermore, skin-to-skin contact is also associated with lower maternal anxiety and more efficient participation of mothers in caring for their newborn infants.²⁹ All of this is encouraging, but there are no definitive answers to the questions arising among term babies in their first postnatal days.

As we have shown, there is at present little solid evidence to resolve these debates. Bedsharing has mostly been studied among breastfed infants of three or more months of age.^{30,31,32} In studies of parent-infant bedsharing in both the home and sleep lab environment, we have used infrared video to examine the bedsharing environment, sleep-related behavior, nighttime breastfeeding, and sleep patterns in mothers, fathers, and infants two to six months of age. These studies, by our group and others around the world, illustrate that bedsharing is

associated with longer and more restful maternal and infant sleep and with successful breastfeeding.^{33,34,35} Babies who sleep with their mothers feed more frequently (thus stimulating milk supply) and for longer peri-

the first postpartum night, while others, exhausted or under the influence of opiate analgesics, slept heavily. Many babies also appeared exhausted at this time. It may be that the second postpar-

Bedsharing is associated with longer and more restful maternal and infant sleep and with successful breastfeeding.

ods than babies who breastfeed without bedsharing.³⁶

To extend these studies to the first nights after delivery, we have undertaken a pilot study of bedding-in on the postnatal wards of the Royal Victoria Infirmary, Newcastle upon Tyne. We used nighttime infrared video recording to examine mother and baby behavior on the first postnatal night. We observed that some mothers barely slept on

tum night is the most critical for the establishment of breastfeeding, so in the future we will need to observe both the first and second postpartum nights.

Bedding-in is unlikely to be ideal for every mother and baby, but we hope to provide the information upon which informed choices and recommendations can be made.

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36. See Note 4.

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The New Zealand Experience

HOW SMOKING AFFECTS SIDS RATES

BY BARRY TAYLOR, SALLY BADDOCK, RODNEY FORD,
ED MITCHELL, DAVID TIPENE-LEACH, AND BARBARA GALLAND

New Zealand is a small country—the size of England—with a population of just over four million, of which 15 percent are indigenous Maori. In the 1980s we had the unenviable reputation of having one of the highest rates of infant death in the Western world. The majority of the excess of deaths (compared to other countries) were recorded as being due to sudden infant death syndrome (SIDS).¹

To find out what we were doing wrong, a research group from different parts of the country, including most of the authors of this article, carried out the New Zealand National SIDS Study (1987–1990), which compared infant care practices of parents of 465 babies who died of SIDS with parents of 1,800 who did not. Our questions were deliberately designed to focus on parental actions that were relatively common and that also could be changed. Among other results,^{2–20} we found that bedsharing was a risk, but sharing a room (not a bed) was protective. To our surprise, the use of a dummy (pacifier) was a protective factor.

Most important was strong evidence that babies sleeping on their fronts or sides were at much higher risk of dying than those placed on their backs. With supporting evidence coming out of the Netherlands at the same time, we launched a national campaign telling parents that babies should be put to sleep on their backs, that smoking increased the risk of sudden death, and that breastfeeding

decreased this risk. The campaign had the effect of halving the number of SIDS deaths in New Zealand within a year. Subsequently we discovered that almost all the decreased risk could be attributed to the change in sleep position.²¹

The number of deaths occurring among Maori babies, already at higher risk than the rest of New Zealand babies, did not decline to the same extent, even though the change in sleep position occurred as much in this group. Among the Maori, it is a strong traditional cultural practice for families to share one bed, often throughout childhood. Indeed, in some Pacific Island cultures, not to share a bed with a baby is considered tantamount to child abuse; the thinking is, “Why should parents enjoy the warmth and comfort of sleeping in the same bed, while a newborn baby, used to sleeping inside its mother, is cast out to sleep alone?”

Even when it is not a traditional practice, bedsharing is valued by many New Zealand families. Parents report that it permits close contact and response to infant needs through the night, ease of breast-

feeding, and a sense of security. For many it is a chosen, infant-centered parenting style. In some places, such as Japan and Hong Kong, bedsharing is common and SIDS is uncommon; it cannot be said, therefore, that bedsharing is uniformly risky. It must be noted that in cultures that bedshare but have low risks of SIDS, the surface slept upon is usually very firm. Also, very few mothers in these cultures smoke (although smoking among fathers is quite common).^{22,23}

An in-depth examination of the New Zealand study found that bedsharing appeared to be a significant risk factor for sudden death only if the mother had smoked during her pregnancy. Smoking among fathers had no effect. When both factors were present, however, the risk was five times higher than when neither factor was present. This effect was present in all racial groups.

The fact that 60 to 70 percent of Maori infants bedshare, and that a similar percentage of Maori mothers smoke during pregnancy, thus explains to some degree the persistence of high rates of SIDS in the Maori population. Add to this the other elements of social deprivation that are endured by Maori, and a “good-enough” explanation of high SIDS rates is found. Furthermore, this explanation accounts for the low SIDS rates in Japan and Hong Kong, where mothers rarely smoke.

Clearly, there are safe and unsafe ways of bedsharing, and we are working to identify the exact mechanisms by which these combined bedsharing/smoking deaths occur. We’ve just completed a home-based study of the behavior, breathing, and temperature of 40 babies sharing a bed with their parents compared to 40 babies sleeping in a crib in the same room. We hope that this study will be another step forward in identifying safer ways for babies to share beds with their parents.

Some evidence now suggests that when exposed to the harmful effects of tobacco in the womb, babies sustain damage to their nervous systems that affects their ability to respond well to the interactions between mother and infant that often occur in bedsharing.

One of bedsharing’s clear benefits is that it makes it much easier to breastfeed more frequently. There is considerable evidence that breastfeeding continues longer in those families who regularly share the bed with their babies. There is little or no evidence to suggest that infant behavior problems and bonding are improved or made worse by bedsharing, although few studies of this issue were done well enough to trust the conclusions.

With the current state of evidence, we believe that if a mother has smoked in pregnancy, her baby should go into a shared bed only for breastfeeding and cuddles, and that, when the mother is about to go to sleep, the baby should be put down to sleep in a crib in the same room for at least the first six months of life. For mothers who have not smoked in pregnancy and who are not on sedative drugs, bedsharing presents either no or minimal risk to the baby. So far, we have not identified a group of infants for whom bedsharing lowers the risk of SIDS.²⁴

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An aerial photograph of a coastline, showing a bay with a small island in the center, surrounded by rugged mountains and a forested area. The water is dark, and the land is a mix of green and brown tones.

Bedsharing among Maoris

AN INDIGENOUS TRADITION

BY DAVID TIPENE - LEACH

The New Zealand National SIDS Study, discussed in a preceding article by Barry Taylor et al., identified three modifiable risk factors in SIDS deaths: prone sleeping position, the absence of breastfeeding, and maternal cigarette smoking. A prevention campaign was launched across New Zealand, and within a year the national SIDS rate was practically halved. By 1992 bedsharing was being promoted as a fourth modifiable risk factor, and an anti-bedsharing message was included in the SIDS prevention effort.

It soon became quite clear to SIDS workers in the community, and later at a statistical level, that SIDS deaths among the indigenous Maori, who comprise about 15 percent of the population, had hardly dropped at all. As a result of this finding, and with some agitation from the Maori health sector, the Maori SIDS Prevention Programme was established in 1994.

High rates of both maternal smoking and bedsharing with infants largely explained the high SIDS rates in Maori communities. Promoting breastfeeding and the back and side sleeping positions did not present any problems, as breastfeeding is prevalent among Maori and has its own status as a traditional behavior. Also, the prone sleeping position is far less common among Maori babies, because they are more likely to be found bedsharing with parents or, when older, with siblings.

Initially, the Maori SIDS Prevention Programme refused to counsel against bedsharing in any way. We stuck to the line that smoking was the risk factor of concern in the Maori community and that we should be working on that area. Instead, we promulgated a “Tips for Safe Bedsharing” message that promoted a lightly covered, breastfed baby, sleeping on its back in a traditionally made flax sleeping basket, between the parents in their double bed. At the same time, we faithfully repeated the antismoking mantra and the promotion of breastfeeding in our Maori radio and television campaigns.

Behind the scenes we debated the approach to the bedsharing/smoking issues with our research and public health colleagues, maintaining that their advertising was effectively backing Maori women into a corner and turning them off all the associated SIDS prevention messages. We lobbied for national SIDS prevention publicity to be free of the anti-bedsharing messages and to focus instead on cigarette smoking.

Constantly reviewing their data, and driven by the above debate, the New Zealand study team subsequently found that bedsharing and cigarette smoking had a confounding relationship. That is, while bedsharing in the presence of maternal smoking increased the SIDS risk significantly, bedsharing on its own did not. Our strategy was thus vindicated, in that infant bedsharing was, as our old people had said, a safe behavior.

We continued therefore to campaign against smoking by pregnant Maori women and Maori mothers in the belief that elimination of one of these factors eliminated the associated risk. We even developed a smoking cessation program of our own, in which scores of community health workers treated people with auricular mini acupuncture needles. It was a valiant but rather frail effort, given the sheer size of the problem: nearly half of all pregnant Maori women smoke.

Researchers soon found that it was smoking during pregnancy, not environmental cigarette smoke, that was the main culprit in SIDS. Persuading Maori mothers to give up smoking would not reduce the risk to their present infants. Therefore, we had to move to a prohibitive message regarding bedsharing if the mother had smoked during her pregnancy.

There were many such Maori mothers who were clearly interested in reducing the risk to their infants. Our workers advised them that cud-

When exposed to the harmful effects of tobacco in the womb, babies sustain damage to their nervous systems that affects their ability to respond well to the interactions between mother and infant that often occur in the bedsharing situation.

dling and feeding together in bed was fine, but that they should avoid actually sleeping together and instead place the baby in a crib to sleep. There remains also a sizeable group of Maori mothers who smoked in pregnancy and who will not, or cannot, provide separate sleeping environments for their infants. They remain at risk, and we advise them to place their babies on the outer part of the bed, swaddled and blanketed separately, in their own sleeping space.

There are two mechanisms of infant death in the bedsharing situation. One, the result of an infant biologically compromised because of maternal smoking in pregnancy, is properly labeled SIDS. The other is accidental suffocation or overlying and is not a SIDS death. Accidental suffocation was not investigated in the New Zealand SIDS study but has been observed by our workers (and others) as being a factor when drugs, primarily alcohol, are used by the parent(s) before sleeping with the infant. Consequently, an important part of our message to Maori (and other) parents is: “If you’ve been partying, don’t sleep with your baby.”

The maintenance of the bedsharing option for those who did not smoke in pregnancy has been a valuable step for infant care in New Zealand. Without the Maori SIDS Prevention Programme’s stand against denigrating this age-old practice, bedsharing might have been altogether discouraged by health authorities. We do not counsel against bedsharing at all where there was a smoke-free pregnancy. If the mother smoked during pregnancy, we advise that the baby can be cuddled and fed in bed but that when the parents go to sleep, the baby should be placed on its back in a crib free of potential suffocation hazards, such as pillows, bumpers, and loose blankets.

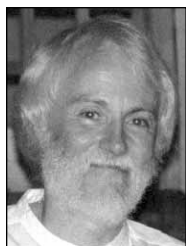
Bedsharing is now recognized as a risk for infant death only in the presence of smoking in pregnancy and alcohol or drug intake by parents. The traditional behavior of sleeping with infants still remains a viable and safe option for many families.

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Where Should Babies Sleep at Night?

A REVIEW OF THE EVIDENCE FROM THE
CONFIDENTIAL ENQUIRY INTO STILLBIRTHS AND DEATHS IN INFANCY (CESDI)
SUDDEN UNEXPECTED DEATHS IN INFANCY (SUDI) STUDY

BY PETER FLEMING



Several strong recommendations have been made recently by different groups concerning the safest or most appropriate sleeping arrangements for infants in Western society. The US Consumer Product Safety Commission, basing its information on reports of child deaths in adult beds, has advised parents against taking their baby into bed with them.

Unfortunately, the study upon which this recommendation is based did not include a control group; thus, while individual cases were described in which accidental asphyxia was adduced from the circumstances of death, no population data were collected to allow an assessment of actual risk.

In the UK, the Sudden Unexpected Deaths in Infancy study (SUDI), carried out as part of the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI), was a population-based case-control study of all sudden unexpected deaths of infants from 7 to 365 days of age, in five regions of England.^{1,2,3,4} It was the largest such study yet conducted and included all unexpected infant deaths occurring over a three-year period from a population of 470,000 births. The families of infants who died were contacted as soon as possible after the death (usually within three or four days), and a nurse-researcher interviewed the parents to collect detailed information on the family background and medical, social, economic, and environmental factors; in all, the database included more than 600 fields. Particular emphasis was given to the precise sequence of events and a detailed description of the place in which the infant was sleeping when put down for the last sleep, and when found dead.

For each infant who died, four live infants were selected, matched for age, locality, and date, and precisely similar information was collected from the parents of these infants. Detailed information was collected on the sleeping conditions in a “reference” sleep, which occurred in the 24 hours before the interview, to ensure that parents remembered the details.

The study included information on 450 infants who had died suddenly and unexpectedly and 1,800 matched “control” infants. For 325 of the infants who had died, no explanation was found for the death, which was therefore certified as due to sudden infant death syndrome. The CESDI SUDI study thus allows us to examine in great detail the conditions in which infants were sleeping and to compare the sleeping arrangements in which infants died with those in which infants of the same age, in the same society, were sleeping at the same time. From this comparison it is possible to identify conditions that differed between the live infants and those who died.

The study offers a unique opportunity to examine the evidence as to whether sharing a bed with a parent was a factor contributing to the risk of death. In order to carry out such a comparison, it is important to consider factors that may affect the risk of bedsharing, for example, whether the parent had consumed alcohol or taken sleep-inducing drugs. A previous study in New Zealand had indicated that sharing a bed with a parent who smoked might be hazardous, so this factor also needed to be taken into account.^{5,6}

The CESDI study showed that for infants who shared a room with a parent, the risk of SIDS was approximately half that for infants who slept alone. In other words, putting a baby to sleep in a separate room (rather than the room in which the parents slept) doubled the risk of SIDS.

For parents who smoked, had been drinking alcohol, or were excessively tired (less than 4 hours uninterrupted sleep in the previous

24 hours), sharing a bed with their baby increased the risk of SIDS for babies less than four months of age. For babies over this age, or for parents who did not smoke and had not been drinking or taking sleep-inducing drugs, there was no evidence that bedsharing increased the risk of SIDS.

Sleeping with a baby on a sofa or armchair was found to be extremely hazardous, increasing the risk of SIDS by a factor of 25.^{7,8}

From the information given by the parents of the live babies, it is clear that around half of them brought their baby into bed with them at times, and at times they would fall asleep while the baby was there. Careful analysis of the CESDI data showed that at least half of all parents bedshared with their baby at some time.

The CESDI study confirmed previous studies that showed that putting a baby to sleep on its stomach, under excessive bedding, or under bedding that could ride up over the baby's head, or using a pillow or soft bedding in the crib, would increase the risk of SIDS. Avoiding such factors is thus an appropriate way to reduce the risk of SIDS and is estimated to have saved around 100,000 infants' lives worldwide. (Estimate based upon recorded falls in SIDS rates and infant mortality in the US, Europe, Australasia, and the UK.)

No one would suggest that because sleeping in a crib can be hazardous under certain conditions, no baby should sleep in a crib. By analogy, therefore, it is equally illogical to suggest that because under certain circumstances bedsharing can be hazardous, parents should not bedshare with their baby. Given the near universality of the practice of bedsharing at some stage, it is far more logical to identify the conditions under which bedsharing is hazardous and to give parents information on how to avoid them.

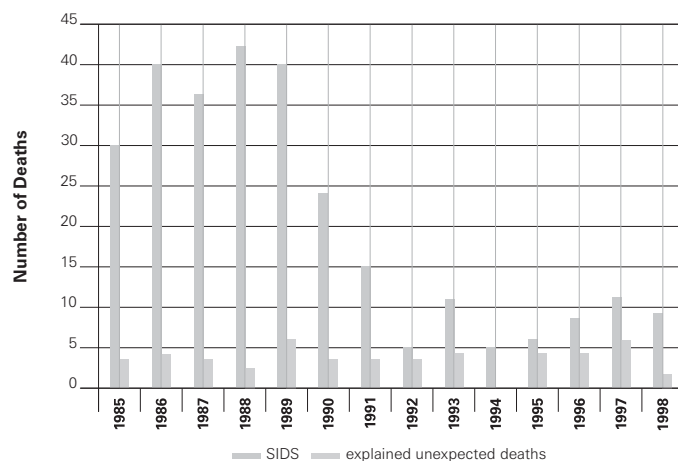
From the CESDI study data, the most logical recommendations would be:

- Always put your baby to sleep on his back, not on his side or front.
- Do sleep with your baby in the same room; putting her in a separate room doubles the risk of SIDS.
- If you find it easier, particularly if you are breastfeeding, do bring your baby into bed to feed.
- If you smoke, have been drinking alcohol, have taken drugs or medicines that may make you sleepy, or are excessively tired, do not bring your baby into bed with you to sleep; put him back into the crib after he feeds.
- Do not sleep with your baby on a sofa, armchair, waterbed, or very soft mattress.
- If you wish to sleep with your baby in your bed, make sure that the bedding cannot cover her head, and keep her away from the pillow.

These recommendations take into account the known risk factors and if implemented will significantly reduce the risk of SIDS. It is important to note that in the CESDI study, although around 8 percent of infants shared a bed with nonsmoking parents, only six infants (2 percent) died in bed with a nonsmoking parent.

If bedsharing with nonsmoking parents were hazardous—if, for example, it increased the risk of SIDS by 50 percent—we would have

Avon Infant Mortality Study Numbers of Sudden Unexpected Infant Deaths: 1985–98



expected at least 40 such deaths; and even if it were neither a risk nor protective, we might have expected 26 such deaths. The very small number of deaths in bed with nonsmoking parents in this study suggests that bedsharing with nonsmoking parents is not a significant risk factor for SIDS.

Rather than issuing broad statements, not based upon good evidence, to suggest that parents should not bedshare with their babies, I suggest that giving them accurate information, based upon careful studies of healthy babies as well as babies who have died, will allow parents to make safe and appropriate choices.

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8. See Note 2.

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Sleeping like a Baby

HOW BEDSHARING SOOTHES INFANTS

BY MIRANDA BARONE

The image of a sleeping infant personifies tranquility and serenity. Most parents have experienced that unique sense of happiness when they gaze into the face of their sleeping infant. The advertising industry certainly has capitalized on this image, using phrases like “sleep like a baby.”

But what does it mean to sleep like a baby? Does an infant stay in these peaceful positions throughout the night? What happens when nobody is watching? Does being alone make a difference? These were some of the questions prompting a study of mother-infant sleep behaviors in solitary and bedsharing conditions.¹

The study used the same mother-infant pairs as those used in the original bedsharing study conducted for the National Institute of Child Health and Human Development.^{2,3} That original study looked specifically at the physiological aspects of infants in solitary and bedsharing conditions; our study focused only on the social and behavioral aspects of solitary and bedsharing mother-infant pairs.

During the behavioral portion of the study, we explored and compared sleep behaviors of routinely solitary and bedsharing mother-infant pairs under both solitary and bedsharing conditions. The observations were made from videotaped recordings, over a three-night span, of nocturnal sleep behaviors and sounds from the mother-infant pairs in solitary and bedsharing conditions.

Significant differences were observed between infants placed in solitary versus bedsharing conditions in the sleep laboratory. Infants in solitary night conditions were more restless (see Figure 1). They revealed continuous large and small limb movements (e.g., arms extended, legs kicking, back arching, full-body stretching), often accompanied by repetitive side-to-side head rotations. This physical activity tended to be clustered, with infants in solitary conditions exhibiting more prolonged bouts of activity than infants in bedsharing conditions, often followed by long periods of quiet sleep. Solitary infants experienced more full and prolonged physical arousals when separated from their mothers, due perhaps to the absence of soothing sensory stimulation that the mothers' presence provided. When aroused from their sleep, these infants remained aroused, possibly alarmed, most likely from the lack of the mothers' presence.

Bedsharing infants, in contrast, experienced a physically calmer and more soothing sleep, although transient arousals and short awakenings, measured by EEG recordings in the studies by Mosko et al., demonstrated that this calmness produced moderate physiological arousals, many of which were not necessarily visible.⁴

Our studies highlight a concern that constant moving throughout the night by solitary infants produces stress or fatigue. Sleep research on adults has found that increased levels of fatigue could increase deep stages of sleep, and studies have postulated that increased stages of deep sleep may be one potential risk factor for sudden infant death syndrome (SIDS).

Prolonged physical arousals occur as the infant senses the mother's absence (lack of warmth, physical touch, odors, and physiological sounds), and increased physical activity and a full awakening or crying may result. In fact, the most obvious differences between solitary and bedsharing infants included increased sounds from the infant (grunts, squeaks, and moans) (see Figure 2) and crying (see Figure 3). Crying is a very powerful attachment behavior that infants use to elicit care and proximity from a caregiver. Yet for most of the 20th century, experts admonished Western parents not to “spoil” infants by responding.⁵ Those opposed to bedsharing assumed sophisticated manipulative skills on the part of infants. Actually, their needs are basic: the warmth and security of being close to the caregiver.

On the other hand, crying evokes physiological responses that increase the production of stress hormones. Crying infants experience an increase in heart rate, body temperature, and blood pressure. These physiological reactions are likely to overheat the infant, and overheating is considered a potential factor in SIDS.⁶

Most psychologists agree that physical contact between infants and parents creates reassurance that will make children more secure in life.⁷ A large amount of research has confirmed the importance of develop-

Infant Physical Activity

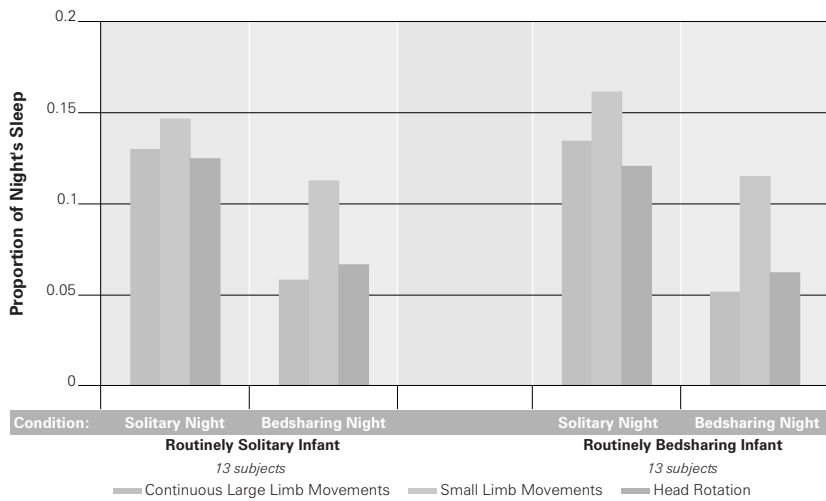


FIGURE 1. Proportion of minutes with infant behaviors, including continuous large limb movement, small limb movement, and head rotations, on solitary nights (SN) and bedsharing nights (BN) for infants who routinely sleep in solitary (RS) or bedsharing (RB) environments at home. There were 13 mother-infant pairs in each group. Results obtained by M. Barone were based on data collected by observing videotaped recordings from the original research funded by NICHD, S. Mosko and J. McKenna, principal investigators.

ing a healthy and secure attachment between infant and parent in the waking hours. Our studies indicate that attachment as a behavioral system operates 24 hours per day and does not deactivate during sleep, where infants spend up to 60 percent of their time.

The most striking difference that we observed between solitary and bedsharing infants was the frequency of sleep startles. These startles were short, spontaneous contractions of limb and trunk muscles that looked like vigorous thrashings of the extremities and a curvature of the spine, followed by a deep breath and a sigh. This cannot be a pleasant event. In most cases, startles were observed only in solitary infants, and rarely during bedsharing (see Figure 4).

The study of infant startles is relatively recent, and examining their occurrence in different conditions, such as solitary and bedsharing conditions, has assumed special importance. Researchers first assumed startles were needed to arouse an infant beginning to experience respiratory distress.⁸ However, these studies observed only infants in solitary conditions. It is equally possible that the mother's presence during bedsharing has soothing effects that moderate the occurrence or need for startles, or that arousals induced by the mother are sufficient for the infant.

Our study also observed that maternal behavior differed in solitary and bedsharing conditions. Mothers were more likely to respond to aroused infants in solitary conditions with intense soothing, such as rocking, bouncing, or walking. Soothing behavior of this type is necessary to calm the infant from heightened arousal, which supports our theory that infants in solitary condi-

tions were more distressed than infants in bedsharing conditions. In contrast, bedsharing mothers were more likely to engage in affectionate behavior with their infants. The soothing effect kept infants calmer throughout the night, resulting in infants who were less physically active but more physiologically aroused, as measured by EEG.

One behavior not observed in our study was the one so feared by opponents of bedsharing—the overlying of the infant by the mother. In more than 1,000 hours of observing 40 mother-infant pairs, no mother was ever even remotely close to overlying or suffocating her infant. Instead, maternal and infant behaviors were beautifully synchronized—when one moved, the other responded, without fully awakening.

There has been much written in the press about the dangers of bedsharing. As early as 1993, the Consumer Product Safety Commission (CPSC) released a report on infant suffocation and its increased danger in bedsharing.⁹ Recommendations were made against cosleeping and bedsharing from a retroactive analysis of infant deaths on death certificates. The report neglected to include scientific information about or discussion of the benefits of safe bedsharing practices, and it did not identify the dangers present when infants sleep in solitary conditions. Retroactive analysis of death certificates is problematic, as descriptions of an infant's alleged suffocation were anecdotal accounts of what may have occurred. The CPSC report also failed to address relevant and important issues relating to the environment of sleep, who was present, and the parent's motivation to bedshare.

Many childcare experts believe that once an infant is allowed to sleep in the parental bed, he or she will experience increased night awakenings and bedtime protests if the parent is not present. According

Infant Sounds

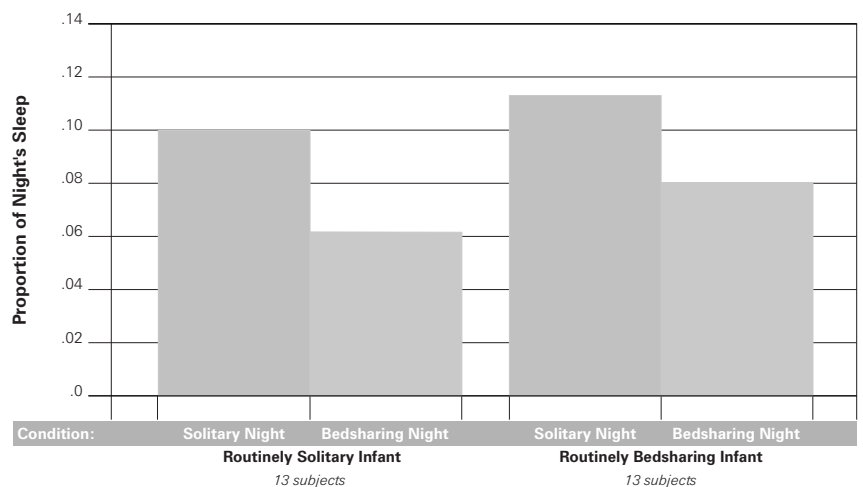


FIGURE 2. Proportion of night's sleep with infant vocalization on solitary nights (SN) and bedsharing nights (BN) for infants who routinely sleep in solitary (RS) or bedsharing (RB) environments at home. Results obtained by M. Barone were based on data collected by observing videotaped recordings from the original research funded by NICHD, S. Mosko and J. McKenna, principal investigators.

Crying

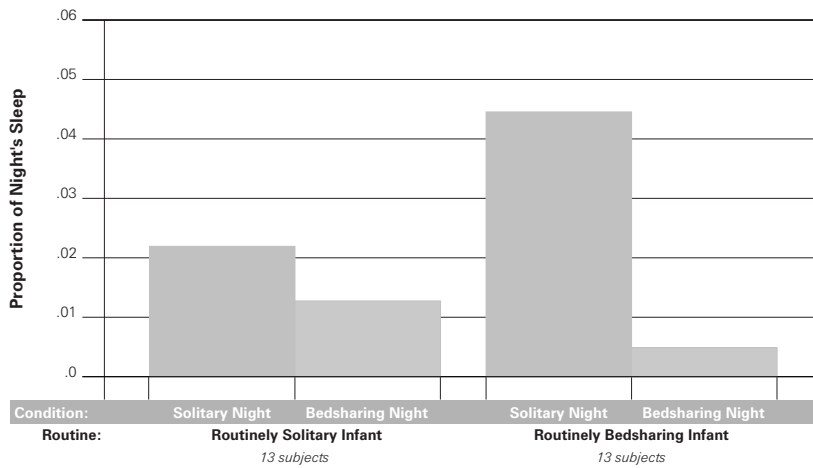


FIGURE 3. Proportion of night's sleep with crying on solitary nights (SN) and bed-sharing nights (BN) for infants who routinely sleep in solitary (RS) or bedsharing (RB) environments at home. Results obtained by M. Barone were based on data collected by observing videotaped recordings from the original research funded by NICHD, S. Mosko and J. McKenna, principal investigators.

to this argument, the pathological dependence on parents creates an impediment to the development of necessary movement toward autonomy and independence.

In fact, no research exists to substantiate these claims. Studies have demonstrated that bedsharing is associated with family nurturance, less use of transitional objects, flexibility in family structure, and parental reports of higher adaptive functioning on the part of the children.¹⁰ In a Massachusetts survey, bedsharing was found not to be as rare as previously reported and not related to standard behavior problems in children.¹¹ Another study compared a group of psychiatric outpatients with a control group and found that bedsharing was not a predictor of outpa-

tient status.¹² A survey of military families found that bed-sharing was associated with parental reports of better adaptive functioning and less psychiatric treatment.¹³

Of course, any surface on which an infant is placed can present dangers. Responsible parenting aimed at creating a safe environment, whether a solitary crib or a shared adult bed, is paramount. Advice to parents regarding sleeping arrangements should reflect all of the known advantages and disadvantages of bedsharing and solitary sleep conditions; it should be devoid of cultural biases and should focus on the infant's physical and psychological well-being.

Our study found fundamental differences between solitary and bedsharing conditions. The differences in infant sounds, physical activity, startles, and maternal soothing techniques all indicate that bedsharing provides a calmer and more soothing environment for the infant, and probably for the mother, too. When we look at the angelic face of a sleeping infant in photos and advertising, we should remember that the infant is probably not sleeping alone.

NOTES

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Startles

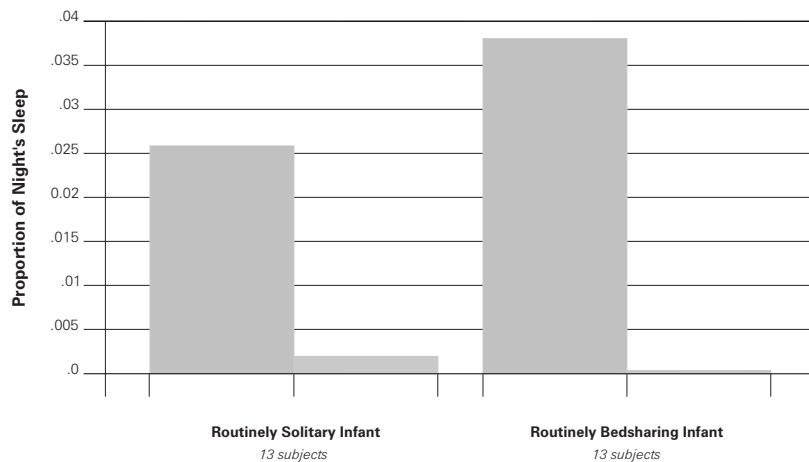


FIGURE 4. Proportion of night's sleep with startles on solitary nights (SN) and bed-sharing nights (BN) for infants who routinely sleep in solitary (RS) or bedsharing (RB) environments at home. Results obtained by M. Barone were based on data collected by observing videotaped recordings from the original research funded by NICHD, S. Mosko and J. McKenna, principal investigators.

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