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Co-Sleeping During Infancy and Early Childhood: Key Findings and Future Directions

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Emergent themes from this special issue on parent–child co-sleeping are featured in this concluding article. Each of the pieces in this collection addressed one or more of the following themes: methodologies for studying parent–infant co-sleeping, physical and social characteristics of the child's sleep environment, associations between sleep location and breastfeeding, infant and child maturational issues, parental attitudes and values about sleep arrangements, special needs populations, maternal employment, sleep problems, sleep transitions, and future directions for research and policy. Together, the contributions define a context for weighing the benefits and disadvantages of family sleep arrangements during infancy and early childhood. **Copyright © 2007 John Wiley & Sons, Ltd.**

Key words: co-sleeping; bedsharing; solitary sleeping; infants; sleep problems; sleep safety

Parent–infant co-sleeping, the broader rubric that includes not only bedsharing but also roomsharing, is a topic that has received—and continues to experience—exceptionally intense debate in the psychological, anthropological, and paediatric literatures. Co-sleeping, in fact, recently has been cited as the 'single most controversial topic related to paediatric sleep' (Ferber, 2006, p. 41). Particular attention has been given to the safety of bedsharing and the consequences for child well-being of prolonged bedsharing beyond early infancy. The articles in this special issue advance our understanding of suitable research methodologies for investigations in this area, and they present new findings about co-sleeping and bedsharing. Some results are based on qualitative approaches, others on quantitative analyses. Although based on samples of convenience, the responses and behaviours of the participants in these studies expose the variability in attitudes and practices towards family sleep arrangements within the culture. Results also reveal important correlates of co-sleeping, ranging from the physiological to the behavioural. Below, we encapsulate key methodological, conceptual, and empirical points from the original works presented in this special issue.

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METHODOLOGIES FOR STUDYING PARENT–INFANT CO-SLEEPING

In her report of preliminary findings, Burnham's study featured several physiological instruments to study correlates of infant sleep locations. Infants, whose mothers were recruited before childbirth from flyers distributed in childbirth clinics and maternity shops, were studied twice in the first three months. An actigraph, a computerized device used to continuously measure and store information on body motility, was placed on infants' ankles to provide data on sleep–wake rhythms. Prior studies have reported varying amounts of faulty data segments from actigraphy, including periods where the actigraph is removed or displaced. Burnham cautions that we need to make sure that movements of bedsharing partners do not invalidate physiological-based sleep–wake data; observational data suggest that movement did not affect the quality of the data in this study. To collect metabolite of melatonin, Burnham extracted urine from infants' diapers. Supplementing the physiological data was information on infants' exposure to light, obtained from parental reports.

Introducing a very different methodology, McKenna and Volpe used the technology of the internet to obtain narratives or 'ethnohistories' from mothers. Given the websites that were tapped, women who responded tended to be largely middle class and supportive of bedsharing and breastfeeding. A key advantage of the internet was the ability to attract English-speaking respondents from a number of countries around the globe—from Canada, the United States, Australia and Great Britain. Detailed narratives were provided by each participant, which permitted the researchers to obtain personal, in-depth perspectives on the practice of bedsharing.

Using a short-term longitudinal design, Ball followed a convenience sample of mothers in Great Britain from childbirth until 6 months. Mothers were recruited from hospital following delivery, which avoids some selection biases that could occur when sleep and feeding arrangements are studied in samples that are first contacted later in infancy. Ball applied an automated telephone response system, used simple yes/no response formats, and sent reminder postcards to study these families. This methodology both facilitated participation and minimized attrition.

A convenience sample of primarily middle-class Caucasian families recruited from a university preschool participated in the research by Hayes, Fukumizu, Troese, Sallinen, and Gilles. Parent questionnaires yielded data about retrospective and current sleep arrangements of preschool-aged children, as well as information about bedtime routines, child sleep behaviours, night wakings/night feedings, child sleep aids, and the circumstances of co-sleeping. One advantage of this research is its use of both quantitative and open-ended, short-answer survey measures, thereby enhancing the ability to capture the complexities inherent in childhood sleep location over a period of several years.

Ramos, Youngclarke, and Anderson's study introduced a new measure of sleep behaviours and sleep problems. The new measure is capable of differentiating between types of co-sleeping families (intentional and reactive), for whom the function and experience of co-sleeping appear to be strikingly different. Their cross-sectional study used a convenience sample of parents of infants and young children. By recruiting from paediatric offices in California that served different populations, the researchers were able to obtain responses from Caucasian and Latino families that ranged in socio-economic status.

In their study, Germo, Chang, Keller, and Goldberg utilized a convenience sample of both mothers and fathers of preschool-aged children. The

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sample of mostly middle-class parents completed questionnaires about marital relations, parenting, and well-being, and sleep-related matters such as their child's sleep location from infancy through preschool-age, reasons for and attitudes towards this sleep location, and (similar to Ramos *et al*.) personal perceptions of their children's sleep behaviours as problematic. By including the opinions of fathers as well as mothers on these sleep issues, these authors extended co-sleeping researchers' customary focus on the mother–child dyad and brought a much-needed family perspective to the study of sleep arrangements.

TERMINOLOGY MATTERS

Definitional issues continue to complicate the study of sleep arrangements in infancy and childhood, and some of the articles in this special issue have attempted to clarify and standardize the terminology. Broadly construed, co-sleeping refers to parents and infants sleeping in proximity to one other: '...the presence of at least one sober, committed adult caregiver who sleeps within close enough proximity of the infant to permit the exchange of at least two sensory stimuli (touch, smell, movement, sight, and/or sound)' (McKenna & Volpe, 2007, p. 1). This broad definition of co-sleeping suggests that co-sleeping exists along a spectrum of possible sleep locations, including bedsharing, roomsharing, as well as the arrangement of having a crib or bassinet or other sleep unit placed adjacent to the parental bed.

Researchers and sleep experts need to be clear about which type of co-sleeping is being examined when parsing correlates and consequences of sleep arrangements in empirical studies, and when formulating recommendations and policy for infant and childhood sleep arrangements. Co-sleeping is often used synonymously with bedsharing, but we suggest that bedsharing best be considered as a type of co-sleeping. Bedsharing should be applied exclusively to parents and infants sleeping together on the parental bed, or as McKenna and colleagues put it: 'infant and caregiver sleeping side by side on a shared surface, usually a mattress surrounded by a wooden or metal frame' (McKenna *et al*., 1993; McKenna & Volpe, 2007, p. 1). Authors also need to specify whether their focus is on infants or young children, as the implications for safety and development differ with age. Ball (2007) also importantly observes that both overly restrictive definitions of bedsharing and vague or absent definitions produce underestimates of bedsharing in a population. Without some explication in self-report questionnaires and interviews, parents may reply to questions about sleep arrangements in a manner consistent with their perceptions of where infants ought to sleep (Ball, Hooker, & Kelly, 1999).

If we take great care not to confound the practice of bedsharing with parents and infants sleeping together on sofas or other non-bed surfaces, we can start to differentiate patently dangerous sleep arrangements from culturally and historically normative behaviours. Clarity in terminology is one step towards meeting the objective of disentangling safe bedsharing practices from harmful arrangements. 'Indeed, it is only by referencing and acknowledging how variable co-sleeping and especially bedsharing can be from population to population, and family to family, that we find evidence that an otherwise inherently safe arrangement or childcare practice (i.e. infants and mothers sleeping side-by-side) can on occasion be transformed into something risky or even fatal' (McKenna & Volpe, 2007, p. 6). Type of sleep surface, type of bedding, type of feeding arrangement, sobriety of parents,

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and infant sleep position are among the most important variables to be considered when evaluating the safety of family sleep arrangements.

In terms of further refinement of the taxonomy, when investigating family sleep arrangements, part-night bedsharing ought to be differentiated from full-night bedsharing. As a case in point, higher rates of all-night co-sleeping were found in urban Latino families compared to middle-class Caucasian families in a study conducted by Schachter, Fuchs, Bijur, and Stone (1989); however, in that study, frequent part-night co-sleeping was significantly lower and less normative among Latino families. Hayes, Fukumizu, Troese, Sallinen, and Gilles (2007) observed that the unstable nature of part-night co-sleeping may be relevant for the development of sleep disturbances. Ball (2007) makes the point that asking parents whether any bedsharing occurred would produce a much higher prevalence rate than asking whether bedsharing occurred over a given threshold of a certain number of nights per week and hours per night, or restricting the use of the term to full-night, every night bedsharing.

Ball (2007) also noted that there is variation even between ostensibly similar cultures that practice bedsharing. She states, 'the actual practice [of bedsharing]. . .may be uniquely different. . .. [e]ven between people with common recent ancestry and superficially similar cultures such as Britains, Americans, and New Zealanders, there are tremendous differences in the prevalence of bedsharing among different population subgroups, how those subgroups bedshare, and their motivations for doing so' (pp. 3–4).

Instruments need to be sensitive to the nuances raised by the issues of taxonomy. For example, Ramos, Youngclarke, and Anderson (2007) constructed a new measure of sleep problems and behaviours adapted from prior sleep problem surveys. Respondents reported on frequency of occurrence of sleep behaviours as well as an additional 'weighted' or subjective assessment of whether a particular sleep behaviour constituted a problem based on the parent's own perception of that behaviour. This distinction provides a newfound ability to differentiate between families who co-sleep by choice as opposed to parents who share their sleep space because of their child's sleep difficulties and inability to sleep alone.

Solitary sleeping, too, needs to be carefully defined. Does it mean children sleeping in their own bed (e.g. Burnham, 2007), sleeping in their own bed in their own room (e.g. Germo, Chang, Keller, & Goldberg, 2007), or simply sleeping separately from the parents (Ramos *et al*., 2007)? Also, what about siblings? Even if the child sleeps separately from the parents, sleep environments in which a young child shares a room with one or more siblings offer a rather different social experience compared to sleeping completely alone in one's own bed in one's own room.

One of the important taxonomic contributions from this special issue is the elaboration of the term 'reactive' as applied to co-sleeping arrangements. This term has its origins in the writing of Lozoff, Wolf, and Davis (1984), but this subgroup has been rather understudied until recently. With some variability across studies, reactive co-sleeping refers to children who start to share or return to the parents' bed as toddlers or preschoolers following an extended period of solitary sleeping during infancy (Hayes *et al*., 2007; Keller & Goldberg, 2004). Ramos and colleagues (2007) also use the term to capture an unplanned, unwanted co-sleeping arrangement, defining reactive co-sleeping as children who co-sleep because they have difficulty sleeping alone even though the parents prefer separate sleep arrangements. Lozoff and colleagues also introduced the notion of reactive 'partial' co-sleepers who move between their own and their parents' bed on alternating nights or during the night (Lozoff, Askew, & Wolf, 1996). Common to these usages are parental attitudes that favoured solitary sleeping for a long stretch

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for the infant or young child but, despite these dispositions, the parents allowed their child to co-sleep on some kind of regular basis at a later age.

Findings from recent studies suggest that reactive co-sleepers (compared to families who plan and choose to co-sleep from early infancy onward and value this arrangement) might be at risk for sleep-related problems (Keller & Goldberg, 2004; Ramos, 2003). Ramos *et al*. (2007) suggest that part-night co-sleepers were more likely to belong to the reactive co-sleeping group, whereas intentional co-sleepers were more likely to share sleep with their children all-night long. This further underscores the desire on the part of some reactive co-sleeping parents to have their children sleep alone, which may result in part-night co-sleeping wherein the child either falls asleep in the parental bed and gets moved to his/her own room, or starts off sleeping in his/her own room but later awakens and climbs into the parental bed during the night.

In clarifying terminology, we need to recognize that not all cultures will include the sleep patterns described in this volume. For example, solitary sleeping originating in the newborn period is rare in cultures that historically promote bedsharing (e.g. Lee, 1992). Instruments developed in one culture to measure parental attitudes and values may not be relevant in another culture; literacy issues, too, must be considered when participants receive questionnaires that were not developed in their primary language (see Ramos *et al*., 2007).

THE ECOLOGY OF SLEEP

Findings in this special issue indicate the importance of considering the sleep environment beyond sleep surfaces. Looking further at the physical environment, and its relation to physiological development, Burnham (2007) pointed out that the brightness of the light source is related to different mean circadian rhythms in very young infants and appears consequential for melatonin rhythms. Infants exposed to bright light overhead at night had smaller amplitudes than those infants who had a dim light source or no light source. If the findings of bright lights and delayed melatonin rhythm are replicated with a larger sample and more equal subgroups, these findings may have a practical message, suggesting that parents should avoid turning on bright lights to optimize the development of circadian rhythms in young infants.

Moving from the physical environment to the social environment, the question of whether to sleep separately or together with one's children is becoming increasingly important in understanding the relationship of sleep to families' well-being. Both mothers' and fathers' views need to be considered within cultural contexts. In a number of Asian cultures, it is normative for mothers and infants to sleep together and not uncommon for the fathers to sleep apart (e.g. Latz, Wolf, & Lozoff, 1999). When bedsharing occurs in Western cultures in two-parent households, it often, but not always, is a 'family affair' with mother, fathers, and sometimes siblings sharing the 'family bed' (Sears, 1999).

A significant contribution of Germo *et al*.'s research is uncovering the importance of matching mothers' and fathers' attitudes to sleep practices, what Jenni and O'Connor (2005) call 'goodness of fit.' Mothers and fathers who favoured solitary sleep arrangements but co-slept reactively with their children either in toddlerhood or at preschool-age expressed greater dissatisfaction with the sleep arrangement. In contrast, solitary sleeping families and bedsharing families whose attitudes about sleep arrangements matched their actual practice were not only more satisfied with their sleep arrangements, but also reported

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fewer child sleep difficulties. The interrelatedness of children's sleep difficulties and family well-being—whether due to parents' disrupted sleep, decreased marital intimacy, or conflict between parents about how to manage their children's sleep—illuminates the growing importance of investigating fathers' role by night as well as by day.

Research by Hayes and colleagues (2007) suggests that the social environment conditions preferences in the young infant. They found that early childhood preferences for sleeping arrangements may be shaped by the type and extent of maternal stimulation during infancy. From a developmental niche perspective (Super & Harkness, 1986), 'maternal cues associated with sleep behaviours during infancy may create enduring preferences for contextual social conditions in early childhood' (Hayes *et al*., 2007, p. 14). Infants who become accustomed to rocking, feeding, and parental presence while falling asleep may resist changes to this pattern, especially after nine months of age (Sadeh & Anders, 1993). The potential for conditioning infant preferences for parental contact and proximity again calls attention to the need for a 'fit,' or match, between parental values and sleep practices. It is also relevant for those who plan to intervene to alter sleep practices, as the resistance to change may be greater given certain early patterns.

Finally, the social environment of infants' sleep also has strong implications for child health and safety, including the risk for SIDS. Data from the Chicago Infant Mortality Study (Hauck *et al*., 2003) indicated that sleeping next to non-parents carried a significantly increased risk of SIDS, pointing to the person (non-parent), not the location (adult bed), as the problem. To further clarify any potential risks associated with SIDS, studies need to clearly differentiate between infants sleeping alone on adult beds, with siblings, or with an unrelated adult (Wailoo, Ball, Fleming, & Platt, 2004). For families who do co-sleep, either by choice or 'default' or out of necessity due to lack of space, safety precautions should be followed to mitigate the risk of SIDS (e.g. no heavy blankets, no parental intoxication, no smoking, no co-sleeping on soft mattresses or couches) (Willinger, Ko, Hoffman, Kessler, & Corwin, 2003). Safety precautions need to be exercised with all infant sleep environments; for example, cribs can be in disrepair and therefore be unsafe, infants can be positioned incorrectly (e.g. on their stomachs).

BREASTFEEDING

A purported benefit of bedsharing is that it promotes breastfeeding, widely agreed to be the optimal mode for nourishing young infants (AAP, 2005a; United Kingdom Department of Health, 2005; World Health Organization, 1990; World Health Organization, 2002). Ball (2007) found that regular bedsharing was significantly associated with breastfeeding for at least 1 month. Longer bedsharing was associated with a later age of termination of breastfeeding (Ball, 2007), and the duration of co-sleeping and breastfeeding seemed to linked in McKenna and Volpe's (2007) sample as well.

The bi-directionality between sleep arrangements and feeding modality needs to be acknowledged as recommendations are constituted for infant sleep locations. Not only does proximity seem to facilitate breastfeeding, mothers who are committed to breastfeeding may then choose to sleep with or near their infants to make night-time feeding easier for them (i.e. mothers do not need to get up and wake fully to feed their infants). Parents in McKenna and Volpe's sample reported that breastfeeding was a prime reason for co-sleeping. Part of the reason for the increase in co-sleeping in the US over the 1990s and into the new century

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likely reflects the growing awareness and acceptance of breastfeeding as the recommended feeding choice for young infants.

In Ball's study, infants who did not receive formula were bedsharers longer than infants who were introduced to formula during the early months of infancy. However, the mean age of weaning to solids did not differ significantly between infants who regularly bedshared throughout the study, and those who stopped bedsharing before 23 weeks (Ball, 2007). Notably, rather than the introduction of solid foods, more salient to the termination of breastfeeding was the cessation of bedsharing. Here again, there are implications for expert advice to parents: suggestions about sleep practices have implications for feeding practices and vice versa.

Infant sleep physiology should be studied as to how breast milk (both the act of sucking and milk digestion) affects or interacts with infant sleep stage progression (McKenna & Volpe, 2007). Just the act of being next to the mother at night, while sleeping, may confer regulatory benefits to the infant. Synchronized mutual arousals were detected in an earlier study by Mosko, Richard, and McKenna (1997). McKenna and Volpe mention as further possible candidates the link between maternal contact and regulation of infant responses such as calming, breathing, heart rate, and elongating sleep duration and sleep architecture. If indeed sleeping near the mother confers benefits to the infant that cannot be otherwise obtained, these factors should be weighed carefully when recommendations are made for infant sleep location.

PHYSICAL AND PSYCHOLOGICAL MATURATION OF THE INFANT AND YOUNG CHILD

Physical Maturity

As pointed out by Hayes *et al*. (2007), the central nervous system mechanisms that control sleep and waking mature gradually from infancy to early childhood (Salzarulo & Fagioli's study, as cited in Hayes *et al*., 2007). Over the course of the first two years, night-time sleep efficiency increases and night wakings decline in frequency and duration (Louis, Cannard, Bastuji, & Challamel's study, as cited in Hayes *et al*., 2007). How does co-sleeping affect the maturation of this system?

Burnham hypothesized that increased maternal contact through bedsharing would affect the development of biorhythms in human infants, i.e. impact diurnal rhythmicity. Burnham observed that the sleep–wake cycles of bedsharing infants revealed more robust rhythms than those of solitary sleepers. In other research (e.g. Richard & Mosko, 2004), both arousability thresholds and heart rates appeared to differ during bedsharing versus solitary sleeping, suggesting that the practice of bedsharing induces a physiologically based response in the infant. As one of our reviewers mentioned, the relative benefits and costs of possible prolonged immaturity are also unknown but must be considered in relation to the costs and benefits of other infant sleeping conditions (e.g. in a room alone, roomsharing with siblings). Burnham noted that her hypothesis 'is not meant to imply that earlier or stronger rhythms compared to the norm are necessarily advantageous to the developing infant' (p. 7). She also observes that the extant literature on developing rhythmicity and normal timing of the appearance of different rhythms has relied exclusively on solitary sleeping infants. Bedsharing represents an important factor that 'might impact where infants fall on the range of normal timing, rather than a factor that unnaturally accelerates rhythm development' (p. 7).

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Psychosocial Maturity

Hayes *et al*. (2007) found that children who were solitary sleepers during infancy were significantly more likely to use a security object than co-sleepers. Their finding is consistent with results reported in a study by Wolf and Lozoff (1989) that found that most children who fell asleep alone used a sleep aid or sucked their thumb. Solitary sleepers may be more likely to be given—and become attached to—security objects, whereas such transitional devices are not needed by (or not offered to) co-sleepers. Parental encouragement of object use may be a correlate of conventional Western sleep practices that discourage infants from the parental bed at night, and encourage solitary sleeping and sleeping in a separate room as developmental goals best met early in development (Hayes *et al*., 2007). In contrast, early co-sleepers were less independent in most wake–sleep transitions as preschoolers, such as falling asleep in their own bed and sleeping in their own bed all night, but not in falling asleep alone; these results are consistent with those reported by Keller and Goldberg (2004) in their study of preschoolers. Early co-sleepers also had more night wakings and attempts to return to the parents' bed—the pattern of reactive co-sleeping. Among co-sleepers, the parent may serve as the sleep aid, and therefore these children do not require a transitional object. Are there developmental differences among children who do and do not use security objects? Or are there differences among children who use their parents instead of a security object as a sleep aid? This is a topic that would benefit from further study.

CHILDREN AND PARENTS WITH SPECIAL NEEDS

Research on co-sleeping and children outside of the realm of examining 'sleep problems' or 'sleep disorders' is usually conducted with healthy, non-clinical samples of infants. McKenna and Volpe's (2007) qualitative study revealed a parent issue that might underlie the choice of sleep arrangements. They received comments from families in which either parents or children had hearing impairments. Parents in these families opted for bedsharing so as to circumvent the problem of not being able to hear if their infants waken or cry during the night and to ameliorate anxiety around night-time routines. There is some suggestion that among children with certain types of childhood disorders, such as pervasive developmental disorder, fragmentation of sleep and other sleep problems are not uncommon (e.g. Honomichl, Goodlin-Jones, Burnham, Gaylor, & Anders, 2002). The choice of co-sleeping versus other sleep arrangements by families with special needs and the search for the best 'fit' for these families would benefit from further research.

MATERNAL EMPLOYMENT

The high rates of employment among mothers of infants is thought to be a factor behind the popularity of co-sleeping in Western countries, perhaps as a strategy by mothers to compensate for lengthy separations during the day. In an earlier paper, Ball *et al*. (1999) found that mothers who returned to work chose bedsharing as a way to ameliorate their separation from the infant during the day. However, in the current study, Ball (2007) did not find a difference in duration of bedsharing between mothers who did and did not return to work by

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23 weeks. McKenna and Volpe (2007) found some anecdotal support for bedsharing serving as a compensation for daytime separation. Several employed parents commented that bedsharing at night permitted them 'to make up for' time without their infants while at work during the day.

Although it seems reasonable that mothers—and fathers—who are away from their infants during the day might choose to be cuddly and close at night, it is also possible that parents who need to be alert for a day at work might chose to sleep apart from their infants. The association between parental work (work hours, type of work, work schedules) and family sleep arrangements also is an area that could use further study.

CO-SLEEPING: A PLANNED ARRANGEMENT?

Evidence is mounting to suggest that quite a number of parents find themselves sharing their bed or sleeping with their infant nearby for all or part of the night, even though they did not plan such an arrangement. In an earlier study, Ball, Hooker, and Kelly (2000) reported that most families adapted easily to bedsharing even though it was not anticipated. In this issue, McKenna and Volpe reported that nearly 85% of their select sample of co-sleepers did not plan to do so. The most frequently cited reasons given by the parents in their study for engaging in co-sleeping were ease of breastfeeding, the related goal of increasing parental sleep, promotion of parent–infant bonding, and reduction of infant crying. Co-sleeping parents in this study, as in Germo *et al*. (2007), also reported a number of perceived benefits for infant health and safety, such as protection from SIDS, the ability to monitor the infant's breathing, and the ease of tending to a sick child.

Medical professionals, family, and friends may express opinions, but most parents say that their decision to co-sleep was highly personal (McKenna & Volpe, 2007). Parental values (Keller & Goldberg, 2004), beliefs about parenting, and favoured patterns of expressing affection (McKenna & Volpe, 2007) factor into parental choices. As Hayes and colleagues (2007) commented, from a developmental perspective, parent–child interactions around falling to sleep and night wakings are a reciprocally driven process affected by cultural tradition (Nelson, Schiefenhoevel, & Haimerl, 2000), parental reactivity (Burnham, Goodlin-Jones, Gaylor, & Anders, 2002), and attachment characteristics (Scher & Dror, 2003). The Hayes and colleagues' study found that close proximity during infancy was associated with mothers' endorsement of co-sleeping in their child's life history and the frequency of current early childhood co-sleeping, suggesting a common denominator of a parenting style or philosophy of parenting. What emerges from this study and from Germo *et al*. (2007) is a sense that the parenting practices concerning sleep arrangements during infancy are not usually anticipated, are consistent with daytime childrearing beliefs and values, and are consequential for sleep behaviour beyond infancy.

SLEEP ARRANGEMENTS AND SLEEP PROBLEMS

An oft-cited negative consequence of co-sleeping is the increased likelihood and persistence of night wakings (e.g. Cortesi, Giannotti, Sebastiani, & Vagnoni, 2004), thereby equating co-sleeping with sleep problems. Ramos *et al*. (2007) pose the question of whether co-sleepers are just more likely to notice and therefore report night wakings, as close physical proximity to their children at night may

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enable parents to more easily notice their children's small movements and noises that may accompany an awakening. Thus, simple proximity may account for increased awareness and reporting of night wakings in co-sleeping children.

Furthermore, Ramos and colleagues question the assumption of night wakings as problematic behaviours by asking the parents in their sample to rate which sleep behaviours actually posed a problem for their families. The difference between the behaviour of night waking and the cognition that a sleep problem is occurring seems to be in the eye of the beholder. Intentional co-sleepers, those who intentionally share their sleep space with their children because they believe it to be the best sleep arrangement for their family, did not perceive their children's night wakings as problematic. On the other hand, parents of reactive co-sleepers reported high simple frequencies of problematic sleep behaviours, suggesting that parents' interpretation of sleep behaviours is a function of parental beliefs and intentions surrounding sleep. These findings provide corroboration for those of Lee (1992) and Keller and Goldberg (2004) about the importance of parental perceptions regarding night wakings. They also highlight the importance of differentiating between families who co-sleep as a chosen childrearing practice and families who co-sleep in reaction to a child's illness or nightmares or family events, as co-sleeping may have different correlates and consequences for these very different groups.

As we have found, the perceptions of sleep problems and the satisfaction of families with sleep arrangements vary not only by the type of sleep arrangement but also by child age and maturation, infant feeding choices, lifestyle choices, ethnicity and cultural beliefs, sleep environments, parental employment status, and childrearing values and attitudes. Perhaps to help children and families, we need something as ambitious as the suggestion by Giannotti, Cortesi, Sebastiani, and Vagnoni (2005): to embark on 'international sleep studies which embrace many cultures and languages, [are] conducted in the same period with identical measures and administration procedures' (p. 15). In this way, we may be able to identify, prevent, and remediate sleep problems without confounding the type of sleep arrangement with the presence of sleep problems.

TRANSITIONING TO OWN BED

How long does co-sleeping last? One caveat often attached to co-sleeping, and in particular to bedsharing, is that it is a hard habit to break (Medoff & Schaefer, 1993). However, Ball counselled that bedsharing for a short time does not mean that infants will be long-term bedsharers: '. . . infants move between categories [of sleep arrangements] from week to week, night to night, and even within a single night' (p. 19), contributing to difficulties in categorizing sleep practices. The modal category in McKenna and Volpe's internet sample was 2–3 years; only 15% of children in that sample were co-sleeping for more than 3 years. Mothers volunteered that the child-led move to a separate bed was a smooth transition, with the belief that co-sleeping had helped shaped happier, healthier, and emotionally secure children. In Ramos *et al.*'s sample from urban paediatric offices, the modal type of sleep arrangement for infants was intentional co-sleeping; for toddlers it was solitary sleeping; and for preschoolers the modal category was reactive co-sleeping. Similar to the findings of McKenna and Volpe, 13% of children at preschool age was categorized as intentional, long-term co-sleepers. Although these are samples of convenience, and generalizability is

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limited, the findings do not support an alarmist position about the impossibility of moving children out of the parental bed.

PARENT–INFANT CO-SLEEPING: WAXING OR WANING?

With the advent of the American Academy of Paediatrics' (2005b) strong caution against bedsharing, and the UK Department of Health's (2005) position that the safest place for a young baby is in his or her own cot, we wonder whether rising bedsharing rates in the US, Great Britain, and other Western nations are about to change direction. The phenomenal success of the AAPs 'Back to Sleep' campaign (Willinger, Ko, Hoffman, Kessler, & Corwin, 2000) portends a tremendous impact of the Academy's stance on the actual practices of families. Unless convincing empirical evidence mounts to shift the official paediatric and health policies, it is possible that we are about to witness a drop in bedsharing rates in Western nations except among those who cannot afford separate sleep surfaces or among those philosophically committed to bedsharing because of their cultural heritage or strong adherence to bedsharing as a childrearing value.

On the other hand the AAP SIDS Task Force's recent universal recommendation against bedsharing has been strongly questioned by a number of leading pediatric sleep, medical, and breastfeeding experts (e.g., Gessner & Porter, 2006; Eidelman & Gartner, 2006; Pelayo, Owens, Mindell, & Sheldon, 2006), especially in the contexts of parenting practices based on deep-rooted cultural values and breastfeeding. Thus, it appears that the scientific and public debates will continue, and even the once-ardent critic of co-sleeping, paediatric sleep expert Richard Ferber, now believes that this arrangement can be practiced in a safe manner (Ferber, 2006). In addition, his experiences working with families for almost three decades had led him to believe that parents who feel comfortable co-sleeping based on their own parenting philosophy should do so, as long as it is done safely and continues to work for the child and parents (Ferber, 2006). Perhaps Ferber's modified stance on co-sleeping will not only affect public opinion, but will inspire other paediatric experts and the AAP to re-examine their position. This may be a propitious time to initiate large-scale studies to track experts' sleep recommendations and family sleep practices, and to record concomitant information on infant feeding practices, infant safety, and child and family well-being.

In this special issue, we have seen that many families find bedsharing to be a safe and desirable choice. We hope that the empirical findings put forth in this special issue serve to place in context the benefits and disadvantages of co-sleeping and solitary sleep arrangements for infants, young children, and their families.

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