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Perspectives on bed-sharing

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Introduction

Co-sleeping is a normal infant care behaviour in many different cultures and is commonly practiced in western society. In England almost half of all neonates bed-share at some time with their parents, a fifth of infants are brought into the parental bed on a regular basis over the first year of life¹. Similar or higher rates of bed-sharing at 3 months of age have recently been reported in other European countries; Ireland (21%), Germany (23%), Italy (24%), Scotland (25%), Austria (30%), Denmark (39%), Sweden (65%)². Even in countries where bed-sharing is uncommon such as Holland, Norway and the United States, all have reported an increase in the prevalence of bed-sharing in the last decade³⁻⁵.

In that same decade evidence has emerged from epidemiological studies investigating Sudden Infant Death Syndrome (SIDS) of an association between SIDS and co-sleeping⁶⁻⁹ which has led some authorities, including the American Academy of Pediatrics¹⁰ to recommend against bed-sharing. The unusual level of criticism and hostility¹¹⁻¹⁴ generated by this recommendation is a testament to the current polarised debate both within and beyond the field of SIDS of the potential risk and perceived benefits of parents and infants sharing the same bed.

There is general agreement amongst researchers that SIDS now occurs more often whilst the infant sleeps next to a parent than expected but it is the detail of these findings from observational studies that are being debated. How bed-sharing was defined and whether sufficient adjustment was made for the circumstances in which the death occurred requires closer scrutiny. To support such recommendations some basic questions need to be asked:

- Is there any benefit to bed-sharing?
- Is bed-sharing in itself a 'risk-factor' for SIDS?
- By advising against bed-sharing will we do any harm?

If we are going to advise against such a culturally widespread nocturnal care-giving strategy we need to look at the current evidence available within and beyond SIDS research to at least start attempting to provide answers for all three questions.

Is there any benefits to bed-sharing?

Co-sleeping begins in infancy and often continues through to childhood as part of early nurturing practices. Studies of pre-term and newborn infants have reported beneficial physiological effects of mother-infant contact using skin-to-skin care or the kangaroo method of baby care, which increases infant skin temperature, stabilises heart rates, reduces crying and increases milk production^{15,16}. Studies have also shown possible psychological and emotional benefits associated with co-sleeping, with higher self-esteem in later life, less psychiatric problems and improved cognitive performance^{17,18}. However it is perhaps the impact on breastfeeding that has raised the most concern if general advice is going to be given to discourage bed-sharing.

The postulated benefits of breastfeeding are increasingly being recognised and actively promoted by the World Health Organisation, United Nations Children's Fund and the UK National Health Service. Both cross-sectional epidemiological^{1,19-21} and sleep laboratory²²⁻²³ studies have shown a close link between the frequency and duration of breastfeeding and the practice of bed-sharing. However the question of whether bed-sharing facilitates breastfeeding, breastfeeding leads to bed-sharing or both is difficult to definitively answer.²⁰ A recent review of bed-sharing and breastfeeding by Buswell & Spatz²⁴ found a positive correlation between these care practices in 8 of 11 studies although the findings from these studies were based on cross-sectional data. More recently we have conducted a longitudinal analysis of bed-sharing in a cohort of over 7000 children born in the early 1990's in Avon, England. Using a latent class analysis from birth to four years we identified three distinct groups of bed-sharers broadly described as those parents who bed-shared throughout the four years, those who mainly bed-shared during the infancy of their child and those who started bed-sharing after this period.²⁵ The breastfeeding rates over the first 15 months were consistently highest among those that bed-shared all the time but interestingly the higher rates of breastfeeding only tracked the other two bed-sharing groups during the time they were bed-sharing. These recent findings are at the very least suggestive of a complex interdependent relationship between bed-sharing and breast-feeding.

The importance of breastfeeding should not be underestimated in terms of its nutritional, immunological and developmental benefits to both the mother and infant. The demonstration by Chen and Rogan²⁶ in a multivariate analysis that the post neonatal infant mortality rate in the USA was 26% higher for bottle fed than breast fed infants raises the possibility that any action leading to reduced rates or duration of breast feeding may increase infant mortality. While many factors potentially contributed to this difference, it is likely that breast-feeding itself has an important contributory effect, and thus any fall in breast-feeding rates may lead to a significant increase in post neonatal infant mortality, even in Western societies.

Is bed-sharing in itself a 'risk-factor' for SIDS?

Bed-sharing is perceived to be and treated as a risk factor in the field of SIDS epidemiology and dealt in this rudimentary way there is ample evidence of a significant association. Before we give advice however we need to understand the nature of the risk, whether it is part of a causal pathway and whether we can generalise findings to the whole population. Studies have reported a significant interaction between maternal smoking and bed-sharing^{27,28}, making it difficult to generalise findings when the majority of bed-sharing SIDS mothers smoke whilst the majority of bed-sharing mothers in the population do not. In Carpenter's large European study the risk of bed-sharing was 10-fold greater amongst mothers who smoked⁹. The magnitude of any increase in risk for non-smoking breastfeeding mothers who are bed-sharing on a firm flat surface, and who have not taken alcohol or other drugs, is unclear, but certainly small^{9,29-31}. From our own work, adjusting for potential confounders specifically associated with the adult co-sleeping environment such as recent alcohol consumption, sleep deprivation, overcrowded conditions and adult-sized duvets rendered bed-sharing as a non-significant risk factor suggesting it is not bed-sharing itself but the particular circumstances in which bed-sharing occurs that puts an infant at risk³². Similar findings were reported in Ireland by McGarvey⁸ although neither study collected adequate information on other potential confounding factors in the bed-sharing environment such as the recent consumption of other sleep-inducing drugs, both legal and illegal, the size and composition of the adults nor the softness of the adult mattress.

More recently we have conducted a case-control study in the South West of England specifically looking at the specific circumstances in which co-sleeping SIDS deaths occur. Similar to other studies more than half the SIDS deaths occurred whilst co-sleeping compared to a fifth of the reference sleeps amongst the controls. However much of this excess may be explained by both the increased proportion of co-sleeping SIDS found on a sofa (17% vs 1% random controls) and a significant interaction between co-sleeping and recent parental consumption of alcohol or drugs (Table 1). This interaction remained significant in the multivariable analysis and also when using a group of 'high risk' controls matched for socio-economic status, young maternal age, larger families and maternal smoking.³³

Alcohol [†] And/or drugs [‡]	Found Co-sleeping	SIDS		Random Controls		Univariable OR [95% CI]	p-value
		n/N	%	n/N	%		
No	No	29/78	37.2%	52/87	59.8%	1.00 [Ref Group]	
Yes	No	6/78	7.7%	17/87	19.5%	0.63 [0.18 to 1.93]	0.54
No	Yes	19/78	24.4%	15/87	17.2%	2.27 [0.93 to 5.57]	0.07
Yes	Yes	24/78	30.8%	3/87	3.4%	14.34 [3.78 to 78.76]	<0.0001

[†] More than two units of alcohol prior to the last sleep
[‡] Methadone, cannabis or amphetamines
 NB The parent who had consumed these substances was the same parent co-sleeping next to the infant

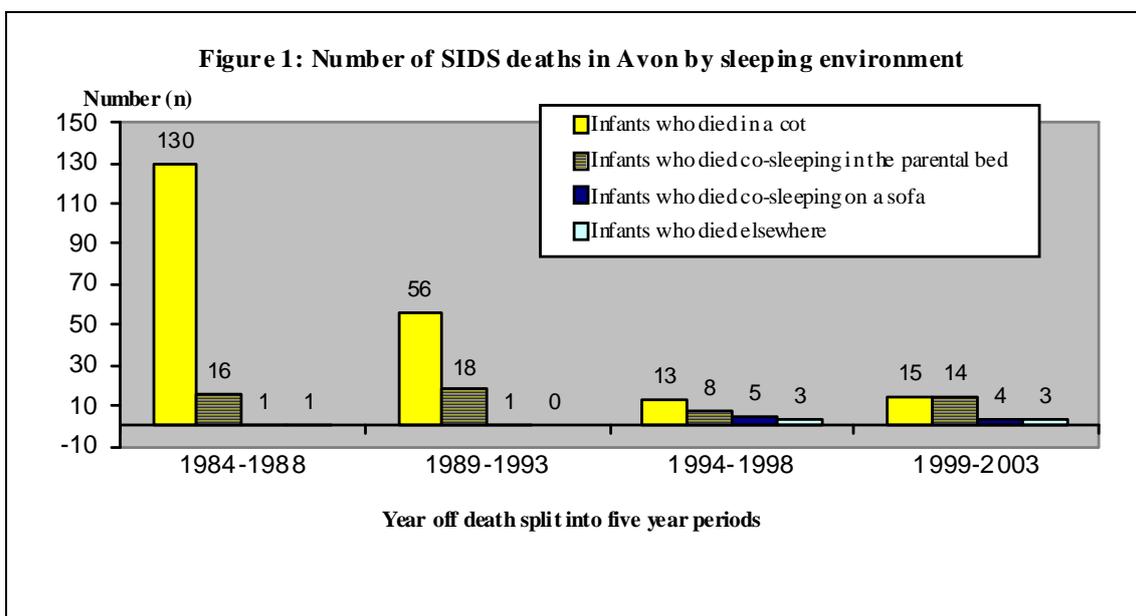
Source: South West Infant Sleep Scene Study

These findings support the contention that it is not so much bed-sharing itself that is the risk factor but the circumstances in which bed-sharing occurs.

By advising against bed-sharing will we do any harm?

In Avon we have a unique longitudinal cohort of 300 consecutive SIDS deaths from 1984 to 2003 and for many of these (96%) we have accurately recorded the sleeping environment in which they were discovered.³⁴ The majority (74%) were found sleeping alone in a cot or sleeping place designed specifically for the infant (moses basket, carry cot, pram etc), 19% were found co-sleeping in the parental bed, 4% co-sleeping with a parent on a sofa and 2% elsewhere (found dead in a baby seat, in the parental bed alone, in the parents arms etc.). These proportions however dramatically change over time confirming reports of a proportional increase in co-sleeping deaths amongst SIDS infants. To get an accurate picture of what is going on however we

need to look at the actual numbers rather than the relative proportions (Figure 1). The dominating feature is the fall in those SIDS infants who died in a cot.



Source: Avon Longitudinal Study (N=288 SIDS deaths)

The actual number of bed-sharing deaths has fallen over time but not to the same dramatic degree of deaths occurring in a cot which have fallen seven fold. One possible reason for this might be that co-sleeping mothers who breastfeed tend to place the infant in a more amenable position, often placing infants on their side or back to feed before sleep. Thus any campaign aimed at changing sleeping position was going to have a reduced effect for those infants sleeping with someone than those infants sleeping alone.

The number of co-sleeping SIDS deaths occurring on a sofa are smaller but a worrying observation is that only 2 deaths occurred in this environment in the ten years between 1984 and 1993 but 9 such deaths occurred in the subsequent ten years and observations subsequent to 2003 suggest this trend continues to rise. In this last decade we have found a significant increase in co-sleeping sofa deaths which would equate to 42 deaths a year in England & Wales, a sixth of all SIDS deaths. It is the only infant sleeping environment in which the SIDS rate has increased in recent years and similar proportions have been reported in Scotland⁶ and Northern Ireland⁸.

This observation was not found in a recent German study³⁵ which may suggest this practice amongst SIDS deaths is culture specific or related to how bed-sharing is perceived. In the UK the media-led perception is that bed-sharing should be discouraged and a worrying observation from our recent study, although anecdotal, is this perception was one of the reasons some of our SIDS mothers cited as to why they fed on the sofa (rather than in the parental bed). Mothers of young infants often need to feed frequently at night and if they feel the parental bed is not an option they may choose a sofa to feed the infant and some will inevitably fall asleep in the process; yet this environment appears to be by far less safe than the parental bed.

Conclusion

In certain cultures bed-sharing is the common infant care practice and the SIDS prevalence is high. These include the black populations in the United States and the Maori and Aboriginal populations in the Southern Hemisphere. Intriguingly however there are other cultures where bed-sharing is also the common practice but the SIDS rates quite low, including Japan & Hong Kong, the Bangladeshi and Asian communities in the UK and Pacific Islander communities in New Zealand. It is not bed-sharing that distinguishes these cultures but there are other mediating factors such as maternal smoking which is particularly low in Japan & Hong Kong² and parental alcohol consumption which is higher amongst the Maori and Aboriginal populations^{18,36} that may combine with co-sleeping and play a role in SIDS deaths. Another mediating factor might be the sleeping environment itself, the Japanese futon for instance, a firm thin mattress placed on the floor is intrinsically different from the elevated often softer mattresses used in western societies.

There has been little in the way of direct observational data until recently, but it is becoming clear that bed-sharing both for infants and mothers results in complex interactions which are completely different to isolated sleeping and which need to be understood in detail before applying crude labels such as 'safe' or 'unsafe'. Advising parents to avoid co-sleeping may conceivably reduce the SIDS rates even further but not necessarily infant mortality in general. To give such a message based on current evidence not only precludes specific advice on how one can co-sleep safely but also reduces the options of where mothers can feed their infants during night-time sleep.

The current evidence suggests there is some benefit to bed-sharing and it may be a far better approach to recognise a widespread cultural infant care practice and specifically advise against the ways in which we can do it wrongly.

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