



Review

Bed-sharing and unexpected infant deaths: what is the relationship?



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EDUCATIONAL AIMS

The reader will come to appreciate that:

- Bedsharing with infants by parents who smoke, drink alcohol or take recreational drugs, or are sleeping on a sofa or armchair is associated with a significantly increased risk of unexpected infant death, particularly for infants less than 3 months of age and for those who were of low birthweight or preterm.
- Bedsharing by breastfeeding mothers with their infants, in the absence of the above mentioned risk factors, has not been shown to be associated with a significantly increased risk of unexpected infant death.
- There is a strong bidirectional relationship between breastfeeding and bedsharing. The benefits of breastfeeding must be considered in any advice given to mothers about bedsharing.

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SUMMARY

For much of human history infant survival has been largely predicated by close and continuous contact between the infant and the primary carer – almost always the mother.

Many factors in post-industrial human society - notably tobacco smoking, alcohol intake and the use of recreational drugs- have been associated with increased risk to infants sleeping in close proximity to their mothers. This is particularly true for mothers who choose not to breastfeed.

The question of the risks and possible benefits of bed-sharing for mothers who plan to breastfeed, do not smoke, do not drink alcohol or take recreational drugs, and are aware of how to ensure a safe infant sleep environment need to be quantified.

In this paper we review the evidence from several epidemiological studies and identify the factors that make bedsharing more or less hazardous for the infant. This analysis is important in allowing us to give parents accurate and unbiased information on which to make their own choices about optimal night time care of their infants without demonising normal parental behaviour or practices.

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INTRODUCTION

For most of recorded human history, and in most societies today, the normal place for human infants to sleep has been in close proximity to their mothers. In many historical settings and in some settings in which mothers and babies live in the 21st century, the protection and access to breast milk afforded to the baby from such close proximity was and is of such clear importance to the

continued growth and indeed survival for the baby that to question the appropriateness of such a care pattern would be perverse.

Since the early stages of industrialisation more than 250 years ago approaches to child care have been subject to the effects of major changes in social and political organisation and differing ideas on the role and responsibilities of parents as primary caregivers and/or as breadwinners.

The effects of one such change - in the form of officially sanctioned production and consumption of cheap gin - are illustrated in the work of William Hogarth - notably "Gin Lane" and "Beer Street".

There can be no doubt that the infant in Gin Lane (Figure 1) - sleeping on the steps with a mother incapacitated by alcohol is

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Figure 1. William Hogarth. Gin Lane 1751.

gaining little and potentially losing a great deal by this close proximity. Studies of infant mortality in the UK in the 19th century drew attention to the high mortality levels associated with poor social circumstances, infection, cramped and overcrowded sleeping conditions and high levels of alcohol consumption by parents – particularly mothers.

Improvements in infant mortality rates in the 20th century (see Figure 2) – with a 95% fall in infant mortality over the century from 95 deaths per 1000 live births in England and Wales in 1912 to 10.8 deaths per 1000 in 1982, and 4 deaths per 1000 in 2012 meant that more attention was given to relatively less common groups of infant deaths including sudden and unexpected deaths in cots or in bed with adults.

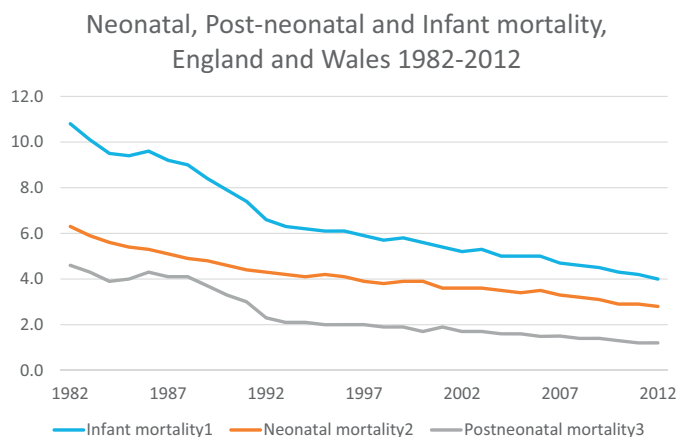


Figure 2. Infant Mortality in England and Wales 1982–2012 (Office for National Statistics).

The question of whether and in what circumstances the risk of unexpected infant death was increased by sharing a sleep surface with an adult has been greatly hampered by the zeal with which advice, recommendations and blame have been proffered by those on both sides of the debate, and the relatively poor quality of the evidence upon which such opinions have been based.

In this paper we will review the evidence of risks and potential benefits to parents and infants from mothers (or fathers) sharing a sleep surface with a baby in the first years after birth.

WHAT DO WE MEAN BY “BEDSHARING”?

The differing definitions of bedsharing or “co-sleeping” used in various studies have caused considerable confusion. For the purpose of this review we will define bedsharing as the infant sharing a sleep surface with an adult (most commonly but not always the mother). This definition thus includes the instances when adult carers fell asleep unintentionally with a sleeping infant on a sofa, armchair or other surface as well as those instances when the adult chose to share a sleep surface (e.g. a bed) with the infant. For clarity we will avoid the term “co-sleeping” which we take to be synonymous with bedsharing.

PUBLISHED STUDIES ON THE RELATIONSHIP BETWEEN BEDSHARING AND THE RISK OF UNEXPECTED INFANT DEATH

In a careful meta-analysis of published studies on the relationship between bedsharing and the risk of Sudden Infant Death Syndrome (SIDS), Vennemann and colleagues identified 11 case control studies that met their strict inclusion criteria [1–12]. These observational studies were conducted between 1987 and 2006 in the UK (4 studies), the US (3 studies) and one study each in Ireland, Norway, Germany and New Zealand.

The authors found that for all of the studies the effect of bedsharing was in the direction of an increased risk of SIDS, though this did not achieve statistical significance in all studies, and that the summary odds ratio (OR) for the risk of SIDS whilst bedsharing compared to infants sleeping alone was 2.89 [95% CI: 1.99–4.18] with significant heterogeneity between studies. In the combined calculation 2464 cases and 6495 controls were included, of whom 710 cases (28.8%) and 863 (13.3%) controls bed shared.

The subgroup analysis of the relationship between maternal smoking and bed sharing, from the four studies in which this data was available [12–15] showed a significant risk (OR 6.27 [95% CI: 3.94–9.99]), whilst for non-smoking mothers [11,13,14] the risk was not significant (OR 1.66 [95% CI: 0.91–3.01]).

In the three studies in which bed sharing with young infants under the age of 12 weeks was separately reported [3,11,15] this was identified as a risk factor (OR 10.37 [95% CI: 4.44–24.21]), while for older infants no significant risk was identified (OR 1.02 [95% CI: 0.49–2.12]).

Routine bed sharing [11,14] was not significantly associated with SIDS (OR 1.42 [95% CI: 0.85–2.38]), but bed sharing on the last night by infants for whom bed sharing was not routine was a significant risk factor [3,14–16] (OR 2.18 [95% CI: 1.45–3.28]).

In their conclusions Vennemann et al acknowledge there is emerging evidence of a significant interaction between bed sharing and parental use of alcohol and drugs as well as an excess of SIDS bed sharing deaths on sofas that their meta-analysis could not examine [12].

Carpenter and colleagues reflected many of the same findings [17] when pooling data from a portion of these case control studies. These authors used imputation in an attempt to correct for the fact that information on some of the potential important interactions – notably parental alcohol intake and

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