Bed-sharing with infants in a time of SIDS awareness

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Abstract

Objective Risks associated with maternal–infant bed-sharing are widely documented and promoted. This study aims to examine sleep patterns and strategies including bed-sharing.

Methods Women aged over 18 who have infants aged up to 24 months were eligible to participate in an anonymous online questionnaire in March 2010. A representative sample of 1,000 respondents was randomly selected from a total sample of 2000.

Results The challenge of facilitating infant sleeping was highlighted, with 92% of respondents having difficulties at some point. Almost all (97%) felt sleep-deprived at some time, with almost half reporting that they were always or regularly deprived of sleep. Sleep deprivation exacerbated exhaustion or feeling run down (75%), irritability (70%), made mothers less patient with their infants (63%) and put additional strain on their relationship with their partner (37%). Strategies to facilitate infant sleeping included rocking and patting (50%), giving a dummy/comforter (46%) and allowing the baby to fall asleep in their arms (47%) or after feeding (45%). Just under half (41%) utilised bed-sharing as a sleep strategy at night. Bed-sharing was more likely to be used if babies experienced frequent waking at night and unstable sleep patterns.

Conclusions Maternal–infant bed-sharing continues to be an infant sleep strategy used by mothers, despite the risks involved.

Implications This study highlights that mothers still continue to bed-share despite preventative health campaigns and the known risks. Thus, health promotion should be modified to include a stronger emphasis on risk minimisation strategies.

Keywords: bed-sharing, sleep, infant, sudden infant death syndrome.

What is known about this topic

- Much debate exists over the benefits and risks associated with bed-sharing. Bed-sharing can act as a proxy for increased parental proximity and, conversely, is associated with sudden infant death syndrome (SIDS).
- Parental smoking, alcohol and drug use can greatly increase the chances of SIDS during bed-sharing.
- Several Australian and New Zealand infant safe sleep campaigns have been used in an attempt to minimise infant deaths. Bed-sharing is identified as a significant risk factor and is actively discouraged within the campaigns.

What this paper adds

- Despite continued health campaigns and preventative education, mothers still resort to bed-sharing with an infant.
- Exhaustion, tiredness and stress generated from a lack of sleep significantly influence a mother's decision to bed-share. These factors should be addressed and integrated within preventative health education.
- Modification of preventative health education is needed to increase parental bed-sharing risk minimisation knowledge.

Declarations

Competing interests Nil to declare.

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Ethical approval Participation in the online questionnaire was voluntary, anonymous and posed negligible risk to respondents. Ethical approval was not deemed necessary by the university's health research ethics committee.

Guarantor CH.

Contributions

EA Study collection and design, data collection and analysis, drafting of manuscript, critical revisions of manuscript, administrative, technical or material support.

CF Study collection and design, data collection and analysis, drafting of manuscript, critical revisions of manuscript, administrative, technical or material support, and supervision.

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Acknowledgements The Pampers Nappies Sleep Report was conducted nationally by Galaxy Research on behalf of Procter & Gamble in conjunction with Tresillian Family Care Centre in March 2010. A total of 2000 mothers with babies and toddlers aged between 0 and 2 years were surveyed.

Introduction

Infant sleep patterns rapidly evolve and change during the first years of life[1]. An unsettled infant frequently results in parental distress and the seeking of parenting assistance. The difficulty for parents and health professionals relates to concerns regarding the appropriateness and safety of methods used to reduce an infant's distress and to facilitate sleep[2,3]. Bed-sharing is one of these contentious practices[4,5]. While an intrinsic and sometimes cultural practice, research has accentuated several potential risks related to bed-sharing, particularly an association with sudden infant death syndrome (SIDS)[6,7]. Despite this, anecdotally, mothers bed-share in an effort to settle their baby and also obtain some much-needed sleep for themselves.

SIDS is the sudden and unexpected death of an infant under one year of age during sleep that remains unexplained[8]. In Australia, 46 infants died unexpectedly in 2008[9]. The mechanism by which bed-sharing increases the risk of SIDS is unknown, though it has been suggested that airway obstruction, thermal stress, head covering and hypoxia due to re-breathing of expired gases are possible mechanisms[6]. A number of epidemiological studies have documented a considerable connection between the prone sleep position and unexpected infant death, and highlight reduced rates of SIDS as a consequence of modifying bed-sharing practices[10-13]. Consequently, several SIDS prevention campaigns have been launched within Australia and New Zealand to advocate safe infant sleeping practices. Such campaigns largely encourage the supine sleeping position[10], in addition to safe and firm sleeping environments, reduced tobacco exposure and advice against bed-sharing, albeit, having a cot next to a parent's bed is recommended when an infant is less than 12 months old[14].

During the 13-year period of public health campaigns, SIDS-related infant deaths in NSW have fallen from 104 deaths in 1996 to 46 deaths in 2008[9]. Whilst this is a notable achievement, mothers still continue to bed-share with young infants despite potential risks. The NSW Child Death Review Team found that of the 123 infants who died suddenly and unexpectedly between 1996 and 2008, 60% were in unsafe sleep environments (such as co-sleeping), with 36% of these infants also being exposed to tobacco smoke. This report further emphasises the risk of unsafe sleeping environments, particularly when a mother is tired and highlighted the need for more understanding about co-sleeping practices in Australia to help inform public health policy.

Method

A descriptive study was undertaken using an online, anonymous questionnaire administered by Galaxy Research on behalf of Procter & Gamble in conjunction with Tresillian Family Care Centres. The research data used was collected by Galaxy Research, a market research company. The second author assisted in the questionnaire development process as Tresillian's representative and reviewed the completed Galaxy report. Permission was given by Proctor & Gamble for the use of these data by the second author and the UTS research team she is involved with. Proctor & Gamble has not seen the paper or made comment on the paper or influenced the interpretation of the data contained in this paper. All correspondence with Procter & Gamble was through a public relations company.

Participation in the online questionnaire was voluntary, anonymous and posed negligible risk to respondents. Ethical approval was not deemed necessary when discussed with the university's human research ethics committee representative.

Participants and setting

The online questionnaire was conducted in March 2010 among a representative sample of Australian mothers. To be eligible to participate, respondents had to be over 18 years of age and have at least one infant aged up to 24 months.

There were more than 2000 eligible participants who were randomly selected using a permission-based panel approach, where the online survey was emailed for completion. Participants were paid a nominal amount of $1–$2 each time they responded to a survey.

Data collection

The questionnaire comprised 30 questions separated into three sections relating to demographics, sleep patterns and

cross-sectional data. Participants could select more than one answer where appropriate, thus response size varied for each question. The questionnaire was transferred into Quest format in order to be hosted online. Participants had to simply click on the response that represented their answer. Data range checks, registration verification, question validation and time taken to answer the question were closely monitored to ensure the accuracy of data received and to exclude dishonest responses.

Data analysis

Data was analysed using SPSS for Windows. To ensure diversity in age, number of children, socio-economic background and location in the final sample, a random selection of 1,000 respondents from the total responses received was made for the analysis. Simple descriptive statistics were calculated. A logistic regression model was constructed using the possible predictors for bed-sharing. Odds ratios (OR) and 95% confidence intervals (CI) were calculated initially in a univariate and then a multivariate model. Demographic characteristics were included in the model as possible explanatory variables.

Results

One-third of respondents resided in New South Wales (NSW) or the Australian Capital Territory (ACT) (34.3%, n=343) and in a capital city (62.8%, n=628). They were predominantly married (94.4%, n=944) and not currently working (57.8%, n=578), and just less than half had a household income over A$70, 000 (45.3%, n=453).The most common respondent age group was 30–34 years old (36.7%, n=367), with one-quarter being 35 years or greater. The majority of respondents had only one child under 24 months of age (92%, n=920), and the average age of the participants' youngest child was 12 months (Table 1).

Sleeping patterns and consequences

The challenge of putting an infant to sleep was illustrated with 91.6% (n=916) of respondents having difficulties at some point and 24% (n=240) always or regularly struggling to get their baby to sleep. One-third reported having difficulty getting their baby to sleep in the daytime and another third at night; 19.8% (n=198) reported both day and night-time difficulties. Waking at night was common with 51% (n=510) of babies waking at least once. Just over half of respondents recorded an average of six to seven hours of sleep per night (58.2%, n=582) with one-third (31%, n=310) having four to five hours a night (Table 2).

Almost all (96.8%, n=968) respondents stated that they felt sleep-deprived at some time, with almost half (45%, n=450) reporting that they were always or regularly deprived of sleep. In conjunction with this struggle, the sleep routine of an infant further contributed to a mother's lack of sleep. Only 38% (n=380) of infants were reported as having the same sleep routine every night, with more than half of the respondents (55.9%, n=559) acknowledging that sleep routine changes as circumstances dictate (Table 2).

Table 1. Demographic characteristics of respondents.

Demographic characteristics	N=1000 N (%)
Age of respondent	
18–24 years	57 (0.6)
25–29 years	269 (26.9)
30–34 years	367 (36.7)
35–39 years	245 (24.5)
>40 years	62 (0.6)
State of residence	
NSW and ACT	343 (34.3)
Victoria	260 (26.0)
Queensland	221 (22.1)
South Australia and Northern Territory	55 (0.6)
Western Australia	91 (0.9)
Tasmania	30 (0.3)
Marital status	
Married or defacto relationship	944 (94.4)
Single	56 (0.6)
Paid employment status	
Full-time	106 (10.6)
Part-time	316 (31.6)
Not in paid employment	578 (57.8)
Household income	
Under A$40,000	146 (14.6)
A$40,000–A$70,000	299 (29.9)
More than A$70,000	453 (45.3)
Prefer not to say	102 (10.2)
One child under 24 months of age	921 (92.1)
Age of child in months (Mean [SD])	12.4 (6.9)

Table 2. Sleep characteristics for babies and mothers.

Sleep characteristics	N (%)
Time most likely to have difficulty getting baby to sleep	
Daytime	355 (35.5)
Night time	337 (33.7)
Both	212 (21.2)
None	96 (0.9)
Frequency of struggling to get baby to sleep	
Always	41 (0.4)
Regularly	198 (19.8)
Sometimes or occasionally	671 (67.1)
Never	90 (0.9)
Average number of hours sleep a night	
Less than 3 hours	37 (0.4)
4–5 hours	319 (31.9)
6–7 hours	565 (56.5)
8 hours or more	79 (7.9)
Frequency of baby waking during the night	
5 times a night or more	25 (0.3)
3–4 times a night	148 (14.8)
1–2 times a night	333 (33.3)
• Not every night/Every now and then	373 (37.3)
• Always sleeps through	121 (12.1)
Baby's sleep routine	
• Same every day	390 (39.0)
• Changes as circumstances dictate	544 (54.4)
• No routine	66 (0.7)

As a consequence of the infant's sleep pattern, many mothers reported feeling tired (46.2%, n=462), frustrated (26.9%, n=269) or stressed (22.1%, n=221). Only one-fifth (21%, n=210) reported feeling contented with their baby's sleep pattern. Respondents indicated that sleep deprivation exacerbated their feelings of exhaustion (75%, n=750), irritability (70.1%, n=701), decreasing their patience with their infants (63.4%, n=634) and putting additional strain on their relationship with their partner (37%, n=370). Respondents were asked to select strategies that they used to facilitate sleep in their babies including putting their infant in their cot (56.9%, n=569), rocking and patting infant (51%, n=510), giving infant a dummy/comforter (46.6%, n=466), allowing infant to fall asleep in their arms (47.5%, n=475) or after feeding (45.9%, n=459). Just under half of respondents (41.3%, n=413) reported using bed-sharing as a sleep strategy at night.

Respondents were no more likely to use bed-sharing as a strategy if they were on a lower income, single, lived in a rural area or were younger in age. However, bed-sharing was more likely if their babies experienced frequent waking at night and unstable sleep patterns. These predicators remained statistically significant even after adjustment for demographic characteristics (Table 3).

Discussion

Difficulty with facilitating sleep in infants continues to be a significant problem for many Australian mothers. Women in this study reported high rates of sleep disturbance, with social and emotional consequences including feeling tired, stressed and frustrated from a continual lack of sleep with potential impacts on their relationship with their child and partner. Bed-sharing with an infant was a practice employed by many Australian mothers in this study despite the associated risks[9,15]. Our findings suggest that bed-sharing is primarily a consequence of mothers who struggled to get their babies to sleep at night, experienced frequent waking and had babies with unstable sleep patterns. Almost half of the women in this study let their infant fall asleep while feeding as a sleep strategy. However, as this question did not specify what setting feeding occurred in, it is quite possible that participants fed their infant in their bed and proceeded to bed-share once the infant was settled. As a result, the proportion of participants that bed-shared could be higher than shown.

Bed-sharing has been common practice for centuries. It still occurs in many cultures and is likely to have anthropological, cultural and psychological benefits despite the risks related to SIDS[10,16-18]. Bed-sharing is a common practice in Asian and Maori cultures during breastfeeding and in the absence of maternal smoking, SIDS deaths in these cultures are among the lowest in the world[19,20]. In addition, bed-sharing studies show that skin to skin contact with an infant moderates crying and cortisol stress levels[19]. Bed-sharing also provides support for enhanced breast milk production, increased duration of breastfeeding, improved cardiorespiratory stability and oxygenation, better thermoregulation and fewer episodes of crying[15,19,21]. A prospective study in the United Kingdom also found that the prevalence of breastfeeding has also been shown to be significantly higher among groups that shared beds constantly or early for each of the first 15 months after birth[22]. For these reasons and possibly others, many mothers continue to bed-share with their infant.

A study conducted by Ball[15] documented bed-sharing as a common strategy choice for participants (n=253) through analysis of 24-hour sleep logs. In this study, 80% of infants were reported to have ever bed-shared with one or both parents between birth and 24 weeks age. Similarly, convenience, necessity and anxiety related to a lack of sleep were acknowledged as strong motivators for maternal–infant bed-sharing. Research by McKenna and Volpe[19] further supported this notion, concluding that increasing parental sleep was a predominant reason for employing bed-sharing practices.

Numerous studies have further identified maternal–infant bed-sharing as a modifiable risk factor for SIDS[9,10,16-18]. Exposure to tobacco and bed-sharing with a mother who smokes have been shown to significantly increase the incidence of SIDS[7,10,23,24], with some research proposing that no significant risk of SIDS exists when infants bed-share with non-smoking mothers[10]. However, Carpenter *et al.*[24] have shown that even among non-smoking mothers, bed-sharing

Table 3. Predictors of bed-sharing.

	Bed-sharing n	No bed-sharing n	OR (95% CI)	OR (95% CI) (Adj)**
Baby's usual sleep routine				
• Regular/same	120	270	1.0	1.0
• Changes with situation	258	286	2.03 (1.55-2.67)	1.79 (1.31-2.44)
• No routine	31	35	2.0 (1.17-3.38)	1.83 (1.02-3.28)
Usually struggle to get the baby to sleep				
• No	255	506	1.0	1.0
• Yes	154	85	3.60 (2.65-4.87)	2.70 (1.91-3.82)
Baby's usual waking pattern				
• Twice a night or less	290	537	1.0	1.0
• Three times a night or more	119	54	4.08 (2.87-5.80)	2.46 (1.65-3.66)

**Adjusted for age, rural/metropolitan area of residence, partnership or marital status and household income.

increases the risk of SIDS in younger infants. As a result, such findings suggest that all forms of bed-sharing should be avoided[10,25], regardless of environmental factors.

The age of the infant has also been acknowledged as an important factor for increasing bed-sharing risk. Ruys *et al.*[18] conducted an investigation of SIDS deaths in the Netherlands and concluded that bed-sharing is a prominent factor for the sudden death of all infants under the age of four months. Ruys *et al.* further added that from four months onwards, bed-sharing did not contribute significantly to SIDS. Several studies support this finding, concluding that infants aged less than 12 weeks with non-smoking parents are at increased risk of SIDS with bed-sharing compared with infants of non-smoking mothers not bed-sharing[6,26]. However, this increased risk is small compared with infants of maternal smokers who bed-share[6].

Current SIDS preventative education requires revision to clearly acknowledge that women still bed-share and provide risk minimisation strategies in a meaningful way. This acknowledgement will enable parents to discuss infant sleep practices with health professionals more effectively and ensure that families have information to facilitate decision-making.

The nature of online anonymous surveys is a limitation of this study. The sample was drawn from a website frequented by new mothers, who clearly have access to the internet and with appropriate levels of English literacy. The women who responded to this survey may not be representative of mothers with young children in Australia, particularly in relation to household income. Nonetheless, the women in the survey were similar in age and number of children to women giving birth in Australia in 2008, which is the most recent national data available[27] and so will have some similarity with other women in relation to their sleep-related concerns.

Conclusion

Analysing data elicited from an online questionnaire, this study has shown that mothers continue to bed-share with their infant despite the strong association with SIDS and public health messages outlining the risks. Exhaustion, stress and frustration generated from a mother's lack of sleep were highlighted as significant factors contributing to the use of bed-sharing as a strategy. These factors should be addressed and integrated within preventative health education and future SIDS campaigns. Modification of preventative health education is needed to ensure that families have knowledge about bed-sharing and the risks associated with this practice.

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