Infant sleep location: Associated maternal and infant characteristics with SIDS prevention recommendations

Linda Y. Fu, MD, MS, Eve R. Colson, MD, Michael J. Corwin, MD, Rachel Y. Moon, MD

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Purpose of the Research

To identify family demographic characteristics associated with high-risk vs. low-risk infant sleeping arrangements

Background: Benefits and risks associated with bedsharing

- Benefits: facilitates breastfeeding and enhances parent-infant interactions
- Risks: increases chances for overheating, rebreathing CO2 and exposure to tobacco smoke

Approximately half of all SIDS/SUDI in the US occur when the infant is bedsharing

Roomsharing without bedsharing

- Growing body of evidence from multiple countries that roomsharing without bedsharing is protective against SIDS
- Possible mechanisms of protection: enhanced ability for parents to monitor the infant and increased infant arousal
- 2005: AAP recommended “separate but proximate sleep environment”—i.e. crib or bassinet in parent’s room

Aim

To examine the maternal and infant characteristics associated with choice of infant sleeping arrangement, namely bedsharing vs. roomsharing without bedsharing vs. solitary sleeping*

* Note the change to looking at 3 (vs. 2) possible sleep locations

Methods

- Face-to-face interviews conducted in 2005 with 708 mothers recruited from WIC
- Sites: Dallas, New Haven, Atlanta, Savannah
- Inclusion criteria: received WIC benefits, had an infant less than 8 months old, spoke English

Statistical Analysis

- Means and SDs for continuous predictor variables
- Frequencies and percentages for categorical variables
- *Sleeping arrangement last night* as a 3-level outcome: 1) roomsharing without bedsharing; 2) bedsharing; 3) solitary sleeping
- Univariate analyses using ANOVA
- $P < 0.05$

Statistical Analysis continued

- Multinomial logistic regression models for the 3-level outcome
  - Predictor variables entered simultaneously
  - Variables included if $P \leq 0.1$ for 1 or 2 outcomes
  - Variables excluded if $P > 0.1$ for 2 outcomes, except if exclusion increased SE of the remaining variables in the model
  - RRR, 95%CI calculated

Results: Demographics

- 708 mothers included
  - Mean maternal age: 25 yo (SD=5.6)
  - Mean infant age: 4 mo (2.4)
  - Female infants: 51%
- % recruited from each site:

  23% (Savannah) - 27% (Dallas)

Results: Univariate Analyses

Variable	Total	+RS/-BS *n* (%)	-RS/-BS *n* (%)	+RS/+BS *n* (%)	*P* value
Total Sample	**708**	**344 (48.6)**	**134 (18.9)**	**230 (32.5)**	
Maternal age, y					<.001
≤19	120	41 (34.2)	18 (15.0)	61 (50.8)	
≥20	583	301 (51.6)	113 (19.4)	169 (29.0)	
Maternal race					<.001
Black	465	205 (44.1)	87 (18.7)	173 (37.2)	
Hispanic	96	59 (61.5)	9 (9.4)	28 (29.2)	
Other	32	19 (59.4)	6 (18.8)	7 (21.9)	
White	106	57 (53.8)	28 (26.4)	21 (19.8)	

Results: Univariate analysis

Variable	Total	+RS/-BS *n* (%)	-RS/-BS *n* (%)	+RS/+BS *n* (%)	*P* value
Education					.01
<HS	145	64 (44.1)	21 (14.5)	60 (41.4)	
HS/GED	276	131 (47.5)	48 (17.4)	97 (35.1)	
Some college	206	101 (49.0)	46 (22.3)	59 (28.6)	
College/more	77	47 (61.0)	16 (20.8)	14 (18.2)	
Infant age, mo					<.001
0-1	256	146 (57.0)	24 (9.4)	86 (33.6)	
2-3	145	72 (49.7)	27 (18.6)	46 (31.7)	
4-8	306	126 (41.2)	82 (26.8)	98 (32.0)	

Results: Univariate analysis

Variable	Total	+RS/-BS *n* (%)	-RS/-BS *n* (%)	+RS/+BS *n* (%)	*P* value
Usual sleep position					.02
Non-supine	269	118 (43.9)	47 (17.5)	104 (38.7)	
Supine	439	226 (51.5)	87 (19.8)	126 (28.7)	

Non-significant variables: Infant health status, maternal smoking status, place of WCC and breastfeeding status

Multinomial logistic regression: Roomsharing without bedsharing vs. solitary sleeping

Variable	RRR (95% CI)
Maternal race	
Black	1.14 (0.68, 1.85)
Hispanic	3.03 (1.33-7.14)*
Other	1
White	1
Infant age, mo	
0-1	4 (2.33, 6.67)*
2-3	1.75 (1.02, 3.03)*
4-8	1

Multinomial logistic regression: Roomsharing without bedsharing vs. bedsharing

Variable	RRR (95% CI)
Maternal age, y	
≤ 19	0.41 (0.26, 0.67)*
≥ 20	1
Maternal race	
Black	0.43 (0.26, 0.70)*
Hispanic	0.85 (0.45, 1.61)
Other	1
White	1
Maternal education	
<HS	0.43 (0.21, 0.91)*
HS/GED	0.45 (0.23, 0.88)*
Some college	0.54 (0.27, 1.09)
College/more	1

Summary of findings: Roomsharing without bedsharing

- The most common response in our population—about half of the infants
  - Study was conducted the same time the AAP recommendations were published
- More common for younger infants (vs. solitary sleeping)
  - Parents may be reluctant to leave younger infants in another room where monitoring is more difficult

Summary: Bedsharing

- Still accounts for ~1/3 of our population
- More common among African Americans
  - May be 2-4x more common among AA vs. white infants (Unger 2003, Willinger 2003)
- More common with teenage mothers and mothers with less education, possible indicators of lower SES
  - More common with annual income <$30,000 (Lahr 2006), teenage parent (McCoy 2004), if parent did not attend college (Brenner 2003)

Possible rationales for bedsharing

- Economic
  - More common for lower SES
  - No funds to purchase or room for crib/bassinet
    - Free crib distribution programs needs testing
- Cultural norms
  - Hispanic vs. African-American
- Breastfeeding
  - Correlated in some studies & advocated by La Leche League
  - Recent study found SIDS risk caused by bedsharing not modified by breastfeeding

Conclusion

- Bedsharing in a low-income population is associated with African-American race, having a teenage mother and lower maternal education
- All are also risk factors for SIDS
- Direction for future studies: Identify the reasons families with these demographic characteristics bedshare and identify interventions to change typical practices re. infant sleep location

Questions?