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Practice of Infant Safe Sleep Recommendations among Mothers: A Cross-Sectional Pilot Study from Beirut, Lebanon

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Abstract

Objective – To explore the practice of infant safe sleep recommendations as defined by the American Academy of Pediatrics (AAP) by mothers in Beirut, Lebanon. **Materials and Methods** – A total of 87 mothers participated in this study. Data was collected via hard-copy questionnaires distributed at the daycares in Beirut between July 2018 and April 2019. **Results** – Less than half of the mothers were more likely to place the infants on their back during sleep. Sixty-two percent of mothers reported that they would most likely place their infants on a firm mattress in the crib. Seventy percent of mothers reported that they are likely to have their infants sleep in the same room as them, and 43.7% of participants reported that they are unlikely to have their infants sleep in the same bed as them or with any other adult. Only 8% mentioned that they would never place a pillow in the crib. One-third of participants mentioned that they were more likely to offer a pacifier when putting their infants to sleep. **Conclusion** – Mothers in Beirut, Lebanon require more awareness regarding safe sleep practices in order to improve compliance with the "Strict definition" of the AAP recommendations. Exploring the preventive advice currently given by health professionals to pregnant women and young parents, as well as assessing the prevalence of safe sleep practices in all Lebanese governorates, will help design and launch awareness campaigns adequately.

Key Words: SIDS ▪ Infant ▪ Sleep.

Introduction

Sudden Infant Death Syndrome (SIDS), also known as cot/crib death, is the sudden unexplained death of an infant (less than one year old) who was healthy prior to death. The death of infant remains unexplained even after clinical history, complete autopsy, and case and death scene investigation (1, 2, 3).

Despite declines in its incidence during the past two decades, SIDS continues to be one of the leading causes of infant mortality in the post-neonatal period (28 days to 1 year of age) (4, 5, 6, 7). The pathophysiology of SIDS is not completely understood, and is said to be multifactorial with intrinsic and extrinsic factors. Due to the uncertainty of the intrinsic risk factors, the focus of risk reduction is currently based upon the extrinsic factors, i.e. those that the caregivers can be in control of (8).

Certain guidelines identify and explain risk factors and how to avoid them, especially the American Academy of Pediatrics (AAP), which released a recommendation that infants be placed supine to sleep in 1992 (9). Also, the National Institute of Child Health and Human Development (NICHD) promoted that recommendation with a national "Back to Sleep" (BTS) campaign (10, 11). The SIDS rate fell dramatically in the United States over the decade following the BTS campaign (11), but has not improved since then. Therefore, there is still a need to educate families, particularly caregivers, on multiple strategies to reduce SIDS risk (12).

In addition, many SIDS risk factors are linked to other Sudden Unexplained Infant Deaths (SUIDs) occurring during sleep, including suffocation and entrapment (8). Thus, in 2011, the AAP included in its policy a variety of safe sleep practices that can lessen the risk of sleep-related infant death (13). Recommendations discouraged bed sharing and smoking, and endorsed the use of the supine position and appropriate surfaces for sleep, breastfeeding, offering a pacifier at bedtime, and adequate prenatal care (13). The "Safe to Sleep" (STS) campaign that was introduced in 2012 by NICHD incorporates this expanded perspective on SIDS reduction (14). Hence, factors associated with social and economic status of the family imply high risks for SIDS. Important factors are the lack of prenatal care, low socioeconomic status, and smoking, as adopted by the AAP recommendations and NICHD campaigns (i.e., BTS and STS). Other factors such as community norms and cultural practices may also play a role in infant sleep practices and thus, risk of SIDS (8).

On a national level, there is paucity of data on SIDS and its incidence in Lebanon. Nevertheless, the Lebanese ministry of public health (MOPH), in collaboration with some non-governmental organizations (NGOs) is keen to publish awareness and education on the topic (15), including the "National Guidelines for Early Childhood Care" toolkit that comprises a part on cribs and bedding safety (16).

The aim of this study was to explore the practice of infant safe sleep recommendations (as defined by the AAP) by mothers in Beirut, Lebanon.

Materials and Methods

Study Design and Participants

The present study used a cross-sectional design. It targeted mothers of infants in different daycares in Beirut, aging 18-45 years, excluding illiterate mothers. The participants were recruited between July 2018 and April 2019. The list of the daycares in the different areas of the city of Beirut, capital of Lebanon, was retrieved from the website of the Lebanese MOPH (17). It contained 93 daycares, among which 13 were found to be permanently closed. The research team then approached 80 daycares to get the approval of the directors. Only 16 daycares responded. Mothers in daycares whose directors accepted to be enrolled in the study were targeted. Three hundred mothers were invited in total. Among them, 87 agreed to participate, leading to a response rate of 29%. Paper-based questionnaires written in Arabic language were handed to the mothers by the investigators who explained the objectives of the study and informed them that the contribution to the research is anonymous and voluntary. Written informed consent forms were signed by the participants.

Questionnaire

The study used a questionnaire validated in a previous study by Whiteside-Mansell et al. (18). For the purpose of the current study, the survey was translated to Arabic with the help of a translator to facilitate communication with our targeted study group, and back translation to English was done in order to ensure the quality of translation.

The survey tackles six components which are (a) sleep position, (b) sleep surface, (c) sleep location, (d) bedding safety, (e) overheating, and (f) pacifier use; and they were tackled either through one straight question or through a series of questions.

Measures

The survey assesses adherence of mothers to AAP recommendations that are related to the above mentioned six components. It does so through 14 questions that are straight forward with answers being either never, sometimes, most of the times, or always. Furthermore, this study expresses both the "Safest/Strict definition" through which parents followed the AAP recommendations all the time, and the "Lenient definition" where parents followed the AAP recommendations most of the time.

Ethics Statement

This research study was approved by the institutional review board (IRB) of the Beirut Arab University (2018H-0080-M-R-0284).

Statistical Analysis

The data analysis was done using the Statistical Package of the Social Sciences version 23. Descriptive analyses were performed to determine frequencies of categorical variables and the prevalence of safe sleep practices among mothers in Lebanon. Missing data was taken into consideration in the analysis.

Results

Participants

A total of 87 surveys were filled by mothers. Infants of the mothers included in this study ranged from 1 week to 28 weeks of age. The average age of the participating mothers was 31±4.7 years, and most of them were married (97.7%). The majority of the participants (72.4%) mentioned having 1 or 2 children. Ninety percent of the participants were employed, with more than half of them working outside the education and healthcare sectors (55.7%). Approximately one-third of mothers (32.2%) were smokers, 5.7% smoked during pregnancy and 1.1% smoke in front of their infants. Most of the participants (80.5%) acquired a university degree with around 55.2% having a monthly income between 1000$ and 2000$ (noting that previous incomes have massively decreased due to the Lebanese economic crisis leading to the devaluation of the Lebanese currency). Only 17.2% of the participants received education regarding safe sleep practices (Table 1).

Table 1. Socio-Demographic Characteristics of the Study Participants (N=87)

Variable	N (%)
Age (years)	31±4.7 ($\bar{x}$ ± SD)
Marital Status*	
Married	84 (97.7)
Divorced	2 (2.3)
Education	
Elementary	1 (1.1)
High school	16 (18.4)
University	70 (80.5)
Monthly Income ($)†	
Less than $500	3 (3.4)
$500 to $1,000	22 (25.3)
$1,000 to $2,000	48 (55.2)
More than $2,000	14 (16.1)
Number of children	
1-2	63 (72.4)
3-5	24 (27.5)
Other people supervising the children*	
Yes	30 (34.9)
No	56 (65.1)
Occupation	
Employed	79 (90.8)
Unemployed	8 (9.2)
Field of work	
Healthcare	9 (11.4)
Education	26 (32.9)
Other	44 (55.7)
Current smoking status	
Yes	28 (32.2)
No	59 (67.8)
Smoked during pregnancy	
Yes	5 (5.7)
No	82 (94.3)
Smoked in front of the infant	
Yes	1 (1.1)
No	86 (98.9)
Given education about infant safe sleep	
Yes	15 (17.2)
No	72 (82.8)

*The variable had missing data; †Exchange rate using 1,500 Lebanese Pounds per 1$, as sample taken prior to economic crisis.

Compliance to Safe Sleep Practices

When considering the safe sleep positioning of the infant, 41.2% of the participants were more likely to place the infant on their back with only 17.6% placing their infant on their back all the time. Regarding sleep surfaces, 62.3% of mothers reported that they would most likely place their infants on a firm mattress in the crib. When asked about the sleep location, 70% of mothers reported that they are likely to have their infants sleep in the same room as them or with any other adult, and 43.7% of participants reported that they are unlikely to have their infants sleep in the same bed as them, or with any other adult. Around 47% of the participating mothers denied putting their infants to sleep on adult beds, with 85.9% reporting that they are most likely to place their infants in cribs or bassinets. Considering bedding safety, 8% mentioned that they would never place a pillow in the crib for the baby to rest his head on. Approximately 66% of mothers denied having any objects placed underneath the infant within the crib, such as sheepskin, or blankets, and 71.3% mentioned not having stuffed toys within the vicinity of the infant while sleeping in the crib. When asked about the condition of the mattress within the crib, 62.2% of the participants reported it completely filling up the crib with no space between it and the edges. Furthermore, regarding overheating, about 35% of mothers reported that they did not place heavy blankets, comforters, or bedspreads in the crib with their infants. One-third of participants (33.3%) mentioned that they were more likely to offer a pacifier when putting their infants to sleep. (Table 2)

Table 2. Compliance to Infant Safe Sleep Practices by Mothers Based on Lenient Definition and Safest Definition (N=87)

Recommendation	Survey question	Considered compliant with lenient definition	Considered compliant with safest definition
Sleep position	How often do you put your baby down to sleep on his/her back?*	35 (41.2%)	15 (17.6%)
Sleep surface	The mattress in the (CRIB) is firm?*	54 (62.3%)	54 (62.3%)
Sleep location	At night, the baby sleeps in the same room as you or another adult?	70 (80.5%)	60 (70.0%)
	How often do you and your baby sleep in the same bed? With someone else?	68 (78.2%)	38 (43.7%)
	How often do you put your baby down to sleep in an adult bed?	74 (85.1%)	41 (47.1)
	Where do you put your baby down most?	73 (85.9%)	73 (85.9%)
Bedding safety — soft or loose bedding	When your baby is sleeping, how often is there a pillow in the (CRIB) for him/her to rest his/her head on?	18 (20.7%)	7 (8.0%)
	When your baby is sleeping, how often is there a bumper pad around the edges of the (CRIB)?*	72 (83.7%)	56 (65.1%)
	How often is there a cushion, pillow, heavy blanket, or sheepskin, on top of the mattress but underneath the baby?*	61 (70.9%)	57 (66.3%)
	How often is there a stuffed animal in the (CRIB) with your baby?	77 (88.5%)	62 (71.3%)
	When your baby is sleeping, how often does the (CRIB) have a mattress in it—one that fills up the whole bottom of the (CRIB) and does not leave any space between the mattress and the edges of the (CRIB)?*	64 (78.0%)	51 (62.2%)
	How often do you use a wedge or something else to hold the baby in a particular position while s/he sleeps, or to keep him/her from rolling?*	54 (62.8%)	39 (45.3%)
Overheating	How often is there a heavy blanket, comforter, or bedspread in the (CRIB) with your baby?*	46 (53.5%)	30 (34.9%)
Offer a pacifier at naptime and bedtime	How often do you give your baby a pacifier when you put him/her down for sleep?	44 (50.6%)	29 (33.3%)

*The variable had missing data.

Discussion

The aim of this study was to explore the safe sleep practices of infants' mothers in Beirut, Lebanon. Surprisingly, even though only 17.2% of the participants received education about safe sleep recommendations, the compliance based on the "Lenient definition" was among the majority. The results of this study showed similarity to the study of Whiteside-Mansell et al. (18), where participants were more inclined to the "Lenient definition" of safe sleep practice recommendations.

The participants in our study were found to be inadherent to strict safe sleep practices in most of the questionnaire items. Similarly, another study that was done in Saudi Arabia, showed that the level of adherence to safe sleep practices was low (19).

This may be due to the fact that health professionals lack adequate knowledge in some components of safe sleep practices (3), hence may not be giving optimal advice to mothers and infants' caregivers.

In terms of sleep location, our study revealed a higher percentage of adherence than other studies. The present study showed that all elements of the infants' sleep location had a high adherence rate, ranging between 78.2% at the lowest for the babies sharing the bed with an adult, and the highest being 85.9% for the infants being put to sleep in their own bed. These findings did not go in line with those of other studies, where the highest adherence rate to adequate sleep location reached 69.8% in a study from Saudi Arabia, and an even lower percentage in Sweden and the United States, with adherence rates being 50.9% and 48.7% respectively (19).

In addition, when it comes to bedding safety, our population had a higher adherence rate than that of the study from Saudi Arabia. The adherence rate in the latter study was less than 2% with respect to avoiding the presence of pillows, blankets, or toys in the baby bed. In contrast, when we looked into each element of bedding safety in our study separately, our participants had the lowest adherence rate in pillow placing where only 20.7% adhered to the safe practice of not placing a pillow. However, it is still significantly different than that of the aforementioned counterpart study (19).

Strengths and Limitations

This study used a validated instrument to assess infant safe sleep practices by mothers. Although our research is the first to shed light on a topic that has not yet been tackled in Lebanon, and to a smaller degree in the Arab World, it has some limitations. Our participants who are mostly educated and employed cannot represent mothers in Lebanon. An additional challenge in conducting this study was the small sample size, most probably due to the general population not being research-oriented and lacking the motivation to participate.

Conclusion

The compliance of parents with the safe sleep practices during early infancy is of paramount importance for the child's healthy development. This study showed that mothers in Beirut, Lebanon require more awareness regarding safe sleep practices in order to improve compliance with the "Strict definition" of the AAP recommendations. Exploring the preventive advice currently given by health professionals to pregnant women and young parents is important. More studies on large scales to assess the prevalence of safe sleep practices in all Lebanese governorates and the region among participants from more diversified social and educational backgrounds will also help to ultimately design and launch awareness campaigns adequately.

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Conflict of Interest: The authors declare that they have no conflict of interest.

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