

Pregnant Women's Attitudes and Practices on Creating a Safe Sleep Environment for Their Babies

Gebelerin, Bebeklerine Uyku Çevresi Oluşturmaya Yönelik Tutum ve Uygulamaları

Sabire Karakuşoğlu¹ , Yeşfa Şebnem Özbay² , Bahar Kural² 

¹Bakırköy Dr. Sadi Konuk Training and Research Hospital, Family Medicine Clinic, İstanbul, Türkiye

²Haliç University Faculty of Medicine (Eng), Department of Child Health and Diseases, İstanbul, Türkiye

ORCID ID: S.K. 0000-0001-7983-2915; Y.Ş.Ö. 0000-0003-3473-0135; B.K. 0000-0001-9528-1009

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ABSTRACT

Objective: Establishing a safe sleeping environment is recommended to protect babies from sudden infant death syndrome (SIDS). The aim of this study is to investigate the safety of the sleeping environment pregnant women will create after their babies are born and to determine their knowledge and attitudes about SIDS. The study also aims to raise awareness on this subject.

Methods: This is a cross-sectional descriptive study. The population of the study consists of 207 pregnant women between the ages of 18-49 who were receiving check-ups at the 30 Ağustos Family Health Center (FHC). The researcher prepared a questionnaire to investigate the knowledge, habits, attitudes and behaviors of pregnant women regarding SIDS risk factors. Pregnant women who applied to the FHC between March 2 and June 1, 2020 were interviewed face-to-face or over the phone.

Results: Of the pregnant women who participated, 23.7% reported planning to put their babies into their cribs in the supine position and 55.5% on their side. Of the women, 50.7% stated having heard of SIDS before, and 32.5% stated having obtained information from elder family members. Multiparous mothers were determined to exhibit correct behaviors such as not using support pillows or putting toys in beds in terms of a safe sleeping environment compared to the nulliparous mothers.

Conclusion: The need exists in Türkiye to increase pregnant women's awareness about safe sleeping environments for babies. Expectant mothers were observed to have adopted the attitudes they'd learned from their family elders and their environment. Attitudes toward safe sleeping were not seen to change over time in multiparous pregnant women. Educating health workers on this subject and adding the principles of safe sleep for babies and information on how to prevent SIDS to the *Antenatal Care Management Guide* used in pregnancy follow-up may be beneficial. Having the Ministry of Health organize a campaign could contribute to rapidly raising awareness in society about safe sleep for infants and how to prevent SIDS.

Keywords: safe sleep environment, sleeping position, sudden infant death syndrome

Öz

Amaç: Güvenli uyku çevresinin oluşturulması, bebeklerin Ani Bebek Ölüm Sendromundan (ABÖS) korunması için önerilmektedir. Bu çalışmanın amacı; gebe kadınların bebekleri doğduktan sonra oluşturacakları uyku ortamlarının güvenliğini sorgulamak, ABÖS hakkında bilgi, tutumlarını tespit etmektir. Çalışma ile bu konuda bir farkındalık yaratması da amaçlanmıştır.

Yöntem: Çalışma kesitsel tipte, tanımlayıcı bir araştırmadır. 30 Ağustos Aile Sağlığı Merkezi'ne (ASM) başvuruda bulunan 18-49 yaş aralığındaki 207 gebe, çalışma evrenini oluşturmaktadır. Araştırmacı tarafından gebelerin ABÖS risk faktörleri konusundaki bilgi, alışkanlık, tutum ve davranışları araştırmayı amaçlayan bir anket hazırlanmıştır. Anketler ASM 'ye 2 Mart 2020 – 1 Haziran 2020 tarihleri arasında, ayaktan başvuran gebelere yüz yüze, gelemeyen gebelere de telefonla ulaşılarak doldurulmuştur.

Bulgular: Gebeler bebeklerini sırtüstü (%23,7) ve yan pozisyonda (%55,5) beşiğe yatırmayı planladıklarını bildirdiler. ABÖS'ü %50,7 gebe daha duyduklarını ve %32,5 oranında bu bilgiyi aile büyüklerinden edindiklerini belirtmişlerdir. Multipar gebelerin nullipar gebeler göre güvenli uyku ortamı hakkında bebek yataklarında destek yastığı kullanmama ve içine oyuncak koymama açısından doğru davranışlar sergiledikleri tespit edilmiştir.

Sonuç: Ülkemizde bebekler için güvenli uyku ortamı farkındalığının gebelerde artırılmasına ihtiyaç bulunmaktadır. Anne adaylarının aile büyüklerinden ve çevrelerinden öğrendikleri tutumları benimsedikleri görülmüştür. Multipar gebelerde de güvenli uyku tutumlarının zaman içinde değişmediği gösterilmiştir. Sağlık çalışanlarının bu konuda eğitilmesi ve gebelik takibinde kullanılan "Doğum Öncesi Bakım Yönetim Rehberi"ne bebeklerde güvenli uyku ve ABÖS'ten korunma ilkelerinin eklenmesi faydalı olabilir. Sağlık Bakanlığı tarafından düzenlenen bir kampanya, bebeklerde güvenli uyku ve ABÖS'den koruma konusunda toplumda hızla farkındalığın oluşmasına katkıda bulunabilir.

Anahtar Kelimeler: güvenli uyku ortamı, uyku pozisyonu, ani bebek ölümü sendromu

Corresponding Author/Sorumlu Yazar: Bahar Kural E-mail: baharkural@halic.edu.tr

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INTRODUCTION

Sudden infant death syndrome (SIDS) is an unexpected infant death that remains unexplained after the case investigation, including the crime scene investigation, autopsy, and clinical history review [1]. Studies have reported the incidence of SIDS to be higher in the first two months of life and to decrease after one year of age [2]. In Türkiye, data about SIDS are obtained from the Institute of Forensic Sciences. When analyzing pediatric deaths in Istanbul, approximately 1.2% of deaths under 5 years of age were reported as SIDS [3]. According to 2021 data, the number of deaths under 12 months of age in Türkiye was 9,938 [4]. The available data suggests the number of reported cases to be lower than the actual number due to the difficulty of diagnosis. Despite extensive studies, the exact cause of this syndrome has not been established, but risk factors and protective measures have been identified (Table 1) [5]. Bed-sharing (sleeping in the same bed or on the same surface as the baby) is considered to be a risk factor for SIDS [6]. Other risk factors include putting the baby to sleep in prone position, preterm birth, use of soft objects and blankets in the bed, parental smoking, and alcohol or drug use by the mother during pregnancy and/or after birth [1].

A safe sleep environment is defined as a sleep environment that minimizes the risk of SIDS [1]. Room sharing is when parents sleep in the same room as their baby but on different surfaces [5]. Parents in Türkiye commonly share a room with their babies when they are at an early age [7]. In addition to a safe sleep environment, this section will also explain the issues of which parents who share a bed with their babies should be aware. Risky situations that have been identified include mothers who smoke, parents sharing a bed when very tired, alcohol use, sedative use, obesity, the presence of other small children who are likely to come to bed, babies with low birth weight, preterm babies, babies under 14 weeks old, sleeping on a surface other than a bed (i.e., sofa, sofa bed), sleeping on a soft surface (i.e., water bed), having a place adjacent to the

bed where the baby could fall into and be squeezed, and a baby sleeping face down in a shared bed [8].

The Ministry of Health's General Directorate of Public Health published the *Prenatal Birth Management Guide* to help expectant mothers. The guide provides information to prepare mothers for delivery during pregnancy check-ups and postnatal infant care [9]. Pregnancy also provides an opportunity for expectant mothers to change existing unhealthy behaviors. Education during pregnancy can be effective in improving the mother's and child's health [10].

Sleeping spaces can be related to cultural and socioeconomic structures. Based on studies of mother-infant interactions in different cultures, accurate assessments can be made about the views of families and practices in a country [8]. Türkiye has few studies that have evaluated mothers' safe sleep practices and attitudes toward SIDS and no statistical data as yet about the prevalence of SIDS [7].

The aim of this study is to investigate the safety of the sleeping environments that pregnant women will create for their babies after they are born and to determine their knowledge and attitudes about SIDS. The study also aims to raise awareness among pregnant women about safe sleep practices.

MATERIALS AND METHODS

The study is a cross-sectional descriptive research. The researcher prepared a questionnaire aimed at investigating the level of knowledge, habits, attitudes, and behaviors of pregnant women regarding the risk factors of SIDS. The questionnaire consists of three parts. The first part includes questions about the sociodemographic characteristics of the family and pregnancy check-ups. Families' economic levels were determined by asking about the ratio of total family income to expenses and categorized as low, moderate, or good according to the pregnant women's statements. Questions about the pregnant woman's intention to breastfeed her baby, as well as her attitudes and

Table 1: Recommendations to reduce the risk of SIDS (5)

The supine sleeping position on a hard, flat, non-inclined surface is recommended, even for preterm babies.

Babies who can turn from supine to prone and from prone to supine can be allowed to remain in the sleeping position they are in.

The baby cots and bed must meet standards.

To reduce the risk of strangulation or entrapment the mattress should fit the bed, sheets should be tucked to the edge of the mattress.

Pillows, blankets, bedside protectors, toys, pacifier ties, etc. should not be placed in the bed.

It is recommended that babies sleep in the same room as parents, close to the parents' bed but on a separate surface designed for babies, for at least the first 6 months (room sharing).

Breastfeeding should be promoted.

Overheating of the baby should be prevented and the temperature of the room where the baby sleeps should be observed.

Instead of covering the baby with a blanket, it is preferable to dress the baby or to use baby sleeping bag.

Pacifier can be offered when the infant is asleep.

Infants should not be swaddled.

Babies should be fully vaccinated on time.

Ensure that mothers benefit from antenatal care services. Avoid smoking, nicotine and alcohol exposure during pregnancy and after delivery.

Table 2: Distribution of sociodemographic and descriptive characteristics of parents

Question	Answers	n (%)
Mother's working status	No	152 (%73,4)
	Yes	55 (%26,6)
Father's working status	No	8 (%3,8)
	Yes	199 (%96,2)
Family type	Married- nuclear family	179 (%86,5)
	Married -extended family	28 (%13,5)
Level of income	Low	28 (%13,5)
	Moderate	149 (%72,0)
	Good	30 (%14,5)
Smoking status	Does not smoke	181 (%87,4)
	Smoke	14 (%6,8)
	Quit when she got pregnant	12 (%5,8)
Smoking in the house	No	159 (%76,8)
	Yes	48 (%23,2)
Alcohol consumption	No	204 (%98,6)
	Yes	3 (%1,4)
Follow-ups	FHS (Family Health Center)	6 (%2,9)
	State Hospital	14 (%6,8)
	Private Hospital	47 (%22,7)
	FHS + State Hospital	23 (%11,1)
	FHS + Private Hospital	117 (%56,5)

behaviors regarding feeding, were asked in the second part of the questionnaire. The last part asks questions about the sleep environment the pregnant woman planned to create for her baby, the choice of bed, intention to share a room and/or bed, and pacifier use. In addition, the pregnant woman was asked whether she had information and experience about SIDS and whether she had received counseling on this subject.

The population of this study consists of 207 pregnant women between the ages of 18-49 who received check-ups at the 30 Ağustos Family Health Center (FHC) in Istanbul. Consent was obtained from those who chose to volunteer in the study. During the study period between March 2 and June 1, 2020, the researcher filled out the questionnaires by contacting the pregnant women who'd come to the FHC face-to-face and the pregnant women who could not come to the FHC by telephone. The pregnant women were given detailed information about the study, and their written and verbal consent was obtained.

In the FHC where the study was conducted, mothers had at least four check-ups during their pregnancies, in line with

the recommendations in the *Prenatal Birth Management Guide* [9]. General health monitoring occurred during each check-up, and the mothers-to-be were also counseled about breastfeeding. During the postnatal check-ups, the mothers used the recommendations from the new *Postpartum Care Management Guide* that had also been republished in 2018 by the General Directorate of Public Health [9].

The program Number Cruncher Statistical System (NCSS) was used for the statistical analyses. Descriptive statistical methods (i.e., mean, standard deviation, median, frequency, percentage, minimum, maximum) were used to evaluate the study data. The Pearson chi-square test was used to compare the qualitative data, with statistical significance being accepted as $p < 0.05$.

Approval for the study was obtained from the Health Sciences University Bakırköy Sadi Konuk Training and Research Hospital Ethics Committee with Decision No. 2020-42 dated February 3, 2020.

Table 3: Distribution of conditions related to the planned sleep environment of infants

Questions	Answers	n (%)
Bed-sharing history with a previous child (n=131)	No	46 (35,1)
	Yes	85 (64,9)
Why did you share bed with your baby? (n=85) *	First pregnancy	76
	There were no other beds	5 (5,6)
	I preferred it	22 (24,4)
	Easy to calm down when she/he cries	63 (70,0)
Buying a mattress for the baby	No	51 (24,6)
	Yes	156 (75,4)
Reason for not buying (n=51)	Got it from someone else	39 (76,5)
	We will sleep in the my bed (bed-sharing)	1 (1,9)
	For financial reasons	11 (21,6)
Where did you get information about baby sleep position and sleep environment? *	Healthcare worker	49 (16,3)
	Family Elders	92 (30,7)
	Neighbors	13 (4,3)
	Previous Experience	82 (27,3)
	Media	51 (17)
	All above	8 (2,7)
	Researched	(1,7)

* More than one option is checked.

Table 4: Distribution of Responses to Questions on Knowledge of Sudden Infant Death Syndrome (SIDS)

Question	Answers	n (%)
Do you know what is SIDS?	Have not heard	102 (49,3)
	Heard*	105 (50,7)
Where did you hear it?	Healthcare worker	14 (11,2)
	Family Elders	42 (33,6)
	Neighbours	27 (21,6)
	Media	40 (32)
	All above	2 (1,6)
Have you ever encounter SIDS? (n=105)	No	90 (85,7)
	Yes	15 (14,3)
To whom did the SIDS happen? (n=15)	Relative	9 (60,0)
	Neighbor	4 (26,7)
	Other	2 (13,3)
Do you have detailed information about SIDS? (n=105)	No	67 (63,8)
	Yes	38 (36,2)
Where or from whom did you receive detailed information about SIDS? *	Healthcare worker	8 (20,0)
	Family Elders	13 (32,5)
	Neighbor	5 (12,5)
	Media	(35,0)

* More than one option is checked.

Table 5: Comparison of sleep safety knowledge of mothers according to the number of pregnancies

Question	Answer	Nulliparous n (%)	Multiparous n (%)	P
Sleep position of baby	Supine	22 (28,9)	28 (21,4)	^a 0,220
	Other	54 (71,1)	103 (78,6)	
Mattress firmness	Soft	60 (78,9)	108 (82,4)	^a 0,535
	Hard	16 (21,1)	23 (17,6)	
Pillow use	Yes	38 (50,0)	63 (48,1)	^a 0,791
	No	38 (50,0)	68 (51,9)	
Support pillow in the crib	Yes	64 (84,2)	86 (65,6)	^a 0,004*
	No	12 (15,8)	45 (34,4)	
The way the sheet is laid	Loose	23 (30,3)	31 (23,7)	^a 0,297
	Tense	53 (69,7)	100 (76,3)	
Covering the babies face while sleeping	Yes	17 (22,4)	27 (20,6)	^a 0,766
	No	59 (77,6)	104 (79,4)	
Use of sleeping bag	No	37 (48,7)	75 (57,3)	^a 0,233
	Yes	39 (51,3)	56 (42,7)	
Using pacifier while sleeping	No	42 (55,3)	65 (49,6)	^a 0,433
	Yes	34 (44,7)	66 (50,4)	
Swaddling	Yes	38 (50,0)	62 (47,3)	^a 0,711
	No	38 (50,0)	69 (52,7)	
Toy in the crib/cot	Yes	25 (32,9)	20 (15,3)	^a 0,003*
	No	51 (67,1)	111 (84,7)	
Room temperature	High or Low	9 (11,8)	21 (16,0)	^a 0,409
	Ideal	67 (88,2)	110 (84,0)	

*p<0,05 a Pearson Chi-square Test

RESULTS

This study evaluates the questionnaire data obtained from 207 pregnant women. The mean age of the pregnant women is 29.55 ± 5.35 years (range = 19-46) whose current gestation period was mean = 4.6 months (median = 4 months). The mean age of the expectant fathers was 33.40 ± 5.52 years (range: 20-51). When analyzing the pregnant women's educational status, 7.3% ($n = 15$) were found to be illiterate, 2.9% ($n = 6$) to be literate, 17.4% ($n = 36$) to be primary school graduates, 22.2% ($n = 46$) to be middle school graduates, 25.1% ($n = 52$) to be high school graduates, and 25.1% ($n = 52$) to be university graduates or higher. Detailed demographic information on the families participating in the study is given in Table 2.

Of the pregnant women who participated in the study, 80.7% ($n = 167$) reported planning to feed their babies by exclusive breastfeeding for the first 6 months, 25.6% ($n = 53$) to breastfeed their babies until the age of two, and 34.8% ($n = 72$) to breastfeed beyond 2 years. When examining their information source on breastfeeding, 22.4% ($n = 65$) stated obtaining information from healthcare professionals, 28.7% ($n = 84$) from family elders, 5.1% ($n = 15$) from neighbors, 21.2%

($n = 62$) from previous experiences, 17.4% ($n = 51$) from social media, and 4.1% ($n = 12$) from all of the above. Among the pregnant women who participated in the study, only 1.3% ($n = 4$) of expectant women reported having no knowledge about breastfeeding; 80.2% ($n = 166$) stated planning to start complementary feeding their child at month 6 and 5.3% ($n = 11$) at month 9. The sleep experiences of the pregnant women with previous children and the new sleep environment they planned to set up for their babies are given in Table 3. In the questions inquiring after information about the safe sleep environment, 18.8% ($n = 39$) of the pregnant women stated choosing a firm mattress for their baby, 51.2% ($n = 106$) not putting a pillow in the crib, 27.5% ($n = 57$) not using bumpers in the crib, 73.9% ($n = 153$) using fitted sheets, and 78.7% ($n = 163$) not covering the baby's face while sleeping. Among the pregnant women who participated in the study, 45.9% ($n = 95$) stated they would use a sleeping bag, and 48.3% ($n = 100$) stated they planned to use a pacifier. The percentage of pregnant women who intended to swaddle their babies is 51.7% ($n = 107$). Expectant mothers who intended not to put toys in the crib is 78.3% ($n = 162$). While 4.8% ($n = 10$) plan to keep the baby's room temperature cool, 85.5% ($n = 177$) plan to keep it normal (22-24°C), 6.8% ($n = 14$) planned to keep it warm (>24°), and 2.9% ($n = 6$) didn't

know how to set the room temperature. Among the pregnant women, 49.3% ($n = 105$) reported having heard of SIDS before and 14.3% ($n = 15$) reported knowing someone who'd lost a baby to SIDS. Table 4 shows the distribution of the answers to the questions about SIDS.

Multiparous and nulliparous pregnant women were compared in terms of appropriate answers given with regard to safe sleep recommendations. The rate of multiparous mothers who answered "no" to the statements "Will you put support pillows in your baby's crib?" and "Will you put toys in the crib/cot?" was statistically significantly higher than that of nulliparous pregnant women ($p = 0.004$; $p < 0.05$, $p = 0.003$; $p < 0.05$, respectively). No statistically significant difference was found between the two groups of women regarding their answers to the other questions (Table 5).

DISCUSSION

This study is important in terms of determining expectant mothers' attitudes and information in Türkiye about the safety of the sleep environment they intend to create when their babies are born. The study was conducted among 207 pregnant women, half of whom had graduated at least from high school. The expectant mothers were indicated to lack sufficient information to create a safe sleep environment, with approximately 50% not even having heard of SIDS. Another important finding is that multiparous pregnant women do not behave differently from nulliparous women in terms of safe sleep environment.

Among the pregnant women who participated in the study, 23.7% ($n = 50$) reported planning to place their babies on their backs, and 55.5% ($n = 117$) reported planning to place their babies on their sides. In studies conducted in Türkiye examining the rate of supine sleeping among infants, this rate was found to be 23.5% in Ankara, 41% in Aydın, and 22.1% in Denizli [11-13]. As a result of baby sleep position studies initiated in the United States of America and the United Kingdom in the 1950s, the American Academy of Pediatrics and organizations concerned with child health launched the Back to Sleep Campaign in 1994, which encouraged babies to sleep only on their backs until the age of one. Subsequently in 2012, the content of the campaign was expanded and renamed Safe to Sleep to identify and publicize safe sleeping environments [5]. This campaign used this as an effective method to prevent infant mortality by creating a social perception about SIDS. Conducting evidence-based studies and launch a similar campaign in Türkiye may be beneficial in light of the data.

In the *Prenatal Birth Management Guidelines* of the General Directorate of Public Health, expectant mothers are counseled on breastfeeding during the third and fourth pregnancy check-ups. After delivery, breastfeeding education and information are provided in accordance with the *Postnatal Care Management Guide* from the General Directorate of Public Health starting from the first postnatal check-up. In the second postnatal check-up breastfeeding is monitored and information about infant care is provided. The third postnatal

check-up monitors the mother-infant relationship and provides counseling on how to maintain breastfeeding [9]. According to the Türkiye Population and Health Survey's (TPHS) 2018 data, 41% of mothers stated exclusively having breastfed their babies for the first 6 months, and 66% stated that they had continued to use breast milk until 12 months of age [13]. 99% of pregnant women in this study stated knowing how much breast milk they would feed their babies. Prenatal and postnatal counseling about breastmilk and breastfeeding is provided. However, no recommendations are found for safe sleep regarding infants or counseling on how to prevent SIDS in the pregnancy check-ups. When analyzing knowledge about SIDS in this study, 49.3% of the pregnant women had never heard of it. Studies conducted in Türkiye on this subject have reported 50%-61% of mothers to have not heard of SIDS [15]. Providing safe sleep principles and counseling families about SIDS in pregnancy and postpartum check-ups can be effective. One study examining the knowledge and attitudes of health professionals about the positions in which infants are put to sleep, only 17% of health professionals were found to recommend the supine position [16]. Another finding from this study is that the pregnant women had mostly (30.7%) obtained information on infant sleep position and sleep environment from family elders. The *Basic Newborn Care Guide* published by the Ministry of Health's Public Health Institution of Türkiye's Department of Adolescents and Children provides information about the sleep position of the newborn baby and SIDS as a guide for healthcare professionals to reduce infant mortality in our country [17]. We believe that revising and increasing the frequency of training given to health personnels working in the field of maternal and infant health based on this book may contribute to increasing the strengths of the counseling personnel and their ability to inform families and society.

We found no statistical difference between multiparous and nulliparous pregnant women in terms of their infants' sleep positions, choice of mattress for their babies, pillows used in their beds, covering their child's faces, the way the sheets are laid, swaddling, or room temperature adjustments. This suggests that the sleep environment habits mothers acquire in their first pregnancies are maintained after their other pregnancies. Only multiparous pregnant women were found to exhibit the correct behaviors in terms of not using support pillows and not placing toys in the baby's bed.

Turkish families commonly share a room with the baby up to the first 24 months. However, this study's results suggest that bed sharing may be more common than reported [7]. In Türkiye, the rate of parents who share beds with their infants varies between 16%-24% [13, 16]. In this study, of the multiparous pregnant women ($n = 131$) who were asked if they had slept with their previous children, 64.9% ($n = 85$) reported having slept alongside their children. Thus, bed sharing can be said to be a common parenting practice in Türkiye.

According to TPHS data, the rate of cigarette consumption among women of childbearing age was 28% in 2018 [13]. The rate of expectant mothers in this study who smoke was

found to be 6.8%, and 5.8% stated they would quit smoking during pregnancy. Pregnancy is a chance to change unhealthy behaviors [2]. Studies conducted in Türkiye have shown 10-13% of mothers to smoke during pregnancy [14, 15]. Parental smoking in mother-infant dyads who share a bed is associated with an increased risk of SIDS [18]. Providing information about this issue may form a reason for expectant mothers to give up this habit before their babies are born.

This study has some limitations. Not all pregnant women receiving check-ups in the FHC where the study was conducted could be reached. The economic levels of the pregnant women participating in the study were classified according to their own statements. As a result, all socioeconomic strata may not have been covered.

In conclusion, this study believes this issue should be emphasized more during pregnancy check-ups in order to create a safe sleep environment for infants. Increasing training for healthcare professionals who guide pregnant women may be necessary, and adding the principles of safe sleep and how to prevent SIDS to the *Prenatal Birth Management Guide* established by the General Directorate of Public Health may be useful for guiding expectant mothers. Because the expectant mothers were observed to mostly get the information from their family elders and these habits to continue in multiparous mothers, the principles of safe sleep for infants can be spread through a nationwide campaign in order to raise family awareness. Infant deaths could be prevented by increasing awareness about the risk factors for SIDS.

Ethics Committee Approval: This study was approved by the ethics committee of the Health Sciences University Bakırköy Sadi Konuk Training and Research Hospital Ethics Committee with Decision No. 2020-42 dated February 3, 2020.

Informed Consent: Written consent was obtained from the participants.

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