Original Article / *Özgün Makale*

DOI: 10.4274/jtsm.galenos.2022.05025

Journal of Turkish Sleep Medicine 2023;10:129-136

The Effect of Safe Sleep and Sudden Infant Death Syndrome Training on the Knowledge of Mothers

Ani Bebek Ölüm Sendromu ve Güvenli Uyku Konusunda Verilen Eğitimin Annelerin Bilgilerine Etkisi

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Abstract

Objective: This study was conducted to examine the effect of safe sleep and Sudden Infant Death Syndrome (SIDS) training on the knowledge of mothers.

Materials and Methods: This study was a quasi-experimental research with a one-group pretest-posttest design. The study was conducted with 207 mothers who brought their 0-1 month-old babies for routine health checking to the neonatal outpatient clinic between August 2018 and February 2019. Of 207 mothers who received the training,141 mothers completed the study. The pretest was administered to the mothers before the training. The researcher provided training on the topic by using a PowerPoint presentation and a training video. The posttest was administered to the mothers after the training. One month after the training, follow-up tests were administered to the mothers who received training and attended their outpatient clinic appointment.

Results: It was found that before the training, the mothers (51.2%) put their babies on their side-sleep position, 67.1% put them to sleep on soft bedding, and 57.5% used pillows for them. The mean pretest score of the mothers was 5.65±1.85, mean immediate posttest score was 9.89±0.33, and mean follow-up score one-month after the training was 8.95±1.07. A statistically significant difference was found among the mothers' mean pretest score, immediate posttest scorescore, and follow-up score one-month after the training ($p<0.05$).

Conclusion: In the study, it was found that mothers engaged in risky behaviors and made their babies to sleep in an unsafe sleep environment. It was found that the majority of the mothers put their babies to sleep in the side position and used soft bedding, and pillows. The study concluded that the training given to the mothers on SIDS and safe sleep was effective.

Keywords: Newborn, Sudden infant death syndrome, safe sleep, training

Öz

Amaç: Bu araştırma, annelere Ani Bebek Ölüm Sendromu (ABÖS) ve güvenli uyku konusunda verilen eğitimin etkinliğinin incelenmesi amacıyla yapılmıştır.

Gereç ve Yöntem: Bu araştırma yarı deneysel, tek gruplu ön test-son test tasarımında bir çalışmadır. Araştırma Ağustos 2018-Şubat 2019 tarihleri arasında yenidoğan polikliniğine bebeğini getiren 0-1 ay arası bebeği olan 207 anne ile yürütülmüştür. Araştırmada 207 anne eğitime alınmış, eğitim sonrasında 141 anne ile araştırma tamamlanmıştır. Eğitim öncesinde annelere ön test uygulanmıştır. Araştırmacı tarafından konuya ilişkin PowerPoint sunumu ile eğitim yapılmış ve eğitim videosu izletilmiştir. Eğitim sonrasında annelere son test uygulanmıştır. Eğitimlerden 1 ay sonrasında eğitim verilen annelerden poliklinik randevularına gelen annelere takip testi uygulanmıştır.

Bulgular: Eğitim öncesinde annelerin, %51,2'sinin bebeklerini yan pozisyonda, %67,1'inin yumuşak yatakta yatırdığı, %57,5'inin ise yastık kullandığı belirlenmiştir. Annelerin ortalama ön test puanı 5,65±1,85, ortalama son test puanı 9,89±0,33 ve eğitimden bir ay sonra ortalama takip puanı 8,95±1,07'dir. Annelerin eğitim öncesi, eğitimden hemen sonrası ve eğitimden 1 ay sonrası puan ortalamaları arasında istatistiksel olarak anlamlı fark bulunmuştur ($p<0,05$).

Sonuç: Çalışmada annelerin ABÖS risk oluşturan davranışlarda bulunduğu ve bebeklerini güvenli olmayan uyku ortamında uyuttuğu bulunmuştur. Annelerin çoğunluğunun bebeklerini yan pozisyonda uyuttuğu, yumuşak yatak ve yastık kullandığı belirlenmiştir. Annelere ABÖS ve güvenli uyku konusunda verilen eğitimin etkili olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Yenidoğan, Ani bebek ölüm sendromu, güvenli uyku çevresi, eğitim

Introduction

Sudden Infant Death Syndrome (SIDS) is one of the primary causes of postnatal infant deaths (1). SIDS is defined as the sudden and unexpected death of an infant under one year of age due to an unexplained reason after a thorough case investigation, a clinical history, and an autopsy (2,3). The incidence rates of SIDS in most countries are between 0.2 and 0.5 per 1000 live births (4). The rates of SIDS vary based on

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Received/Geliş Tarihi: 06.09.2022 **Accepted/Kabul Tarihi:** 28.11.2022

racial and ethnic differences, similar to other causes of infant deaths (3). In the United States of America, approximately 3500 infants pass away each year due to sleep-related reasons, including SIDS (2). No comprehensive data are available in Turkey regarding the prevalence or causes of SIDS (5,6). One of the targets of the "Healthy People 2020" initiative is to reduce the SIDS rate by 10% (7). The American Academy of Pediatrics (AAP) recommends developing safe sleep environments to protect infants from sleep-related deaths (8). A safe sleep environment is an environment where the infant sleeps on its back on a firm sleeping surface with no presence of blankets, pillows, bumper pads, or soft toys within the infant's sleeping area and with the presence of room sharing instead of bed sharing (3,9). Increasing parents' knowledge about safe sleep, correcting misinformation, and creating safe sleep environments play a key role in reducing the SIDS risk (10,11). The supine sleep position, firm sleep surface, breastfeeding, room sharing, not keeping soft objects in the baby's bed, not smoking during pregnancy and postnatal period, not being exposed to cigarette smoke, not keeping the baby excessively hot, and using a pacifier were emphasized in the American Psychological Association recommendations (2). In the literature, it has been reported that young mother's age, low education level, and gender of the infant are risks for SIDS (5,6,12). Non-supine sleeping position, soft bedding, covering the baby's face while sleeping, not using pacifiers, smoking during pregnancy and after birth of the mother, exposure of the baby to cigarette smoke at home, using pillow, and bed sharing were founded as risky behaviors that could lead to SIDS in the studies in Turkey (5,6,13-15). Although there are a lot of studies conducted in Turkey which have examined the risky behaviors of mothers regarding SIDS, there is no study about parent training for the prevention of SIDS and creation of safe sleep environment. A literature review indicates that this is the first study in Turkey examining the effectiveness of training among mothers on safe sleep and SIDS in infants. This study was conducted to examine the effect of safe sleep and Sudden Infant Death Syndrome (SIDS) training on the knowledge of mothers.

Materials and Methods

Study Design and Participants

This was a quasi-experimental, one-group pretest-post-test study. The study was conducted in a neonatal outpatient clinic of a university hospital located at the borders of İzmir City Center between August 2018 and February 2019. The population of the study included 2400 mothers who brought their babies to the neonatal outpatient clinic. The sample of the study included 207 mothers who brought their babies for a routine health check to the neonatal outpatient clinic during the specified date range, met the inclusion criteria, and agreed to participate in the study. They were given training, and the study was completed with 141 mothers after the training. The inclusion criteria were being able to speak and write in Turkish, being accessible by phone, agreeing to participate in the study, and having a baby aged 0-1 month with no chronic disease.

Written permission was obtained from the Ethics Committee of the İzmir Katip Çelebi University (decision no: 154, date: 18.04.2018).

Measures

The data were collected by using "Socio-demographic Data Form", "SIDS Risk Factor Identification Form", and "Mothers' Knowledge Form regarding Safe Sleep and SIDS".

Socio-demographic Data Form

This form was composed of 17 questions to assess the socio-demographic characteristics of the mothers, fathers, and infants, including the age of the mother and father, the profession of the mother and father, the presence of social security, the number of children the mother had, the birth order of the child, the family type, the family's income level, the gestational age of the infant, the mode of delivery, the age of the infant, the gender of the infant, the birth weight of the infant, and the weight of the infant during the study.

SIDS Risk Factor Identification Form

This form was developed after reviewing the relevant literature and was composed of 24 questions that assessed the following: The state of mother's breastfeeding of the infant, the number of times she breastfed during the day and night, the place where mother breastfed the infant at night, the state of placing the infant on its bed after breastfeeding, the state of a mother bringing the infant to her bed when it cried and returning it to its own bed after consoling it, the position of putting the infant to sleep, bedding for the infant, sleeping in the same room with the baby, sleeping on the same bed, using a pillow for the infant while it is sleeping, keeping bumper pads on the infant's bed, covering the face of the infant while it is sleeping, using a sleep bag, using a pacifier, leaving a blanket and toy on the infant's bed, smoking during the pregnancy and currently, the state of others' smoking at home, alcohol consumption during the pregnancy, keeping a thermometer in the infant's room, knowing the usual temperature of the infant's room and the state of having knowledge of SIDS (2,5,8,11,15-25).

"Mothers' Knowledge Form Regarding Safe Sleep and SIDS" (Pre-test/Post-test/Follow-up Test)

This form was created based on the AAP's suggestions and the relevant literature. It was administered before the training, immediately after the training, and a month after the training (2,5,8,11,21-24). The form contained 10 questions about the mothers' knowledge of safe sleep and SIDS practices with true and false options. Five specialists (pediatrician) evaluated the forms. The content validity of the items was evaluated using the Lawshe Worksheet. According to the Lawshe Worksheet, the minimum cohesion criterion for five specialists was 0.99 (26). The form was reorganized and finalized based on the evaluations of the specialists.

Training Video for Safe Sleep and Protection of Risks of SIDS

To support the training session visually, a video was made regarding safe sleep environments. The content of the training

video was prepared by reviewing the suggestions of the AAP and the relevant literature (2,24,27-29). Opinions of specialists were asked after the video scenario was prepared. The video scenario was organized in line with the opinions of the specialists and used after finalization.

Training Manual for Safe Sleep and Protection of Risks of SIDS

The training manual was prepared in accordance with the AAP suggestions and the relevant literature. Five specialists evaluated the manual and expressed their opinions about the construct, content, language, and print quality of the manual. According to the Lawshe Worksheet, the minimum cohesion criterion for the five specialists was 0.99 (26). The manual was reorganized according to the expert opinions and used after finalization. The training manual's readability and understandability by the mothers were evaluated using the Flesch formula (30). The training manual on suggestions for protection against SIDS and for safe sleep consists of 65 sentences, 545 words, and 1583 syllables. In the understandability assessment of the manual, the average word length was 2.90 and the text was considered a standard text according to the Flesch formula. The average sentence length was 8.38 and the text was considered an easy text according to the Flesch formula.

Procedure

The study was conducted with mothers who agreed to participate in the study, met the study criteria, had bought their 0- to 1-month-old babies to the neonatal outpatient clinic of the hospital where the study was conducted. Prior to the study, the mothers provided informed consent to participate in the study, and the Socio-demographic Data Form, SIDS Risk Factor Identification Form, and Mothers' Knowledge Form regarding safe sleep and SIDS" (pre-test-post-test-follow-up test) were administered. Training was provided individually. The researcher trained the mothers on the topic through an approximately 15-minute PowerPoint presentation and a 5-minute training video. Then, the mothers were given the opportunity to ask questions. Afterwards, the post-test form was administered, and the mothers were given training manuals to reinforce their knowledge at home and the contact information of the researcher to call whenever they wanted. One month after the training practices, follow-up tests were administered to the 141 mothers who received training and attended their outpatient clinic appointments (Figure 1).

Statistical Analysis

The study data were evaluated using the IBM SPSS Version 25.0 software package. The data obtained from the study were presented as frequencies, percentages, and mean scores and were analyzed using the Shapiro-Wilk normality test, chi-square test, nonparametric Brunner-Langer model, and R 3.3.1 software (R software, version 3.5.3, package: nparLD, R Foundation for Statistical Computing, Vienna, Austria; http://r-project.org). Bonferroni correction was used for binary time comparisons. The results were evaluated at a confidence level of 95%.

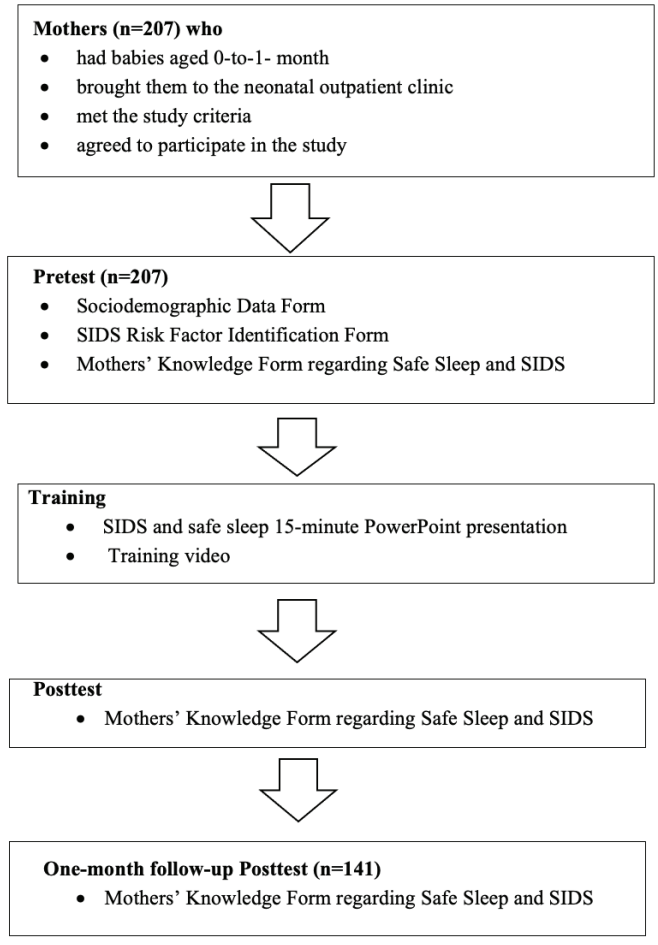

Figure 1. Research Flow Chart

Results

The mean age of the mothers and fathers who participated in the study was 28.45±5.9 (min-max: 18-45) and 32.85±6.07 (min-max: 19-52), respectively. Of the mothers, 37.2% were primary school graduates, and of the fathers, 33.8% were primary school graduates. Of the families, 11.1% were not covered under social security, and 33.8% had one child. Of the families, 31.4% had an income level that was lower than their expenses (Table 1). Of the infants, 68.6% were born in the 38th gestational week or later, and 62.3% were born by cesarean section. Additionally, 59.9% of the infants were male. The birth weight of 77.8% ranged between 2500-3999 grams. The mean weight of the infants during the study was 3637±768 grams. The birth weight of 58.5% of the infants during the study period was 3500 grams or higher (Table 1). Table 2 shows the distribution of findings on SIDS risk factor identification of mothers Table 3 shows the mean scores of the mothers obtained from the pretest, post-test, and follow-up test. The total pretest mean score of the mothers was 5.65±1.85 (min: 0, max: 10), their immediate post-test mean score was 9.89±0.33 (min: 8, max: 10), and their follow-up mean score one month after the training was 8.95±1.07 (min: 5, max: 10). The

Table 1. Distribution of mothers' and fathers' descriptive characteristics (n=207)		
Characteristics	**Number (n)**	**Percentage (%)**
Mother's education level		
Primary education	77	37.2
Secondary education	56	27.1
High school education	48	23.2
University or higher education	26	12.5
Father's education level		
Primary education	70	33.8
Secondary education	66	31.9
High school education	43	20.8
University or higher education	28	13.5
Profession of mother		
Housewife	181	87.4
Civil servant	13	6.3
Worker	13	6.3
Profession of father		
Civil servant	27	13.1
Worker	141	68.1
Farmer	30	14.5
Unemployed	9	4.3
Social security		
Yes	184	88.9
No	23	11.1
Number of children		
One	70	33.8
Two	77	37.2
Three or more	60	29.0
Birth order of the infant		
First	75	36.2
Second	74	35.7
Third	43	20.8
Fourth or later	15	7.3
Family type		
Nuclear family	153	73.9
Extended family	54	26.1
Income level		
Income lower than expenses	65	31.4
Income equal to expenses	129	62.3
Income higher than expenses	13	6.3
Distribution of infants' descriptive characteristics (n=207)		
Characteristics	**Number (n)**	**Percentage (%)**
Gestational age (week)		
≤37	65	31.4
≥38	142	68.6
Mode of delivery		
Vaginal	78	37.7
Caesarean section	129	62.3
Infant age (postnatal age)		
One-week old	47	22.7
2-4 weeks old	160	77.3
Gender		
Female	83	40.1
Male	124	59.9
Birth weight (g)		
≤2499	32	15.5
2500-3999	161	77.8
≥4000	14	6.8
Current weight (g)		
<3500	86	41.5
≥3500	121	58.5
Total	207	100.0

statistical analysis found the time variance of the total test score to be statistically significant ($p<0.001$). The total mean scores of the mothers obtained from the follow-up test one month after the training were higher than the pretest scores (Table 3). The paired comparison test conducted afterwards found a statistically significant increase between the total pretest and post-test scores and between the total pretest and follow-up test scores (Table 4).

Discussion

It was found that majority of mothers participated in the study put their baby on their side-sleep position. This result is similar to other studies conducted in Turkey (14,15). But it was found that a study by Von Kohorn et al. (31) concluded that 61% of mothers placed their baby to sleep in the supine position, on the other hand, Cesar et al. (32) reported that 82.1% of the mothers placed their baby to sleep on their side-sleep position. It is assume that in this study as well as in other studies conducted in Turkey the reason why mothers preferred side-sleep position is their lack of training about the topic and commitment to the practices of family elders. It was concluded that majority of the mothers who participated in the study preferred putting their babies to sleep on soft bedding. Similarly, in two other studies it was reported that majority of mothers put their babies to sleep on soft bedding (15,33). In the literature it was reported that using pillow increases the risk of SIDS five-fold (1). It was determined that in this study, majority of mothers use pillows for their babies during sleep period. In other two studies conducted in Turkey; Efe et al. (14) reported 76.5%, and Erdoğan and Turan (15) reported 65.8% of mothers were put their babies on pillows while sleeping. The present study showed that less than half of the mothers covered the face of their babies with a muslin while they were sleeping. Different studies show that the rate of mothers covering the face of their babies varies between 23.7% and 49.3% (5,14,15). A study conducted in Turkey reported that 50.8% of mothers covered the face of their babies with a yellow cloth (34). It is thought that the reason why mothers cover their babies' faces

Table 2. Distribution of the findings on mothers' behaviors for SIDS risk factor and safe sleep (n=207)

Risk factor	Number (n)	Percentage (%)
State of breastfeeding		
Yes	196	94.7
No	11	5.3
Mean number of daytime breastfeeding sessions	7.24±1.8 (min: 3 max: 12)	
Mean number of overnight breastfeeding sessions	4.34±1.43 (min: 2 max: 12)	
Place of overnight breastfeeding*		
On the mother's bed	120	61.2
Outside of the mother's bed	76	38.8
Placing the infant on its own bed after overnight breastfeeding*		
Yes	119	60.7
No	77	39.3
Bringing the infant to the mother's bed to console it when it cried		
Yes	151	72.9
No	56	27.1
Placing the infant on its own bed after consoling it		
Yes	44	29.1
No	107	70.9
Sleep position		
Supine	32	15.5
Prone	3	1.4
Side	106	51.2
Mixed	66	31.9
Infant's bedding		
Hard	68	32.9
Soft	139	67.1
Sleeping in the same room with the infant		
Yes	203	98.1
No	4	1.9
Sleeping on the same bed with the infant		
Yes	74	35.7
No	133	64.3
Using a pillow for the infant during sleep		
Yes	119	57.5
No	87	42.5
Keeping bumper pads on the infant's bed		
Yes	100	48.3
No	107	51.7
Covering the face of the infant while it was sleeping		
Yes	58	28.0
No	149	72.0
Using a sleep bag for the infant during sleep		
Yes	9	4.3
No	198	95.7
Using a pacifier		
Yes	78	37.7
No	129	62.3
Leaving a toy on the infant's bed		
Yes	21	10.1
No	186	89.9
Leaving a blanket on the infant's bed		
Yes	97	46.9
No	110	53.1
Smoking during pregnancy		
Yes	45	21.7
No	162	78.3
Current smoking		
Yes	35	16.9
No	172	83.1
Presence of any other person who smoked at home		
Yes	107	51.7
No	100	48.3
Alcohol consumption during pregnancy		
Yes	-	-
No	207	100.0
Visiting the doctor regularly during pregnancy		
Yes	188	90.8
No	19	9.2
Keeping a thermometer in the infant's room		
Yes	40	19.3
No	167	80.7
Knowing the usual temperature of the infant's room		
18-20	8	3.9
22-24	62	30.0
26-28	37	17.9
I do not know	100	48.3
Knowing what SIDS was		
Yes	34	16.4
No	173	83.6
Total	**207**	**100.0**

*Of the mothers, 11 could not be included in the general total score because they did not breastfeed their baby

SIDS: Sudden infant death syndrome, Min: Minimum, Max: Maximum

Table 3. Mothers' total scores on pre-test, post-test, and follow-up test for SIDS and safe sleep training

Time	Mean ± SD	Median	Min-max	p*
1* (n=207)	5.65±1.85	6	0-10	p<0.001
2** (n=207)	9.89±0.33	10	8-10	
3*** (n=141)	8.95±1.07	9	5-10	

1*: Pretest; 2**: Immediate posttest; 3***: One-month after follow-up test, p*: Brunner-Langer model (LD-F1 design), SD: Standard deviation, SIDS: Sudden infant death syndrome, Min: Minimum, Max: Maximum

Table 4. Comparison of mothers' total scores on pretest, posttest, and follow-up test for SIDS and safe sleep training	
Time	**p***
1*-2**	p<0.001
1-3***	p<0.001
*: Pretest, **: Immediate posttest, ***: One-month after follow-up test, p*: Brunner-Langer model (LD-F1 design) bonferroni corrected, SIDS: Sudden infant death syndrome	

with a muslin is to protect their babies from environmental factors such as flies and mosquitoes, especially in the summer season. In addition, using yellow-colored muslin to cover the baby's face is thought to be caused by traditional practices and beliefs in different regions of Turkey. Covering the face of the infant with a thin, yellow muslin is a traditional practice in Turkey that is widely performed to prevent jaundice. Studies in the literature reported that maternal smoking during pregnancy and in the postnatal period increases the risk for SIDS (35,36). The rate of mothers who smoked during their pregnancy and in the postnatal period was low. It is reported that the risk of SIDS increases when smoking is combined at home by placing the baby in a sleep-prone position (5,14,15). The present study found that the rate of smoking at home was high, but the number of mothers who preferred to put their babies to sleep in the prone position was very low. In this study, it was found that less than half of the mothers did bed sharing with their babies. In Turkey, bed sharing is likely results from cultural practices, extended family structure and the family's socio-economic conditions. In a study conducted by Luijk et al. (37) with a large sample group of Dutch, Turkish, Moroccan and Caribbean mothers on this subject, it was found that Dutch mothers shared the same bed with their babies at a lower rate. It was found that a majority of the mothers breastfed their baby in the present study. Similarly, other studies concluded that majority of mothers breastfeed their babies in Turkey (5,15). This protective effect increases when infants are fed only breast milk during the first four to six months and when they continue to be breastfed. Therefore, it is recommended that mothers breastfeed their babies for as long as possible (10,38). Physiological studies show that infants who are breastfed awaken from their sleep more easily than those who are fed formula 1. Thompson et al. (39) reported that the risk for SIDS decreases when mothers breastfeed their babies for at least two months. Approximately four out of every 10 mothers who participated in the study used pacifiers for their babies. Yikilkan et al. (6) reported that 51.3% of mothers used pacifiers while putting their baby to sleep, while Dufer and Godfrey (23) reported that 63% did so. The AAP recommends the use of pacifiers while babies are going to sleep and during sleep (2). It was found in this study that mothers who graduated from primary school have less information about SIDS. Bezerra et al. (19) reported that when they looked into the relationship between mothers' knowledge of SIDS and their mother's education level, they found that mothers who received education for eight years or more had more information. It was found that the knowledge level of the mothers increased after the training given to them with the support of verbal, visual, and written materials in this study. There is no study in Turkey that examined the effects of maternal training on SIDS and safe sleep environment. However, in many studies conducted in other countries, it has been reported that training practices on SIDS and a safe sleep environment have positive effects on parents' behavior and increase their knowledge (11,16,23,40). Dufer and Godfrey (23) found that the knowledge level of parents increased after education in their study with parents with preterm babies in the neonatal intensive care unit, also they reported that parents' adaptation to safe sleep practices at home increased. Canter et al. (41) found that new mothers who watched a safe sleep training video could better implement safe sleep practices and placed their baby on their side less often. Voos et al. (42) reported that 88% of infants are in a safe sleep environment after training and observation. Goodstein et al. (43) stated that hospital-based training practices provided after discharge from the hospital and during the four-month follow-up after the birth of the infant increase the knowledge levels of the parents regarding safe sleep practices. Issler et al. (44) provided training to mothers about safe sleeping positions before discharge in the maternity ward. It was found that babies had a high rate of lying down in the supine position during home visits in the 3rd month in this study. Therefore, it is important that training practices on SIDS and a safe sleep environment should primarily be conducted during the neonatal period.

Study Limitations

There were some limitations in this study. The study was conducted without a control group. Additionally, not all mothers who attended the training could be reached one month after the training. These findings may not reflect the overall situation in Turkey because the study was conducted only in one city.

Conclusion

The rates of behaviors which are among the key risk factors for SIDS as sleeping the babies in the side sleeping position, using soft bedding, and pillow were high before the training. The study also found that the training given to the mothers on SIDS and safe sleep was effective. Different cultural practices, a lack of information, or misinformation can cause mothers to engage in risky behaviors with respect to SIDS. Training practices are important for reducing the risk of SIDS and creating a safe sleep environment. Therefore, training on SIDS and safe sleep should be provided in primary health care institutions and hospitals for mothers during the prenatal period and before being discharged from the hospital to decrease the risk of SIDS and to facilitate the creation of safe sleep environments.

Acknowledgments

The authors wish to thank all the participants who volunteered within this study.

Ethics

Ethics Committee Approval: Written permission was obtained from the Ethics Committee of the İzmir Katip Çelebi University (decision no: 154, date: 18.04.2018).

Informed Consent: Face-to-face interviews were conducted with mothers who participated in the study, and their written

consent was obtained after the content and aim of the study was explained to them.

Peer-review: Internally peer-reviewed.

Authorship Contributions

Consept: P.D., H.B.Y., Design: P.D., H.B.Y., Data Collection or Processing: P.D., Analysis or Interpretation: P.D., H.B.Y., Literature Search: P.D., Writing: P.D., H.B.Y.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. Moon RY, Fu L. Sudden infant death syndrome: an update. Pediatr Rev 2012;33:314-20.
2. Task Force On Sudden Infant Death Syndrome. SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. Pediatrics 2016;138:e20162938.
3. Centers for Disease Control and Prevention (CDC). Sudden unexpected infant death and sudden infant death sydrome. Available from: https://www.cdc.gov/sids/index.htm.
4. Goldstein RD, Trachtenberg FL, Sens MA, Harty BJ, Kinney HC. Overall Postneonatal Mortality and Rates of SIDS. Pediatrics 2016;137:e20152298.
5. Alparslan Ö, Uçan S. Determination of risk factors related to sudden infant death syndrome in infants in a health centre region. Journal of Research and Development in Nursing 2011;13:25–34.
6. Yikilkan H, Unalan PC, Cakir E, Ersu RH, Cifcili S, Akman M, Uzuner A, Dagli E. Sudden infant death syndrome: how much mothers and health professionals know. Pediatr Int 2011;53:24-8.
7. Healthy People. Available from: https://www.healthypeople.gov/node/4830/data_details
8. Whiteside-Mansell L, Nabaweesi R, Caballero AR, Mullins SH, Miller BK, Aitken ME. Assessment of Safe Sleep: Validation of the Parent Newborn Sleep Safety Survey. J Pediatr Nurs 2017;35:30-5.
9. Task Force on Sudden Infant Death Syndrome; Moon RY. SIDS and other sleep-related infant deaths: expansion of recommendations for a safe infant sleeping environment. Pediatrics 2011;128:e1341-67.
10. Carlin RF, Moon RY. Risk Factors, Protective Factors, and Current Recommendations to Reduce Sudden Infant Death Syndrome: A Review. JAMA Pediatr 2017;171:175-80.
11. Gelfer P, Cameron R, Masters K, Kennedy KA. Integrating "Back to Sleep" recommendations into neonatal ICU practice. Pediatrics 2013;131:e1264-70.
12. Adams SM, Ward CE, Garcia KL. Sudden infant death syndrome. Am Fam Physician 2015;91:778-83.
13. Çalışır H, Özvurmaz S, Tuğrul, E. The ınvestigation of risk factors for sudden ınfant death syndrome (sids) in 0-11 month old ınfants in Aydın province center. Journal of Cumhuriyet University School of Nursing 2007;11:7-17.
14. Efe E, Balcı Yangın H, Eravşar K. Mother' knowledge about sudden infant death syndrome and risk factors living in the region of two primary health centers in Antalya. The Journal of the Child 2007;7:255-61.
15. Erdoğan Ç, Turan T. Risky Behaviors of Mothers with Infants on Sudden Infant Death Syndrome in Turkey. J Pediatr Nurs 2018;38:e2-6.
16. Grazel R, Phalen AG, Polomano RC. Implementation of the American Academy of Pediatrics recommendations to reduce sudden infant death syndrome risk in neonatal intensive care units: An evaluation of nursing knowledge and practice. Adv Neonatal Care 2010;10:332-42.
17. Pinho AP, Nunes ML. Epidemiological profile and strategies for diagnosing SIDS in a developing country. J Pediatr (Rio J) 2011;87:115-22.
18. Efe E, İnal S, Bal Yılmaz H, Çetin H, Turan T, Altun E, Çalışır H, Arıkan D. Nurses' and paediatricians' knowledge about infant sleeping positions and the risk of sudden infant death syndrome in Turkey. HealthMED 2012;6:140-7.
19. Bezerra MADL, Carvalho KM, Bezerra JLDO, Novaes LFG, Moura THMD, Leal LP. Factors associated with knowledge of mothers on Sudden Infant Death Syndrome. Escola Anna Nery 2015;19:303-9.
20. Varghese S, Gasalberti D, Ahern K, Chang JC. An analysis of attitude toward infant sleep safety and SIDS risk reduction behavior among caregivers of newborns and infants. J Perinatol 2015;35:970-3.
21. Barsman SG, Dowling DA, Damato EG, Czeck P. Neonatal nurses' beliefs, knowledge, and practices in relation to sudden infant death syndrome risk-reduction recommendations. Adv Neonatal Care 2015;15:209-19.
22. Damato EG, Haas MC, Czeck P, Dowling DA, Barsman SG. Safe Sleep Infant Care Practices Reported by Mothers of Twins. Adv Neonatal Care 2016;16:E3-14.
23. Dufer H, Godfrey K. Integration of safe sleep and sudden infant death syndrome (SIDS) education among parents of preterm infants in the Neonatal Intensive Care Unit (NICU). J Neonatal Nursing 2017;23:103-8.
24. Shipstone R, Young J, Kearney L. New Frameworks for Understanding Sudden Unexpected Deaths in Infancy (SUDI) in Socially Vulnerable Families. J Pediatr Nurs 2017;37:35-41.
25. Rohana J, Ishak S, Wan Nurulhuda WMZ. Sudden infant death syndrome: Knowledge and practise in parents of preterm infants. Pediatr Int 2018;60:710-3.
26. Çam MO, Arabacı L. Qualitative and Quantitative Steps on Attitude Scale Construction. Turkish Journal of Research & Development in Nursing 2010;12:59-71.
27. Burgess A, Bell T, Cirelli J, Clymer BJ, Goodstein MH. Nursing Students' Knowledge and Attitudes Toward Infant Sleep Safety. Teach Learn Nurs 2017;12:289-94.
28. Horne RS, Hauck FR, Moon RY. Sudden infant death syndrome and advice for safe sleeping. BMJ 2015;350:h1989.
29. National Institute of Child Health and Human Development. Available at: https://safetosleep.nichd.nih.gov/
30. Okur A, Arı G. Readability of texts turkish textbooks in grades 6, 7, 8. Elementary Education Online 2013;12:202-26.
31. Von Kohorn I, Corwin MJ, Rybin DV, Heeren TC, Lister G, Colson ER. Influence of prior advice and beliefs of mothers on infant sleep position. Arch Pediatr Adolesc Med 2010;164:363-9.
32. Cesar JA, Marmitt LP, Carpena MX, Pereira FG, Neto JDM, Neumann NA, Acevedo JD. Maternal Knowledge and Unsafe Baby Sleep Position: A Cross-Sectional Survey in Southern Brazil. Matern Child Health J 2019;23:183-90.
33. Mathews A, Oden R, Joyner B, He J, McCarter R, Moon RY. Differences in African-American Maternal Self-Efficacy Regarding Practices Impacting Risk for Sudden Infant Death. J Community Health 2016;41:244-9.
34. Yiğitalp G, Gümüş F. Traditional Infant Care Practices of Women Aged 15-49 in Diyarbakır. Turkish Journal of Pediatric Disease 2017;11:188-96.

35. Zhang K, Wang X. Maternal smoking and increased risk of sudden infant death syndrome: a meta-analysis. Leg Med (Tokyo) 2013;15:115-21.
36. Friedmann I, Dahdouh EM, Kugler P, Mimran G, Balayla J. Maternal and obstetrical predictors of sudden infant death syndrome (SIDS). J Matern Fetal Neonatal Med 2017;30:2315-23.
37. Luijk MP, Mileva-Seitz VR, Jansen PW, van IJzendoorn MH, Jaddoe VW, Raat H, Hofman A, Verhulst FC, Tiemeier H. Ethnic differences in prevalence and determinants of mother-child bed-sharing in early childhood. Sleep Med 2013;14:1092-9.
38. Hauck FR, Thompson JM, Tanabe KO, Moon RY, Vennemann MM. Breastfeeding and reduced risk of sudden infant death syndrome: a meta-analysis. Pediatrics 2011;128:103-10.
39. Thompson JMD, Tanabe K, Moon RY, Mitchell EA, McGarvey C, Tappin D, Blair PS, Hauck FR. Duration of Breastfeeding and Risk of SIDS: An Individual Participant Data Meta-analysis. Pediatrics 2017;140:e20171324.
40. Shin SH, Ksinan Jiskrova G, Kimbrough T, Trowbridge K, Lee E, Ayers CE. Impact of a Comprehensive Hospital-Based Program to Remove Unsafe Items from Infant's Sleeping Area: A Prospective Longitudinal Study. Clin Pediatr (Phila) 2019;58:1440-3.
41. Canter J, Rao V, Patrick PA, Alpan G, Altman RL. The impact of a hospital-based educational video on maternal perceptions and planned practices of infant safe sleep. J Spec Pediatr Nurs 2015;20:187-92.
42. Voos KC, Terreros A, Larimore P, Leick-Rude MK, Park N. Implementing safe sleep practices in a neonatal intensive care unit. J Matern Fetal Neonatal Med 2015;28:1637-40.
43. Goodstein MH, Bell T, Krugman SD. Improving infant sleep safety through a comprehensive hospital-based program. Clin Pediatr (Phila) 2015;54:212-21.
44. Issler RM, Marostica PJ, Giugliani ER. Infant sleep position: a randomized clinical trial of an educational intervention in the maternity ward in Porto Alegre, Brazil. Birth 2009;36:115-21.