Article published online: 2022-11-22

Knowledge and Self-Reported Practice of Postnatal Mothers on Sudden Infant Death Syndrome Prevention: A Cross-Sectional Study

Roseline Kallakavumkal Antony[1] Sandra Jyothi Saldanha[2]

[1] Department of Child Health Nursing, Father Muller College of Nursing, Mangalore, Karnataka, India
[2] Department of Child Health Nursing, Father Muller College of Nursing, Mangalore, Karnataka, India

Address for correspondence Sandra Jyothi Saldanha, Master in Pediatric Nursing, Father Muller College of Nursing, Kankanady, Mangalore, 575002, Karnataka, India (e-mail: sanjyothsal28@gmail.com).

J Health Allied Sci[NU] 2023;13:410–415.

Abstract

The word "Sudden Infant Death Syndrome (SIDS)" is used for a sleeping infant, who has apparently been quite well, is found unexpectedly dead. There are varied discussions throughout the world trying to find the possible reasons and preventive measures toward these sudden deaths. However, limited studies are undertaken regarding knowledge of mothers related to SIDS. The present study aimed at identifying the knowledge gaps present among the postnatal mothers toward SIDS and assess their practices that may influence SIDS among infants. The research design was a descriptive cross-sectional design and a 107 postnatal mothers were recruited focusing on the aim of the study through purposive sampling technique. A structured knowledge questionnaire and self-reported practice checklist was prepared and validated from experts. The findings of the study revealed that the majority of subjects 57 (53.3%) had good knowledge with a mean score of 9.34 ± 1.83 (maximum score-15). The mean practice score on prevention of SIDS among subjects was 13.76 ± 1.13 (maximum score-16). There was no significant correlation between knowledge and practice ($r = -0.38$, $p = 0.7$). However, significant association was seen between knowledge on prevention of SIDS and baseline variables such as education ($p = 0.001$), occupation ($p = 0.001$), place of residence ($p = 0.001$), and family income ($p = 0.01$). Moreover, there was a significant association between self-reported practice and age of mothers ($p = 0.03$). The study findings showed good knowledge level among majority of the mothers and executed good practice toward care of the infant. However, 30.8% of the mothers had average to poor level of knowledge, which is significant and needs attention.

Keywords
- descriptive study
- knowledge
- postnatal mothers
- practice
- sudden infant death syndrome
- self-reported practice

Introduction

The infant mortality rate is an important marker of the overall health of a society. According to the Ministry of Health and Family Welfare, India, the infant mortality rate for 2021 was 30/1000 live births and in the state of Karnataka was 21/1,000 live births.[1] In the United States, about 3,400 infants die due to sudden infant death syndrome (SIDS) each year. In 2019, 1,250 deaths were reported due to SIDS.[2] Unfortunately, no data are available related to mortality caused by SIDS alone in India.[3]

article published online
November 22, 2022

DOI https://doi.org/10.1055/s-0042-1757732.
ISSN 2582-4287.

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

SIDS is sudden death of an infant less than 1 year of age that cannot be explained after a thorough investigation, including a complete autopsy, examination of the death scene, and a review of the clinical history.[4] Although the direct cause of SIDS remains unknown, many doctors believe that there are several factors that put babies at an increased risk of SIDS, including babies sleeping on their stomachs, exposure to cigarette smoke in the womb or after birth, sleeping in bed with parents, premature birth, being a twin or triplet, being born to a teen mother, and also living in poverty settings. The common occurrence of SIDS is observed at 2 and 4 months of age and most death occur during winter time.[5]

Precautions include ensuring that infants sleep on their backs, controlling the temperature of the bedroom, employing a crib without toys or excess bedding, and breast feeding.[3] In November 2016, the American Academy of Paediatrics (AAP) Task Force on SIDS published an updated policy statement with guidelines to reduce the risk of SIDS and other sleep-related deaths. There were several recommendations given and the most prominent one was room-sharing without bed-sharing.[6]

There is limited research done in the area of public awareness toward SIDS in India. Understanding the knowledge of mothers on SIDS will help as a teaching guide in promoting knowledge in the communities. Self-reported practices include the information mother provides toward the methods used by the mother in caring for her neonate that may predispose to SIDS. Hence, the study intended to identify what mothers know about SIDS and what practices they follow in caring for their infants. The hypothesis set to evaluate was that there was a significant relationship between knowledge and self-reported practices related to SIDS among postnatal mothers.

Methods

A descriptive cross-sectional design was chosen for the present study. Ethical clearance was obtained from Father Muller Medical College Institutional Ethics Committee (-FMMCIEC/CCM/101/2018). The present study was conducted in the postnatal ward of Father Muller Medical College Hospital, Mangalore. Father Muller Medical College Hospital is a multi-speciality hospital with a total of 1,250 bed strength, which includes 40 postnatal beds. Purposive sampling technique was used to derive 107 postnatal mothers. Researcher developed knowledge questionnaire and practice checklist with 15 and 16 items, respectively. This tool was validated by nine experts and modifications were made accordingly. The reliability was checked using Cronbach's alpha and split half technique and obtained scores were 0.92 and 0.80 respectively suggesting the tools were reliable. A formal written permission was obtained from the administrator of the hospital prior to the data collection. The investigator assured confidentiality and written consent was obtained.

Sample size was derived based on statistical formula $n = Z\alpha^2PQ/d^2$ at 95% CI and required sample was 97. However, considering 10% attrition in obtaining all information, 107 responses were collected. The obtained responses were then compiled and analyzed using inferential statistics.

Results

Description of Baseline Variables of Subjects

Data in ►**Table 1** shows that the majority of mothers belonged to the age group of 21 to 30 years (84.1%) with a mean age of 25.61 ± 3.37 and having one to two living children (60.8%). Most subjects had high school education (57%) and only 18% of them were graduates and above. Most were home makers (90.7%) residing mostly in rural areas (78.5%) and drawing monthly family income between 5001 and 10,000 rupees (93.5%).

Assessment of Knowledge and Self-Reported Practices on Prevention of SIDS

The knowledge and practice on prevention of SIDS is given in the ►**Tables 2–4**. ►**Table 2** reveled that most mothers had average and good level of knowledge (29.9% and 53.3%, respectively). About 17 mothers (15.9%) had excellent knowledge on SIDS that influenced the mean knowledge

Table 1 Frequency and percentage distribution of subjects according to baseline characteristics $n = 107$

Sl No.	Baseline variables	Frequency	Percentage
1	Age of mothers in years (Mean ± SD = 25.61 ± 3.37)		
	a) ≤20	6	5.6
	b) 21-30	90	84.1
	c) 31-40	11	10.3
2	Educational level (mothers)		
	a) Primary	26	24.3
	b) High school	61	57
	c) Graduate	18	16.8
	d) Post graduate	2	1.9
3	Occupation (mothers)		
	a) Home maker	97	90.7
	b) Self-employee	7	6.5
	c) Private employee	3	2.8
4	Number of living children [Mean ± SD = 1.91 ± 1.08]		
	a) 1-2	65	60.8
	b) 3-4	39	36.4
	c) >4	3	2.8
5	Type of family		
	a) Nuclear	76	71
	b) Joint	31	29
6	Place of residence		
	a) Rural	84	78.5
	b) Urban	23	21.5
7	Family income (per month in rupees) (Mean ± SD = 8093.46 ± 1993.08)		
	a) 5,001-10,000	100	93.5
	b) 10001-20,000	7	6.5

Table 2 Frequency and percentage distribution of level of knowledge $n = 107$

Knowledge level	Grading	Frequency	Percentage
Poor	0-5	1	0.9
Average	6-8	32	29.9
Good	9-11	57	53.3
Excellent	12-15	17	15.9

Note: Maximum score-15

Table 3 Area-wise level of knowledge scores $n = 107$

Knowledge level	Grading	Frequency	Percentage
Area 1: Etiology (Mean 2.7 ± 1.16)			
Poor	0-1	16	15.0
Average	2	32	29.8
Good	3	31	29
Excellent	4-5	28	26.2
Area 2: Prevention (Mean 6.64 ± 1.46)			
Poor	0-3	2	1.9
Average	4-5	23	21.5
Good	6-7	49	45.8
Excellent	8-10	33	30.8

score (9.34 ± 1.83, maximum score-15). Furthermore, knowledge scores specific to etiology and prevention of SIDS were analyzed. ►**Table 3** which showed that 45.8% had good and 30.8% had excellent knowledge in terms of prevention of SIDS and with regard to etiology of SIDS, only 29% had good and 26.2% of them had excellent knowledge.

The data received from mothers with regard to their practices in caring for their neonate (►**Table 4**) showed a mean of 13.76 ± 1.13 (maximum score-16), suggesting good practices were exhibited in caring for their neonates.

Relationship Between Knowledge and Self-Reported Practices on Prevention of SIDS Among Postnatal Mothers

To find the correlation (►**Table 5**), the *r* value was computed ($r = -0.38$), which showed a moderate negative correlation between knowledge and self-reported practice on prevention of SIDS among mothers. The practices used by the mothers were safe even though the knowledge level was average to good. However, no statistical significance was seen as the obtained *p*-value was 0.7. Hence, the study showed no relationship between the mothers' knowledge levels and their practices.

Table 4 Knowledge and self-reported practice n = 107

Variables	Mean ± SD	SEM
Knowledge	9.34 ± 1.83	0.17
Self-reported practice	13.76 ± 1.13	0.11

Note: Knowledge maximum score-15; practice maximum score-16.

Table 5 Relationship between knowledge and self-reported practices on prevention of SIDS among postnatal mothers n = 107

Variables	Mean ± SD	*r*-Value	*p*-Value
Knowledge	9.34 ± 1.83	-0.38	0.7
Self-reported practice	13.76 ± 1.13		

Association between Knowledge and Self-Reported Practices on Prevention of SIDS Among Postnatal Mothers and Selected Baseline Variables

The analysis to determine the association between knowledge and self-reported practices of mothers with their baseline variables is shown in ►**Tables 6** and **7**. Statistically significant association was obtained between knowledge on SIDS and baseline characteristics of mothers such as education ($p = 0.001$), occupation ($p = 0.001$), place of residence ($p = 0.001$), and family income ($p = 0.01$).

Further analysis to determine the association between self-reported practices of mothers and baseline variables showed a statistically significant association between practice scores and age of the mothers ($p = 0.001$).

Discussion

The present study intended to identify the relationship between knowledge and self-reported practices of mothers. The baseline characteristics obtained by this study showed that most mothers were between the age group of 21 and 30 years (84.1%), and 60.8% of them had one to living children. The educational level was high school (57%) among the majority of the mothers, which might be because most of the them belonged to rural areas (78.5%). The study showed varied levels of knowledge, where the majority of mothers had average and good knowledge on SIDS. This might be due to the dissemination of proper information through family members in caring for their neonate as some cultural practices are known to also influence the knowledge of mothers.[7] A study done by Mohamed et al found that 75% of mothers had poor knowledge regarding SIDS, the majority of mothers belonged to rural areas (68.9%) and had secondary education (52.2%).[8] Another study conducted by Yikilkan et al to determine the knowledge and attitude of parents about SIDS found that only 39% of mothers were aware of SIDS.[9]

The self-reported practices followed by mothers in caring for their neonates were excellent in the current study (►**Table 4**). The articles on Indian traditions describe that the family size and kinship bonds influence the practices on infant care.[10]

However, the study by Mohamed et al reported that nearly 50% of the mothers had unsatisfactory practices

Table 6 Association between knowledge on prevention of SIDS among postnatal mothers and selected baseline variables

Baseline variables	Poor	Average	Good	Excellent	χ^2	*p*-Value
Age of mothers in years					5.83	0.52
≤20	0	2	4	0		
21-30	1	25	47	17		
31-40	0	5	6	0		
Educational level (mothers)					55.31	0.001**
Primary	1	19	6	0		
High school	0	13	42	6		
Graduate	0	0	9	9		
Post graduate	0	0	0	2		
Occupation (mothers)					21.36	0.001**
Home maker	1	32	54	10		
Self-employee	0	0	3	4		
Private employee	0	0	0	3		
Number of living children [Mean ± SD = 1.91 ± 1.08]					4.92	0.76
1-2	1	19	36	9		
3-4	0	11	20	8		
>4	0	2	1	0		
Type of family					5.56	0.11
Nuclear	1	24	43	8		
Joint	0	8	14	9		
Place of residence					14.22	0.001**
c) Rural	1	28	48	7		
d) Urban	0	4	9	10		
Family income (per month in rupees)					12.96	0.01*
c) 5,001–10,000	1	32	55	12		
d) 10001–20,000	0	0	2	5		

*Significant.
**Highly significant.

regarding SIDS.[7] The present study does not show a significant relationship between the knowledge and self-reported practices (►**Table 5**) among the mothers, which may also suggest that the mothers reported some practices based on their experiences rather than knowledge alone. Also, a study by Chung-Park showed no correlation between knowledge of mothers on SIDS and their safe sleep position practices ($p = 0.611$).[11] On the contrary, Mohamed EWA in his study found that knowledge and practice on SIDS are in congruent to each other and showed statistical significance ($r = 0.216$, $p = 0.004$).[8]

The present study findings in ►**Tables 6** and **7** showed a significant association between knowledge level of the mothers and their education status (χ^2-55.31, $p < 0.001$), occupational status (χ^2-21.36, $p < 0.001$), place of residence (χ^2-14.22, $p = 0.001$), and family income status (χ^2-12.96, $p = 0.01$). The reported practices were found to be significantly associated with the age of the mothers (χ^2-16.57, $p = 0.001$). Thus the findings mainly suggest that the level of education, occupational status, place of residence, and income status influence the knowledge levels of mothers; however, age and experience have better infant caring practices that help to prevent SIDS in infants. A study done by Chung-Park showed no association between baseline characteristics such as age, education, number of children, or ethnicity with the mothers' knowledge or their practices related to safe sleep positions to prevent SIDS in infants.[11]

Conclusion

This research article found that practices toward the prevention of SIDS are better reported; however, knowledge regarding SIDS needs further improvement.

Funding
This project was undertaken as a part of fulfilment of MSc. Nursing in Pediatrics and was self-funded.

Table 7 Association between self-reported practice on prevention of SIDS among postnatal mothers and selected baseline variables

Baseline variables	Median		χ^2	*p*-Value
	<14	≥14		
Age of mothers in years			16.57	0.001*
≤20	2	4		
21-30	36	54		
31-40	3	8		
Educational level (mothers)			5.989	0.112
Primary	10	16		
High school	20	41		
Graduate	11	7		
Post graduate	0	2		
Occupation (mothers)			8.62	0.56
Home maker	37	60		
Self-employee	4	3		
Private employee	0	3		
Number of living children [Mean ± SD = 1.91 ± 1.08]			12.08	0.23
1-2	24	41		
3-4	17	22		
>4	0	3		
Type of family			2.39	0.81
Nuclear	28	48		
Joint	13	18		
Place of residence			6.16	0.26
e) Rural	30	54		
f) Urban	11	12		
Family income (per month in rupees)			4.04	0.49
e) 5,001–10,000	38	62		
f) 10001–20,000	3	4		

*Significant.
**Highly significant.

Conflict of Interest
None declared.

Acknowledgments
The authors acknowledge the whole hearted participation of the postnatal mothers toward the study and the administrators of the hospital for providing permission to undertake the study.

References

1 Ministry of health and family welfare statistics. Accessed June 21, 2022, at: https://main.mohfw.gov.in/documents/Statistics-sites/-default/files/rhs20–21.pdf
2 Centers for disease control and prevention. Sudden unexpected infant death and sudden infant death syndrome. Accessed June 21, 2022, at: https://www.cdc.gov/sids/data.html
3 The Swaddle team. All there is to know about SIDS [Internet]. The swaddle. 2016. Accessed June 20, 2022, at: https://theswaddle.com/know-sids/
4 Willinger M, James LS, Catz C. Defining the sudden infant death syndrome (SIDS): deliberations of an expert panel convened by the National Institute of Child Health and Human Development. Pediatr Pathol 1991;11(05):677–684. Accessed May 15, 2019. Doi: 10.3109/15513819109065465
5 Duncan JR, Byard RW. Sudden Infant and Early Childhood Death: the Past, Present and the Future. The University of Adelaide press, South Australia: 2018. Accessed June 25, 2019, at: https://www.ncbi.nlm.nih.gov/books/NBK513384/pdf/Bookshelf_NBK513384.pdf
6 Hitchcock S. Endorsing safe infant sleep: a call to action. Nurs Womens Health 2012;16(05):386–396
7 Aubel J. Grandmothers - a neglected family resource for saving newborn lives. BMJ Glob Health 2021;6(2, e003808)1–9. Accessed August 10, 2022. Doi: 10.1136/ bmjgh-2020–00380

8 Mohamed EWA, Abusaad FE, El-agamy OAE. Assessment of mothers' knowledge and practices about the prevention of sudden infant death syndrome. Mansoura Nursing Journal 2021;8(01):115–130
9 Yikilkan H, Unalan PC, Cakir E, et al. Sudden infant death syndrome: how much mothers and health professionals know. Pediatr Int 2011;53(01):24–28. https://www.ncbi.nlm.gov/pubmed/20626640
10 Dalmia H, Bhatt N. Baby sleep: what are the different cultural norms across the world, and how different is the Indian context. The dispatch Feb 2022. Accessed August 5, 2022, at: https://www.thedispatch.in/baby-sleep-what-are-the-different-cultural-norms-across-the-world-and-how-different-is-the-indian-context/
11 Chung-Park MS. Knowledge, opinions, and practices of infant sleep position among parents. Mil Med 2012;177(02):235–239. Doi: 10.7205/milmed-d-11-00323