



# **Mother's Knowledge on Neonatal Danger Signs and Health Seeking Behaviour in a Tertiary Care Hospital, Thandalam, India**

**K. Prageetha <sup>a≡</sup> and Kumutha <sup>b°</sup>**

<sup>a</sup> Saveetha Medical College and Hospital, India.

<sup>b</sup> Department of Neonatology, Saveetha Medical College and Hospital, India.

## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

## **Article Information**

DOI: 10.9734/JPRI/2021/v33i64B35333

## **Open Peer Review History:**

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/75997>

**Original Research Article**

**Received 07 November 2021**

**Accepted 29 December 2021**

**Published 30 December 2021**

## **ABSTRACT**

**Objective:** The aim of this study is to find out mother's knowledge on neonatal danger signs and health seeking behaviour in a tertiary care hospital.

**Methods:** A cross sectional descriptive study was conducted among mother's of infant(below 1 year) attending Department of Paediatrics and Department of Obstetrics and Gynaecology, Saveetha Medical College, Thandalam between January 2021 to April 2021. A semi structured questionnaire was used in this study. The data were entered in Microsoft Excel. The chi square values were determined, P<0.05 was considered significant.

**Results:** Among the 273 respondents,102(37.36%)of mothers were found to have good knowledge on neonatal dangersigns.161 mothers had sick neonate who need medical attention. Of the 161, 146 (90.68%) mothers sought health facility for help and had their baby treated. Factors that were significantly associated with mother's knowledge on neonatal danger signs were mother's educational status and occupation, income, husband's involvement in antenatal and reproductive service, information on neonatal danger signs given after delivery. Significant associated factors for safe health seeking behaviour were mother's educational status, AN check up, PNC follow up, husband's involvement, good knowledge on neonatal danger signs.

<sup>≡</sup> IV Year MBBS;

<sup>°</sup> Professor and Head;

\*Corresponding author

**Conclusion:** The study shows that 37.36% of mothers had good knowledge on neonatal danger signs and 90.68% had safe health seeking behaviour. Despite the low knowledge on neonatal danger signs, mother's health seeking behaviour was better (90.68%) which might be due to their good antenatal check up, postnatal follow up.

*Keywords:* New born; knowledge; health seeking behaviour.

## 1. INTRODUCTION

The first 28 days of life of a child is considered to be the highest risk period of Neonatal death [1]. Globally, 3.3 million deaths occur during first four weeks of life. Nearly 27 million babies are born in India each year, which accounts for 20% of global birth, of which 1 million dies before completing the first four weeks of life which accounts for nearly 25% of neonatal death worldwide [2-4]. The cause of neonate death globally are preterm birth complications, complications during labour and delivery and sepsis, which accounts for three quarter of all neonatal death [5]. High grade fever, fast breathing, hypothermia, severe chest in drawing, unconsciousness, convulsion, jaundice in 1<sup>st</sup> 24 hours involving the palm and sole, lethargy, umbilical redness or pus drainage and unable to breast feed are the neonatal danger signs according to World Health Organization's key recommendations [6]. Knowledge of mothers on neonatal danger signs and health seeking practices is low in resource limited countries [7]. Lack of mother's knowledge on neonatal danger signs and poor health seeking practices in the first four weeks of life were found to be associated with a higher risk of neonatal death and considered to be significant barrier for early identification and adequate treatment for neonate with severe illness [8].

Hence the knowledge of mothers on neonatal danger signs and their health seeking practice seem to be important factors in reducing the neonatal mortality and enhancing the quality of life of the neonate. This study aims in assessing the knowledge of mothers on neonatal danger signs and health seeking behaviour.

## 2. METHODOLOGY

### 2.1 Study Design

This is a descriptive cross- sectional study.

### 2.2 Study Area and Population

Mothers of infants [below 1 year] attending the Department of Obstetrics and Gynaecology,

Department of Neonatology and Department of Paediatrics in Saveetha Medical College Hospital at Thandalam, Tamil Nadu.

### 2.3 Study Duration

The study was carried out between January 2021 to April 2021.

### 2.4 Sampling Method

Simple random sampling method was used in this study.

### 2.5 Sample Size

From the previous study of Anmut et al., in the year 2017, the mother's knowledge on neonatal danger signs was found to be 31.32% [9] and this value was taken as the reference value for calculation. The sample size was calculated by using the formula  $1.96 \times 1.96pq / d^2$ , where p value is taken as 31.32 [9] and the allowable error value [d] is taken as 5.5. The sample size is hence calculated to be 273 [n=273].

### 2.6 Inclusion Criteria

All the mothers of infants [below 1 year] attending the Department of Obstetrics and Gynaecology, Department of Neonatology and Department of Paediatrics in Saveetha Medical College, Thandalam and who were willing to participate in this study by giving informed consent were included in this study.

### 2.7 Exclusion Criteria

Mothers not willing to participate in this study were excluded.

### 2.8 Data Collection

A semi structured questionnaire was used in this study for collecting data. The questionnaire had a detailed questions about the socioeconomic information, reproductive and maternity health care profile, knowledge about neonatal danger

signs and health seeking behaviour during illness. The questionnaire was in both English and Tamil. The data were collected by face to face interview of mothers.

## 2.9 Data Processing and Analysis

The data were entered and analysed in Microsoft Excel. The descriptive statistics were expressed in frequencies, percentages, tables, graphs, mean and standard deviation. Factors associated with mother’s knowledge on neonatal danger signs were analysed by calculating the significance using chi square and p value and strength of association by Odds ratio. Here p value <0.05 was considered to be statistically significant at 95% confidence interval.

### 2.10 Definitions

**Good knowledge on neonatal danger signs:** Mothers who were able to describe three and more neonatal danger signs [10].

**Poor knowledge on neonatal danger sign:** Mothers who were able to describe only two or less than three neonatal danger signs [10].

**Good health seeking behaviour:** Mothers who sought care for their sick neonate early or took their sick neonate to the health facility [10].

## 3. RESULTS

### 3.1 Socio Demographic Characteristics

A total of 273 mothers participated in this study. The mean age of the participants was 25.84 years [SD ± 1.58]. The Mean family size was 4.08[SD±0.73]. Majority 152[55.68%] of them had secondary level of education. 224[82.05%] of them were housewife. Television was found to be the major communication media 261 [95.6%], 160[58.61%] were actively using the social media.

### 3.2 Reproductive and Maternal Health Characteristics

Of the 273 participants, 267 [97.8%] had antenatal check up. Among the 273, 255 [93.41%] had PNC follow up. Only 116 mothers had received [42.49%] advice on neonatal danger signs which was provided after delivery. 83.88% husbands were involved in antenatal or maternal health care.

**Table 1. Socio demographic characteristics**

Variable	Frequency[n=273]	Percentage
Maternal Age	25.84years [±1.58]	4.08[ ±0.73]
Mean Family Size		
Mother’s Educational Status:		
Primary	29	10.62
Secondary	152	55.68
Tertiary	84	30.77
Mother’s Occupation		
Daily Labourer	12	4.4
Housewife	224	82.05
Employee	35	12.82
Monthly Salary		
<10000	10	3.66
10000-19000	86	31.5
20000-29000	101	37
≥30000	76	27.84
Communication Media		
Television	261	95.6
Radio	23	8.42
Social Media	160	58.61

**Table 2. Reproductive and maternal health characteristics**

Variable	Frequency [n=273]	Percentage %
No. of Live Children		
1	134	49.08
2	127	46.52
3	12	4.4
AN Checkup	267	97.8
PNC Follow Up	255	93.41
Received information on Neonatal Danger Sign after delivery		
Yes	116	42.49
No	157	57.51
Husband's involvement in AN, PN care	229	83.88

**3.3 Knowledge about Neonatal Danger Signs**

Out of the total 273 respondents, 154[56.41%] have heard about neonatal danger signs through various sources and 102[37.36%] had good knowledge (who were able to describe three and more neonatal danger signs.)on neonatal danger sign,whereas 52[19.05%] who were able to describe less than three danger signs were considered as having poor knowledge on neonatal danger signs.

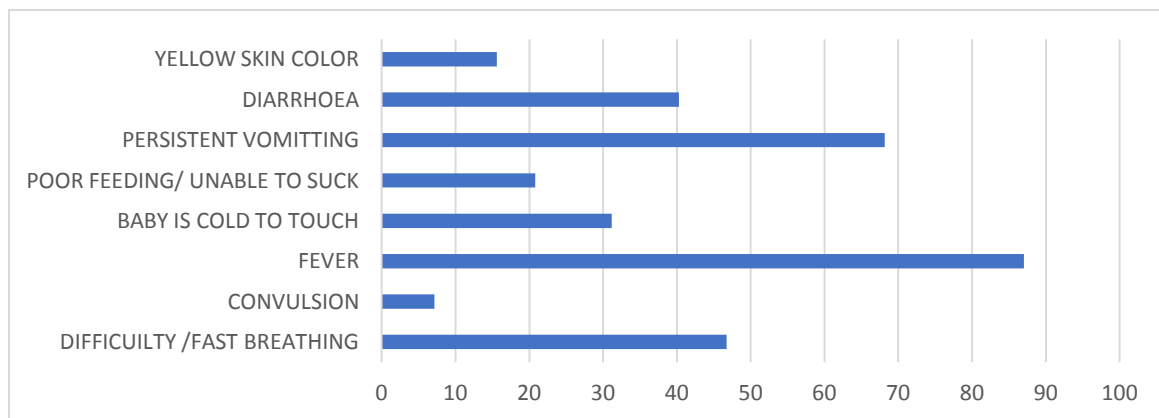
Majority 139 [87.01%] responded fever as the neonatal danger sign, followed by persistent vomiting 68.18%, fast breathing 46.75%, diarrhoea 40.26%, baby is cold to touch 31.17%,

poor feeding 20.78%, yellow skin colour 15.58%, convulsion 7.14%.

Of the 154 who have heard about neonatal danger sign, for 74 [48.05%] the source of information was through neighbour.

**3.4 Health Seeking Behaviour of Mothers**

Out of the 273 mothers who have responded, 161[58.97%] had a sick neonate with manifestation of at least one neonatal danger signs.Of the 161, 114 [70.81%] took the neonate to Private Hospital, 32 [19.87%] to Government hospital, and 7 [4.35%] gave home treatment. 146[90.68%] was found to have safe health seeking behaviour.



**Fig. 1. Neonatal danger signs**

**Table 3. Source of information about neonatal danger signs**

Source of information	Frequency [n=154]	Percentage %
Friends	18	11.69
Health Professional	23	14.94
Media	31	20.13
Neighbour	74	48.05
Reading Book/Newspaper	8	5.19

**Table 4. Health seeking behaviour of mothers**

Where did you take the neonate for illness	Frequency [n=161]	Percentage %
Took to private Institution	114	70.81
Took to Government Institution	32	19.87
Gave home treatment	7	4.35
Take to spiritual healer	3	1.86
Take to traditional healer	5	3.11

**3.5 Factors Associated with Good Maternal Knowledge about Neonatal Danger Signs**

Good maternal knowledge about neonatal danger signs was associated significantly [P<0.5] with the following factors - mother’s educational status and occupation, family income, husband’s involvement, advice on neonatal danger signs after delivery. Postnatal follow up visit also seems to be contributing to the acquisition of knowledge [p=0.06]. Trending toward significance.

**3.6 Factors Associated with Good Maternal Health Seeking Behaviour in Response to Neonatal Danger Signs**

For factors associated with good maternal health seeking behaviour about neonatal danger signs, statistically significant [P<0.05] difference is observed for mother’s educational status, antenatal check up, postnatal follow up, husband’s involvement, good knowledge on neonatal danger signs. These resulted in good health seeking behaviour.

**Table 5. Factors associated with good maternal knowledge about neonatal danger signs**

Variable	Knowledge of mother on neonatal danger signs		Chi square	P value
	Good Knowledge [N=102] [%]	Poor knowledge [N=52] [%]		
Mother’s Educational Status:				
No Formal Education	1[0.98%]	2[3.45%]		
Primary	5[4.90%]	9[17.31%]		
Secondary	73[71.57%]	31[59.61%]		
Tertiary	23[22.55%]	10[19.23%]	8.1883	0.042275*
Income				
<10000	1[0.98%]	2[3.45%]		
10000-19000	4[3.92%]	7[13.46%]	13.4786	0.003708*
20000-29000	76[74.51%]	24[46.15%]		
≥30000	21[20.59%]	19[36.54%]		
Mother’s Occupation				
Daily Labourer	2[1.96%]	3[5.77%]		
Government Employee	3[2.94%]	2[3.45%]		
House Wife	92[90.20%]	31[59.61%]		
Private Employee	4[3.92%]	15[28.85%]	23.2361	0.000114*
AN Checkup	101[99.02%]	50[96.15%]	1.4808	0.223644
PNC Follow Up	98[96.08%]	46[88.46%]	3.2909	0.069664
Husband’s Involvement	90[88.24%]	36[69.23%]	8.362	0.003832*
Information on Neonatal Danger Sign provided after delivery	77[75.49%]	24[46.15%]	13.1323	<0.00029*

**Table 6. Factors associated with good maternal health seeking behaviour in response to neonatal danger signs**

Variable	Health seeking behaviour of mother on neonatal danger signs		Chi square	P value
	Safe [N=146] [%]	Unsafe [N=15] [%]		
Mothers Educational Status:				
No Formal Education	1[0.68%]	2[13.33%]		
Primary	12[8.22%]	5[33.33%]		
Secondary	92[63.01%]	6[40%]		
Tertiary	41[28.08%]	2[13.33%]	22.0953	0.000062*
AN Checkup	145[99.31%]	13[86.67%]	11.9004	0.000561*
PNC Follow Up	142[97.26%]	11[73.33%]	16.4916	0.000049*
Husband's Involvement	127[86.99%]	10[66.67%]	4.4276	0.03562*
Information on Neonatal Danger Sign				
Sign provided after delivery	61[41.78%]	7[46.67%]	0.13131	0.715246
Good Knowledge on Neonatal Danger Sign	96[65.75%]	3[20%]	12.0251	0.000525*

#### 4. DISCUSSION

Knowledge of mothers about neonatal danger signs and health seeking practices are the key element for reducing mortality and morbidity among children. This study aims in finding mother's knowledge on neonatal danger signs and their health seeking behaviour in a tertiary care hospital, Thandalam.

In this study, 37.36% mothers were found to have good knowledge about neonatal danger signs which was nearly similar to the study done by Kebede AA et al. [11] where 36.5% mothers were found to have good knowledge on neonatal danger signs. 51.7% of mothers have good knowledge on neonatal danger signs in the study done by Bekele F et al. [10] which was higher than this study. In Anmut W et al. [9] Study 31.33% mothers were found to have good knowledge which is lower than this study.

Regarding health seeking behaviour, in this study 90.68% mothers had safe health seeking behaviour, which was higher when compared to the study of Kebede AA et al. [11] (78.7%), but lower than the study of Alemu Guta AS et al. [12] which showed that 97.1% had safe health seeking behaviour. The difference noted may be due to urban setting in which the other studies were conducted in rural population.

In this study 71.57% of mothers who had good knowledge on neonatal danger signs had completed their secondary level of education whereas as in the study conducted by Degefa N et al. [13] only 53.8% of mothers had completed

their secondary level of education. These studies show the impact of maternal education status on the knowledge of neonatal sign.

63.01% of mothers who had safe health seeking behaviour had completed secondary level of education in this study, which is higher when compared to the study of Alemu Guta et al. [12] where 51.57% had completed secondary level of education. Mother's knowledge also plays an important role in health seeking behaviour as educated mothers approach to health institution for neonate illness was found to be high.

In this study, Husband's involvement in the family of mothers with good knowledge was found to be 88.24% which is higher than the study of Kebede AA et al. [11] where 56.38% of the husbands only were involved in Maternal and child health. These studies show that participating husbands in maternal and child health care helps the mother in better acquisition of knowledge on neonatal danger signs.

Antenatal check up provides a better communication and relationship between the mothers and the health care providers thereby increasing the chance of giving better knowledge about neonatal danger signs and health seeking behaviour in the antenatal period. This study favours the above statement as 99.31% of mothers with safe health seeking behaviour had AN check up. The study of Bekele F et al. [10] shows 100% of mothers with safe health seeking practices had AN check up which is similar to this study.

In this study, 97.26% with safe health seeking behaviour had PNC follow up, which is higher when compared to the study of Bekele F et al. [10] 69.56% and Anmut W et al. [9] 68.6%. PNC follow up elevates the knowledge of mothers as the health care provider have a chance to check the neonate and provide counselling and advice to the mothers.

In this study 65.75% of mothers with good knowledge on neonatal danger signs had safe health seeking behaviour, which is lower when compared to the study of Bekele F et al. [10] 93.48% and Abdulrida HN et al. [14] 75% and higher when compared to the study of Kebede AA et al. [11] 60.34%. The studies discussed shows mother's knowledge on neonatal danger signs is required for safe health seeking behaviour as understanding the nature and cause of the signs may provide a safe approach to cure it through health care facility.

## 5. CONCLUSION

The study shows 37.36% of mothers had good knowledge on neonatal danger signs and 90.68% had safe health seeking behaviour. Despite the low knowledge on neonatal danger signs, mother's health seeking behaviour was better (90.68%) which might be due to their good antenatal check up, postnatal follow up. Hence encouragement of adequate antenatal check up, postnatal follow up and husband's involvement in maternal and child care may improve mothers knowledge on neonatal danger signs and health seeking behaviour for the same

## CONSENT

Informed consent in the local language [Tamil] was obtained from the participants involved in this study.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. World Health Organization. New born Health.

- Available: <https://www.who.int/westernpacific/health-topics/newborn-health>. Accessed on 10 September 2021.
- Horwood C. The challenge of improving neonatal mortality in India: Key to global achievement of MDG 4.
  - Million Death Study Collaborators. Causes of neonatal and child mortality in India: A nationally representative mortality survey. *The Lancet*. 2010;376(9755):1853-60.
  - Bang AT, Paul VK, Reddy HM, Baitule SB. Why do neonates die in rural Gadchiroli, India?(Part I): primary causes of death assigned by neonatologist based on prospectively observed records. *Journal of Perinatology*. 2005;25(1):S29-34.
  - UNICEF Report P, 2014. *Committing to Child Survival: A Promise Renewed Progress Report*, New York.
  - WHO. *Recommendations on Postnatal Care of the Mother and Newborn*; 2013.
  - Herbert HK, Lee AC, Chandran A, Rudan I, Baqui AH. Care seeking for neonatal illness in low-and middle-income countries: a systematic review. *PLoS Medicine*. 2012; 9(3):e1001183.
  - Baqui AH, Mitra DK, Begum N, Hurt L, Soremekun S, Edmond K, Kirkwood B, Bhandari N, Taneja S, Mazumder S, Nisar MI. Neonatal mortality within 24 hours of birth in six low-and lower-middle-income countries. *Bulletin of the World Health Organization*. 2016;94(10):752.
  - Baqui AH, Mitra DK, Begum N, Hurt L, Soremekun S, Edmond K, Kirkwood B, Bhandari N, Taneja S, Mazumder S, Nisar MI. Neonatal mortality within 24 hours of birth in six low-and lower-middle-income countries. *Bulletin of the World Health Organization*. 2016;94(10):752.
  - Bekele F, Bekele K, Mekonnen M, Jemal K, Fekadu G. Mothers' knowledge and their health seeking behavior about neonatal danger signs and associated factors in Fiche town, Oromia region, Ethiopia. *Journal of Neonatal Nursing*. 2020;26(6): 324-9.
  - Kebede AA, Cherkos EA, Taye EB. Mother's Knowledge of Neonatal Danger Signs and Health-Seeking Practices and Associated Factors in Debretabor, Northwest Ethiopia: A Community-Based Cross-Sectional Study. *Research and Reports in Neonatology*. 2020;10:47-58.
  - Alemu Guta AS, Amsalu B, Sintayehu Y. Knowledge of neonatal danger signs and associated factors among mothers of < 6

- months old child in Dire Dawa, Ethiopia: A community based cross-sectional study. International Journal of Women's Health. 2020;12:539.
13. Degefa N, Diriba K, Girma T, Kebede A, Senbeto A, Eshetu E, Aschalew Z, Tariku B, Zerihun E. Knowledge about neonatal danger signs and associated factors among mothers attending immunization clinic at Arba Minch General Hospital, Southern Ethiopia: A cross-sectional study. BioMed Research International. 2019;2019.
  14. Abdulrida HN, Hassan RJ, Sabri MM. Knowledge and health-seeking practices of mothers attending primary health-care centers in Baghdad Al-Karkh sector about danger signs in newborns. Mustansiriya Medical Journal. 2018;17(1):29.

---

© 2021 Prageetha and Kumutha; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*  
*The peer review history for this paper can be accessed here:*  
<https://www.sdiarticle5.com/review-history/75997>