

Neonatal Danger Signs: Knowledge Inmothers Of Children Aged Less Than 1 Year In Uae.

Raagapriya Madhan Kumar¹, Dr. Koushik.M², Dr. B. Charumathi³,
Dr. Timsi Jain⁴

¹ 3rd year MBBS student, Department Of Community Medicine,
Saveetha Medical College.

² 1st Year Post Graduate, Department Of Community Medicine,
Saveetha Medical College.

³ 3rd Year Post Graduate, Department Of Community Medicine,
Saveetha Medical College.

⁴ Professor and Head of department, Department Of Community Medicine,
Saveetha Medical College.

ABSTRACT:

Introduction: *The neonatal period comprising the first 4 weeks (28 days) of a child's life after birth is critical and dangerous events might occur. Structural, functional changes occur rapidly in this period. It is very important for mothers to be aware of the danger signs in neonates during this period. This study was done to find the prevalence of knowledge and awareness of danger signs among mothers of children aged less than 1 year.*

Methods: *A Community based cross-sectional study was carried out in United Arab Emirates from June 2020 to August 2020. Simple random sampling method was used and the sample size was calculated as 150. Mothers of children aged below 1 year were included in the study. A semi-structured pre-tested questionnaire was used in this study for interview purposes. Informed oral consent in common languages- English, Hindi, Tamil, Telugu, and Malayalam was obtained.*

Results: *The prevalence of good knowledge of danger signs among mothers of children aged less than 1 year in this study was found out to be 28.6%. 91.2% of the mothers have reported having sought medical care when any of the mentioned Danger signs occurred whereas 8.7% of them had opted to treat at home.*

Conclusion: *In spite of extensive coverage of maternal and child health services, the knowledge and awareness of the danger signs in neonates are fairly low in the mothers. Therefore more awareness and health education campaigns need to be implemented.*

Key-Words: *Knowledge, Awareness, Prevalence, Danger signs, Neonates*

1. INTRODUCTION:

The neonatal period comprising the first 4 weeks (28 days) of a child's life after birth is critical and dangerous events can occur during this period. Structural and functional changes occur very rapidly in this period. A neonate is also known as a new-born[1]. Some of the common events that occur in this period include- the establishment of feeding patterns, parent-infant bonding begins, congenital or birth defects are noticed during this period, severe infection is common.[2]

The most common causes of these danger signs include diarrheal and respiratory infections. There are no vaccines to prevent neonatal mortality and morbidity concerning the various infections. Knowledge about the danger signs in neonates among the mothers is a topic which had to be discussed in-depth. Many mothers are still unaware of the risky danger signs that can occur in neonates. Most of the parents lack awareness about how an unhealthy neonate reacts when compared to a healthy neonate. Thus, they lack experience in differentiating danger signs from normal signs [3]. Some of the numerous neonatal danger signs such as Jaundice, convulsions, breathlessness happen during the first month of life and could be a warning of deadly infections.[4]. Major deaths that occur in neonates are often recorded to occur at home. A lot of these deaths are due to the late recognition of the signs of serious sickness by parents and a delay in the decision to pursue medical care at the earliest [5,6]. The UNICEF and the WHO established the IMCI (Integrated Management of Childhood Illness) approach in 1992 which emphasizes the health of child completely. [7]. Immediate recognition of the major danger signs as mentioned in the IMCI is the most important clue a mother could recognize to seek medical attention. These deaths are mostly noticed to have occurred from preventable causes and likely to happen in developing countries [8] globally, there are 7000 new born deaths every day, amounting to 47% of all child deaths under the age of 5-years, up from 40% in 1990. Five million infants die during their first year of life, the deaths due to infections amount to about 1.5 million[1,2,9].The neonatal mortality rate for UAE in 2019 was reported to be 5deaths per 1000 live births, which has decreased to 4 deaths per 1000 live births in 2020[10].The neonatal period is the most vulnerable period, the importance of detecting the danger signs at the earliest is very important to mothers and the neonate's survival. Thus, this study aims in finding the knowledge, awareness of mothers in danger signs associated with neonates who were born between May-June 2020.

2. METHODOLOGY:

STUDY DESIGN:

This is a community-based cross-sectional study.

STUDY AREA AND POPULATION:

All the study participants are citizens of India who are also residents of United Arab Emirates (UAE). The sampling frame which consisted of the list of Mothers with children below the age of 1 year of age who attended paediatric outpatient and inpatient departments in the period of January 2020- June 2020 of Wecare medical center, Al Karama, Dubai was obtained. These patients predominately belonged to the areas of Al Karama, Bur Dubai, and Al Qusais in Dubai, United Arab Emirates.

STUDY DURATION:

The study was carried out from June 2020 to August 2020.

SAMPLING METHOD:

A simple random sampling method was used in this study.

3. SAMPLE SIZE:

As per a previous study done by Nega Degefa et al[8] in 2019, 40.9% of mothers had good knowledge and awareness about danger signs in neonates among the study population. This was taken as reference value for sample size calculation for this study. The sample size was calculated using the formula, $N = Z^2 PQ / [L]^2$ using an allowable error of 8% of prevalence [margin of error] at 95 % Confidence Interval. It was calculated to be 145, and rounded off to 150. The Patient information list had 245 mothers, out of which by using simple random sampling, 150 mothers were chosen for the study.

4. INCLUSION CRITERIA:

Mothers of children less than one year, who were patients of Wecare medical center, Al Karama, Dubai were included in the study.

5. EXCLUSION CRITERIA:

Mothers who were not willing to participate in the study by giving informed oral consent, were excluded in this study

6. STUDY TOOL AND DATA COLLECTION METHOD:

A semi-structured pre-tested questionnaire was used to interview the subjects in this study. Questions pertaining to Socio-Demographic details, knowledge of the mothers about the danger signs in neonates, preference of the place in which they sought treatment was included in the questionnaire. The participating subjects were interviewed over the phone with the questionnaire as reference.

7. INFORMED CONSENT:

Informed oral consent in the common languages i.e. English, Hindi, Tamil, Telugu, and Malayalam were obtained from the participants involved in the study before the telephonic interview was conducted.

8. STATISTICAL ANALYSIS:

The data were analyzed using Microsoft Excel. The descriptive statistics were computed using frequency tables. Factors associated with the study variables were analyzed by calculating the significance using Chi-square and P-value.

9. RESULTS:

Out of 150 mothers, majority of them belonged to the age group of 26-30 years (32.6%). More than half of the children were females (54%). All mothers were educated, 90% of them had higher education. 41.3% of mothers earned 120,000 - 180,000 Dhs, annually. Housewives (72%) were more when compared to working mothers. Most of them belonged to nuclear families (96.6%) and commonly had at least two children born to them (58.6%). Based on the gender of the children, higher prevalence of the Danger signs was present among the female children rather than the male neonates. (Table 1)

TABLE 1:
SOCIO-DEMOGRAPHIC DETAILS

VARIABLES	FREQUENCY (%) N=150
1. Age of the mothers/ participants (in years)	
20-25	28(18.6%)
26-30	49(32.6%)
31-35	31(20.6%)
36-40	21(14%)
41-45	18(12%)
46-50	3(2%)
2. Age of child (in years)	

1	25(16.6%)
2	37(24.6%)
3	9(6%)
4	23(15.3%)
5	56(37.3%)
3. Participant's annual income	
120,000 - 180,000 Dhs	62(41.3%)
192,000 - 240,000 Dhs	33(22%)
252,000 - 360,000 Dhs	20(13.3%)
above 360,000 Dhs	35(23.3%)
4. Participant's employment	
Housewife	108(72%)
Working	42(28%)
5. Participant's family type	
Nuclear	145(96.6%)
Joint	5(3.3%)
6. Gender of the child	
Male	69(46%)
Female	81(54%)
7. Number of children	
One	45(30%)
Two	88(58.6%)
Three	17(11.3%)
8. Level of education of the participant	
Secondary School	9(6%)
Bachelors	51(34%)
Higher Education	90(60%)

10. KNOWLEDGE OF DANGER SIGNS:

The knowledge of neonatal danger signs in mothers was assessed; those who were aware about more than one or up to 3 signs were considered as having good knowledge. Only 28.6% of the mothers had good knowledge about the danger signs.

Among all mothers, 86% were able to mention at least one danger sign, Fever (62.6%), breathlessness (30.6%) and convulsions(22%) were the most common danger signs mentioned by the mothers.

11. PRESENCE OF THE DANGER SIGNS:

Among the 150 mothers who were interviewed, 148 (98.6%) of them reported that their child had suffered from one or two of the danger signs. 2 (1.4%) of the mothers reported that their child did not have any danger sign in their neonatal period. 36% of neonates had fever, which was the most common danger sign present. No neonates had loss of consciousness, redness of the eye or lethargy. (Table 2)

TABLE 2:
PREVALENCE OF THE DANGER SIGNS

DANGER SIGNS	YES n (%) N=150	NO n (%) N=150
Not feeding since birth or stopped feeding	24 (16%)	126 (84%)
Convulsions	3(2%)	147 (98%)
breathlessness	4 (2.6%)	146 (97.3%)
Severely indrawn chest	2 (1.3%)	148 (98.6%)
Jaundice	45 (30%)	105 (70%)
Fever more than or equal to 37.5°C	54 (36%)	96 (64%)
Lethargy	0 (0%)	150 (100%)
Temperature decrease less than or equal to 35.5°C	1 (0.6%)	149 (99.3%)
Infection anywhere in your baby's body	10 (6.6%)	140 (93.3%)
Redness, swelling or discharge in eye	0 (0%)	150 (100%)
Umbilical redness or discharge	5 (3.3%)	145 (96.6%)
Fall unconscious all of a sudden	0 (0%)	150 (100%)

PLACE OF CHOICE IN SEEKING TREATMENT IN THE PRESENCE OF DANGER SIGNS:

Out of the 148 children who have suffered from the danger signs, most mothers opted to seek medical care and not to be treated at home. 135 mothers (91.2%) have reported having sought medical care when any of the given danger signs had occurred and 13 mothers (8.7%) have been treated at home. Danger signs like convulsions, breathlessness, Jaundice and in drawing of chest have been completely treated at a health care institution. (Table 3)

TABLE 3:
PLACE OF CHOICE IN SEEKING TREATMENT AMONG NEONATES WITH DANGER SIGNS

DANGER SIGNS	TREATED AT HOME (%) N=150	SOUGHT MEDICAL CARE (%) N=150
Not feeding since birth or stopped feeding	2(8.3%)	22(91.6%)
Convulsions	0(0%)	3(100%)
breathlessness	0(0%)	4(100%)
Severely indrawn chest	0(0%)	2(100%)
Jaundice	0(0%)	45(100%)
Fever more than or equal to 37.5°C	9 (16.6%)	45 (83.3%)
Lethargic	0(0%)	0(0%)

Temperature decrease less than or equal to 35.5°C	0(0%)	1(100%)
Infection anywhere in your baby's body	1(10%)	9(90%)
Redness, swelling or discharge in eye	0(0%)	0(0%)
Umbilical redness or discharge	1(20%)	4(80%)
Fall unconscious all of a sudden	0(0%)	0(0%)

TABLE 4:
ASSOCIATION BETWEEN MOTHER'S EDUCATIONAL QUALIFICATION, GENDER OF THE BABY AND PLACE OF TREATMENT

VARIABLES	TREATED AT HOME	SOUGHT MEDICAL CARE	P VALUE
Mother's Educational Qualifications			X ² = 58.1827 Df= 2 P value= .01*
Secondary	7(77.7%)	2(22.2%)	
Bachelor's Degree	4(7.8%)	47(92.8%)	
Higher Education	2(2.2%)	86(97.2%)	
Gender Of The Baby			X ² = 0.3214 Df= 1 P value= .5707
Male Baby	5(7.4%)	63(92.6%)	
Female Baby	8 (10%)	72(90%)	

*P Value significant, if <0.05

Educational qualification of the mothers was found to be significantly associated with their choice in choosing the place, at which their neonates would get treated. Mothers who had the low level of education (77.7%) among the study participants chose to get their neonates treated at home. While most mothers (97.2%) who had the higher educational qualification chose to seek medical care. (Table 4)

It was noted in this study that the danger signs were more prevalent in female children than males. Majority of mothers, irrespective of gender have sought medical care. But mothers with male children sought medical care more (92.6%) when compared to females (90%).(Table 4)

11. DISCUSSION:

The Danger signs in neonates are not given the due importance it deserves and should be discussed among mothers more frequently. Some mothers even now are unaware of major danger signs that could occur to their neonates. Even if they realize the condition, some mothers still refuse to seek medical care and rather opt to get treated at home, which can be even more dangerous for the neonates.

When left unnoticed or treated wrongly, it could leave behind various morbidities or even could result in mortality. Mothers with good economic status are expected to have access to improved health care amenities and other facilities such as exposure to mass media and there are more chances for them to learn about the neonate's health [11]. Another community-based study from Southern Ethiopia reported that areas of dwelling and awareness about essential new-born care were linked significantly with the knowledge of the mother about neonatal danger signs [12].

This study also tests the right instinct of the mother to treat the neonates in the presence of such dangerous Danger signs. In this study, the prevalence of the presence of Danger signs was found to be 98.6%, which is greater when compared to other studies because the raw data obtained to carry out the following study was acquired from those who attended the inpatient and the outpatient department of the paediatric department during January 2020- June 2020 the WeCare Clinic, Al Karama, Dubai

This study mainly focused on the mother's choice of place of treatment for their children. Previous studies in different settings have revealed varied differences in women's knowledge of neonatal danger signs. The proportion of mothers knowing at least one danger sign in this study(86%) was congruent with several studies [13] [14] [15] [16]. In contrast to this study many studies conducted in Ethiopia, Nigeria, and Uganda have reported that very few mothers knew about at least one major danger sign [11] [17] [18]. In this study about 91.2% of mothers have reported having sought medical care when there was a presence of the Danger signs mentioned, whereas 8.7% of mothers have reported that they treated the Danger signs at home.

In another study carried out in Saudi Arabia, less than half of the mothers sought to treat their child with medical care[19]. At the same time a similar study that was carried out in Iraq, revealed that 25.4% of the mothers sought medical facilities for danger signs management [16].

In this study, mothers with higher educational qualification (97.2%) chose to seek medical care for their neonates, while mothers with low level of education chose to treat the neonates at home(77.7%). Being educated is significantly related to better awareness and health-seeking conduct of any disease. Mothers with education above primary level have about 2.7 times higher probabilities of having a decent knowledge of neonatal danger signs than those with no proper education. These results were further supported by other studies [20] [21] [22] [23].

Another finding that was seen in this study was the higher prevalence of the Danger signs in two different genders and their place of treatment. According to a study done in Saudi Arabia, almost half (52.0%) of the children were female [19]. It was noted in this study that there was a higher prevalence of the Danger signs in female neonates (54%) than the male neonates (45%). Among the female neonates, about 90% were treated with medical care whereas the remaining 10% sought to be treated at home. Whereas about 92.6% of the male neonates were treated with medical care and the remaining 7.4% sought to be treated at home.

Many mothers still lack the basic information which they should know in order to take care of their neonates. Mothers who had history of postnatal care check-ups after the birth of the child have about 2.3 times higher odds of having a better knowledge of neonatal danger signs. Having postnatal care check-ups after childbirth was directly associated with a decent knowledge of neonatal danger signs. This finding was supported by studies done in Ambo and Arba Minch of Ethiopia [24] [25].

12. CONCLUSION:

In spite of extensive coverage of maternal and child health services, the knowledge and awareness of the danger signs in neonates are fairly low in the mothers. Therefore more awareness and health education campaigns need to be implemented. The importance of neonatal period should be educated to these mothers especially during ante-natal or post-natal period. At the same time the more educated the mother is, they take better decisions to seek medical care for their child. More women should be educated, sensitised and informed about these danger signs for the betterment of a country and to increase survival rates of these neonates and decrease the mortality.

13. REFERENCES

- [1] World Health Organization, Newborns: Reducing Mortality, 2016, <http://www.who.int/mediacentre/factsheets/fs333/en/>.
- [2] British Society for Immunology. Neonatal Immunology. Available at <https://www.immunology.org/public-information/bitesized-immunology/immune-development/neonatal-immunology>. Accessed on 25 August 2020
- [3] Vincent L. Common newborn problem; 2011 <http://pediatric.about.com/cs/agesstages/a/two-weeks-3htm>.
- [4] Baqui A, Rahman M, Zaman K, El Arifeen S, Chowdhury H. A population-based study of hospital admission incidence rate and bacterial etiology of acute lower respiratory infections in children aged less than five years in Bangladesh. *J Health Popul Nutr.* 2007;25(2):179–88.
- [5] United States Agency for International Development, Recognition of Maternal and Newborns Complications, 2016, <http://www.tractionproject.org/research-areas/community-care/recognition-maternal-and-newborn-complications>.
- [6] R. P. Upadhyay, S. K. Rai, and A. Krishnan, “Using Three delays model to understand the social factors responsible for neonatal deaths in rural haryana, India,” *Journal of Tropical Pediatrics*, vol. 59, no. 2, pp. 100–105, 2013.
- [7] World Health Organization, Integrated Management of Childhood Illness (IMCI), World Health Organization, 2016.
- [8] Degefa N., Diriba K., Girma T., et al. 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;2019:8. doi: 10.1155/2019/9180314.
- [9] Newborns: improving survival and well-being [Internet]. [cited 2020 Oct 30]. Available from: <https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality>
- [10] United Arab Emirates (ARE) - Demographics, Health & Infant Mortality [Internet]. UNICEF DATA. [cited 2020 Oct 28]. Available from: <https://data.unicef.org/country/are/>
- [11] D. T. Hibstu and Y. D. Siyoum, “Knowledge of obstetric danger signs and associated factors among pregnant women attending antenatal care at health facilities of Yirgacheffe town, Gedeo zone, Southern Ethiopia,” *Archives of Public Health*, vol. 75, no. 1, p. 35, 2017.
- [12] Knowledge of neonatal danger signs among mothers attending well baby clinic in Nakuru Central District, Kenya: cross sectional descriptive study.

- [13] U. Ekwochi, I. K. Ndu, C. D. I. Osuorah et al., “Knowledge of danger signs in newborns and health seeking practices of mothers and care givers in Enugu state, South-East Nigeria,” *Italian Journal of Pediatrics*, vol. 41, no. 1, 2015.
- [14] J. K. Kabakyenga, P.-O. Östergren, E. Turyakira, and K. O. Pettersson, “Knowledge of obstetric danger signs and birth preparedness practices among women in rural Uganda,” *Reproductive Health*, vol. 8, no. 1, p. 33, 2011.
- [15] Salem, O. Lacour, S. Scaringella et al., “Cross-sectional survey of knowledge of obstetric danger signs among women in rural Madagascar,” *BMC Pregnancy and Childbirth*, vol. 18, no. 1, p. 46, 2018.
- [16] H. Abdulrida, R. Hassan, and M. Sabri, “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*, vol. 17, no. 1, p. 29, 2018.
- [17] F. Mohammed, Y. Addisu, and P. Kumar Vata, “Assessment of knowledge of mother on danger signs of neonatal and postnatal illness and health seeking behavior among pregnant and postpartum mother in gedeo zone,” *International Journal of Current Research*, vol. 8, no. 1, pp. 25466–25471, 2016.
- [18] J. Sandberg, O. K. Pettersson, G. Asp, J. Kabakyenga, and A. Agardh, “Inadequate knowledge of neonatal danger signs among recently delivered women in southwestern rural uganda: a community survey,” *PLoS ONE*, vol. 9, no. 5, Article ID e97253, 2014
- [19] ‘Mothers’ and Caregivers’ Knowledge and Experience of Neonatal Danger Signs: A Cross-Sectional Survey in Saudi Arabia’ Article ID 1750240 | <https://doi.org/10.1155/2019/1750240>
- [20] Low level of knowledge about neonatal danger signs and its associated factors among postnatal mothers attending at Woldia general hospital, Ethiopia.
- [21] Zaman S. B., Hossain N., Hussain M. A., et al. Factors related to knowledge on newborn danger signs among the recently delivered women in sub-district hospitals of Bangladesh. *Public Health of Indonesia*.
- [22] Parents' Knowledge of Danger Signs and Health Seeking Behavior in Newborn and Young Infant Illness in TiroAfeta District, Southwest Ethiopia: A Community-based Study.
- [23] Bulto G. A., Fekene D. B., Moti B. E., Demissie G. A., Daka K. B. Knowledge of neonatal danger signs, care seeking practice and associated factors among postpartum mothers at public health facilities in Ambo town, Central Ethiopia. *BMC Res Notes*. 2019;12(1):p. 549. doi: 10.1186/s13104-019-4583-7.
- [24] Mersha, N. Assefa, K. Teji et al., “Mother’s level of knowledge on neonatal danger signs and its predictors in chench district, Southern Ethiopia,” *American Journal of Nursing Science*, vol. 6, no. 5, pp. 426–432, 2017.
- [25] R. E. Black, S. S. Morris, and J. Bryce, “Where and why are 10 million children dying every year?” *The Lancet*, vol. 361, no. 9376, pp. 2226–2234, 2003.