

Neonatal danger signs and healthcare seeking behaviours: A cross-sectional study in Karachi amongst pregnant females

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Abstract

Objective: To assess knowledge among pregnant women regarding neonatal danger signs and to evaluate their healthcare seeking behaviour.

Methods: The cross-sectional study was conducted at Civil Hospital, Karachi, from February to April 2018, and comprised pregnant females presenting to the hospital. They were interviewed through a structured questionnaire. Participants' knowledge regarding 12 neonatal danger signs was assessed. Those who could identify 3 or more such signs were considered to have a good knowledge. Data was analysed using SPSS 23.

Results: There were 468 subjects with a mean age of 25.17±5.18 years. Of the total, 416(88.9%) women were aged 18-35 years. Overall, 72(15%) subjects had good knowledge, while 366(78%) could identify at least one danger sign. Also, 318(82%) participants preferred visiting a hospital / clinic to seek healthcare.

Conclusion: There was a severe lack of knowledge among pregnant women regarding neonatal danger signs. However, most participants realised the necessity of taking their neonate to a hospital / clinic for proper healthcare.

Keywords: Neonatal danger signs, Knowledge, Pregnant females, Pakistan, Healthcare seeking behaviours. (JPMA 70: 74; 2020). <https://doi.org/10.5455/JPMA.3145>

Introduction

The neonatal period comprises the first 28 days of life, yet 38% of deaths in children under the age of five are recorded in this time period.¹ Most of these deaths occur at home, indicating an inability to recognise the danger signs and not being able to respond promptly.² The major three causes of neonatal mortality are prematurity, birth asphyxia and infections.^{1,3} According to United Nations International Children's Emergency Fund (UNICEF), Pakistan has a neonatal mortality rate of 8.6%⁴ and in a recently conducted study based on data regarding neonatal and maternal mortality in Pakistan, India, Guatemala, Argentina, Kenya and Zambia, Pakistan was seen to have the worst maternal and neonatal health mortality.⁵

In 2013, World Health Organisation (WHO) identified certain neonatal danger signs and emphasised the importance of both healthcare professionals and family

members having adequate knowledge regarding them. If family members can identify these danger signs, it enables them to seek medical advice promptly, thus preventing neonatal mortality.⁶ Knowledge regarding neonatal danger signs has been assessed in countries with similar neonatal mortality rates as Pakistan, such as India⁷ Ethiopia⁸ and Uganda.⁹ In Ethiopia, only 18.2% mothers displayed good knowledge and in Uganda only 14.8% mothers could identify two neonatal danger signs. Such results have proven that a lack of awareness regarding neonatal danger signs plays a major role in the high neonatal mortality rates seen in these countries.

Healthcare seeking behaviours of the family members are also known to influence the neonatal mortality. A study conducted in India displayed that nearly 50% of neonates didn't receive adequate treatment, owing to factors such as ignorance, non-availability of healthcare facilities and financial constraints.⁷ A study conducted in Pakistan exhibited similar results, showing that financial constraints, problems of transportation and the influence of elders played a key role in the prevention or delay in seeking healthcare services.¹⁰

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A clear representation of the amount of awareness regarding neonatal danger signs is not available in Pakistan and this lack of research limits the ability to manage and prevent neonatal mortality. The current study was planned to assess the level of awareness among pregnant women, and to evaluate the effect of socioeconomic status (SES) and parity on the level of awareness.

Subjects and Methods

The cross-sectional study was conducted at Civil Hospital, Karachi, from February to April 2018, and comprised pregnant females presenting to the antenatal outpatient department (OPD) of the tertiary care hospital. After approval from the review board of Dow University of Health Sciences (DUHS), Karachi, the sample size was calculated using Openepi.com¹¹ with anticipated frequency of 18.2%,^[8] population size of 1,000,000, absolute precision of 5% and confidence interval (CI) of 99%. The individuals were selected using a simple random sampling technique. Those included were pregnant women attending the antenatal OPD who provided verbal informed consent. Women not able to comprehend the questions or answer them were excluded and so were those who declined to volunteer. To reduce bias within the study, multiple methods were utilised. The self-generated questionnaire was authenticated and reviewed by the DUHS review board, and a pilot study was run using 20 participants to improve understanding and to minimise flaws. The questionnaire was then revised on the basis of feedback both from the board and the pilot study. A standard protocol of using similar translations and attitude with the sample population was adopted by the interviewers as well.

The questionnaire had four parts and explored both qualitative and quantitative variables. It was filled up in a face-to-face interview setting. The questionnaire was also translated into Urdu, which is the native language. The first part of the questionnaire inquired about the individual's personal information such as age, employment status, educational status, household income. The second part inquired regarding the individual's past and present obstetrics history such as the trimester of the pregnancy in which she currently presented, number of previous pregnancies and previous cases of miscarriages or intra-uterine deaths. The third part of the questionnaire assessed if the candidates could identify any one of the 12 neonatal danger signs as identified in literature:¹² Spontaneous

responses were noted to questions like, "In your opinion, what are some serious health problems that can occur during the first 28 days after birth that could endanger the life of a newborn baby?" The answers were then grouped into the 12 groups of neonatal danger signs. These signs indicated an acute need for seeking professional healthcare. The 12 groups were: not breastfeeding; convulsions; drowsy or unconscious; movement only when stimulated or no movement at all; fast breathing (60 breaths per min); grunting; severe chest indrawing; raised temperature >37.5°C; hypothermia <35.5°C; cyanosis; jaundice; and stiff limbs. The number of 'correct' signs mentioned by each woman was calculated and identification of 3 or more neonatal danger signs was categorised as having a good knowledge score and less than 3 signs, a poor knowledge score. The cut-off marks were in line with literature.⁸ The last part of the questionnaire consisted of questions regarding healthcare seeking behaviour and the subjects' knowledge regarding postnatal care.

Data was analysed using SPSS 23. Categorical variables were expressed using frequencies and percentages. Chi-squared test was used to compare categorical variables. A 5% level of significance was used throughout the study and all analyses were carried out using one-sided tests.

Results

There were 468 subjects, with a mean age of 25.17±5.18 years. The 18-35 years age group was the most populous 416(88.9%); 456(97.4%) were unemployed; and 180(38.5%) had no education; 340(72.6%) were in their third trimester; 292(62.4%) were booked; 280(39.4%) were gravida 2-4; 332(70.9%) were not accompanied by their spouse; and 328(70.1%) had not experienced one or more dangers signs in their newborns (Table 1).

Overall, 366(78.2%) subjects could identify at least 1 neonatal danger more sign, while 3 or signs were identified by 72(15.4%) subjects. Women aged <18 years had poor knowledge ($p<0.05$) Knowledge scores were associated with age ($p=0.010$), gravidity ($p=0.001$), experience of ≥ 1 danger sign in neonatals ($p<0.001$), hospital / clinic ($p=0.021$) and self-medication ($p=0.003$).

The most commonly known danger sign was raised temperature identified by 224(47.9%) subjects, followed by jaundice 102(21.8%). The least known sign was central cyanosis identified by 2(0.4%) subjects (Figure).

Table-1: Characteristics of study population and their associations with knowledge score classifications.

Variables	Poor Knowledge Score (<3)	Good Knowledge Score (≥3)	p-value
Age(years)			0.01
<18	32 (100%)	0 (0.0%)	
18-35	350 (84.1%)	66 (15.9%)	
>36	14 (70.0%)	6 (30.0%)	
Employment Status			0.078
Full-time	2 (100.0%)	0 (0.0%)	
Part-time	6 (60.0%)	4 (40.0%)	
Unemployed	388 (85.1%)	68 (14.9%)	
Education			0.486
None	148 (82.2%)	32 (17.8%)	
Primary School	112 (87.5%)	16 (12.5%)	
Secondary School	122 (85.9%)	20 (14.1%)	
University	14 (77.8%)	4 (22.2%)	
Household Income (Rs.)			0.06
1000-7000	90 (93.8%)	6 (6.2%)	
7001-14000	144 (83.7%)	28 (16.3%)	
140001-50000	154 (81.1%)	36 (18.9%)	
50001-100000	6 (75.0%)	2 (25.0%)	
>100000	2 (100.0%)	0 (0.0%)	
Trimester			0.177
First	8 (100%)	0 (0.0%)	
Second	106 (88.3%)	14 (11.7%)	
Third	282 (82.9%)	58 (17.1%)	
Gravida			0.001
1	100 (89.3%)	12 (10.7%)	
2	242 (86.4%)	38 (13.6%)	
5+	54 (71.1%)	22 (28.9%)	
Booked			0.807
Yes	248 (84.9%)	44 (15.1%)	
No	148 (84.1%)	28 (15.9%)	
Accompanied by spouse			0.165
Yes	120 (88.2%)	16 (11.8%)	
No	276 (83.1%)	56 (16.9%)	
Experience of ≥1 danger sign in newborn			<0.001
Yes	98 (70%)	42 (30%)	
No	298 (90.9%)	30 (9.1%)	
Health-care seeking behaviour			
Hospital/Clinic	318 (82.8%)	66 (17.2%)	0.021
Self-medication	62 (96.9%)	2 (3.1%)	0.003
Homeopathic	2 (100.0%)	0 (0.0%)	0.546
Home remedies/traditional treatments ¹⁴	14 (77.8%)	4 (22.2%)	0.412

Postnatal knowledge of the subjects was also noted (Table 2) A statistical significance with knowledge score was found related to keeping the baby warm ($p=0.002$) and providing hygienic umbilical cord with skin care ($p<0.001$).

Discussion

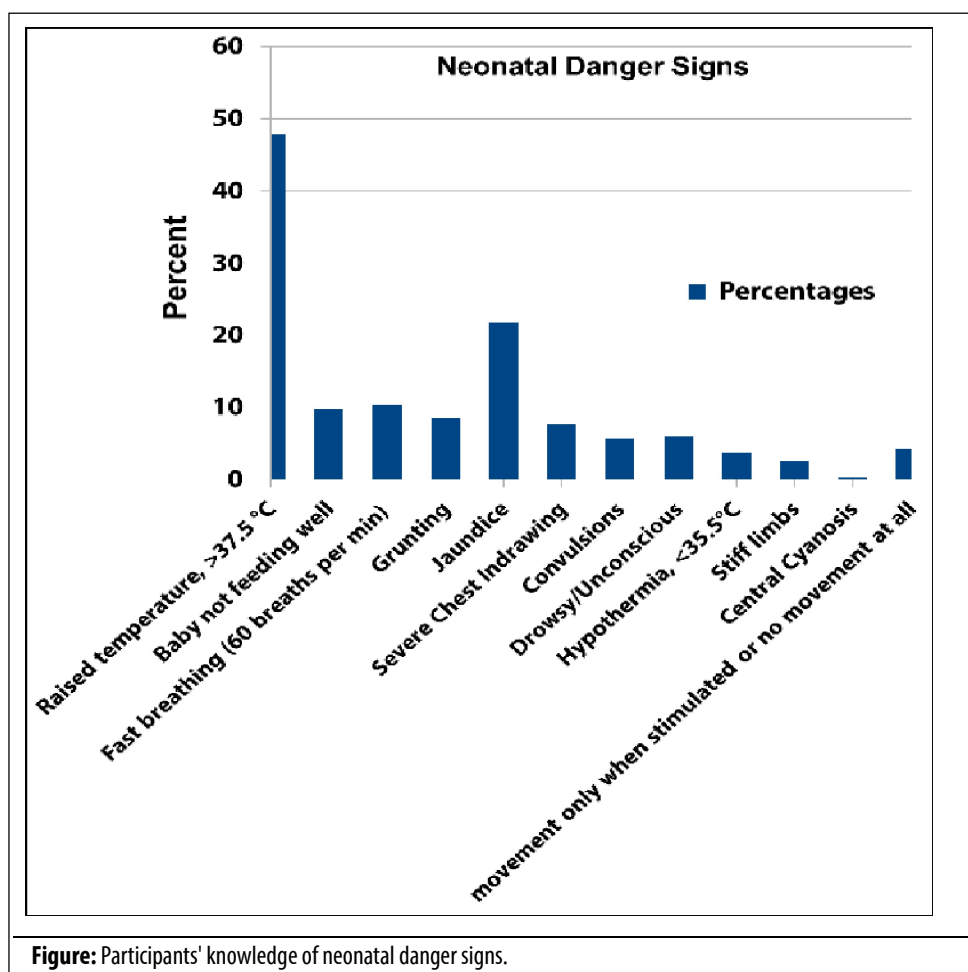
In the current study, 6.8% of the participants were <18 years of age, which was comparable to the 7.5% <20 years

Table-2: Postnatal care knowledge with knowledge scores.

Variables	Frequency	Poor Knowledge Score (<3)	Good Knowledge Score (≥3)
Exclusive breast feeding			
Yes	392 (83.8%)	328 (83.7%)	64 (16.3%)
No	76 (16.2%)	68 (89.5%)	8 (10.5%)
Keeping the baby warm			
Yes	322 (68.8%)	282 (87.6%)	40 (21.7%)
No	146 (31.2%)	114 (78.1%)	32 (21.9%)
Increased hand washing			
Yes	454 (97.0%)	384 (84.6%)	70 (15.4%)
No	14 (3.0%)	12 (85.7%)	2 (14.3%)
Providing hygienic umbilical cord with skin care			
Yes	460 (98.3%)	394 (85.7%)	66 (14.3%)
No	8 (1.7%)	2 (25.0%)	6 (75.0%)
4 Postnatal care visits			
Yes	124 (26.5%)	102 (82.3%)	22 (17.7%)
No	344 (73.5%)	294 (85.5%)	50 (14.5%)

reported by a study in Uganda.¹³ Another study found that women >18 years of age were 33% more likely to be knowledgeable about neonatal danger signs,¹⁴ a finding that is broadly consistent with the current study. Moreover, our results showed that participants from all income categories (from Rs.1,000 to >Rs.100,000) recorded poor knowledge scores. The finding was in stark contrast to a study conducted in Ethiopia in which women from a higher income household were 56% more likely to be knowledgeable than those from a comparatively lower income household.¹⁵ One of the main reasons for this difference is the low level of education. A study found that mothers having education above secondary and college levels were three times more likely to have a better understanding of neonatal danger signs compared to women who only had primary level education.⁸ Our study, however, was inconsistent with this finding as most of our participants from each of the levels of education recorded poor knowledge scores.

The WHO recommends that all pregnant women should have at least 8 antenatal care visits, with their first visit before 12 weeks of gestation.¹⁶ However, a study in Tanzania found that more than 80% of pregnant women did not attend the antenatal clinic till at least the 17th week of gestation¹⁷ which could very well be the reason why most women were not very knowledgeable about the danger signs during the first 3 months of their pregnancy. Additionally, the quality of counselling was found to be poor in 92% of certain antenatal clinics in Punjab, Pakistan, with a dropout rate of 32.8% on subsequent visits due to the substandard level of care



and counselling being provided in these setups.¹⁸ Remarkably, there has been a pleasant change in neonatal healthcare seeking trends, with over 80% of the participants in the current study opting to take their neonate to a hospital / clinic when they fall sick. The reasons for this change include a relative ease of access to health facilities, treatment being cheaper than before and women making more independent decisions, both for themselves as well as their babies.

The awareness regarding the neonatal danger signs prevalent among the participants of the current study was disappointing. An overwhelming majority (84.6%) finished the interviews with poor knowledge scores which were merely reflective of their lack of awareness that was rooted in low levels of education and the evident inexperience associated with pregnancy at young ages. Our finding of 78.2% participants being aware of at least 1 danger sign was lower than the 95.2% from Nigeria¹⁹

and the finding of 15.4% being aware of at least three signs was almost in line with the 12% from Hyderabad, India.²⁰

Amongst the danger signs, raised temperature (47.9%) and jaundice (21.8%) were the most frequently mentioned ones. Fever is said to account for 70% of all consultations with paediatricians and family physicians and its association with severe bacterial infection in neonates is 10%, which is further intensified by the lack of specific / any clinical signs in them.²¹ The awareness regarding jaundice was higher than the 17.3% amongst mothers in Ghana. Neonatal jaundice is said to occur in 85% of all live births and has been found to be particularly associated with low neonatal birth weight and prolonged maternal labour, resolving within 3-5 days in the absence of haemolysis, sepsis, birth trauma or prematurity.^{22,23}

Furthermore, 5.6% of the participants mentioned convulsions in the current study. The neonatal period is considered to be the most vulnerable for developing seizures, particularly from the first 1-2 days to the first week from birth. Central cyanosis, pointed out by only 2 of our participants, can result from a range of cardiac, metabolic, neurological, and parenchymal / non-parenchymal pulmonary disorders. In all, 4.3% of neonates may require supplemental oxygen therapy because of cyanosis.²⁴

The postnatal knowledge amongst our participants was significantly better than their awareness of danger signs. Over 80% subjects knew of exclusive breastfeeding which was close to the 97.3% reported in an Indian study.²⁵ However, as stated by that study, despite 86% pregnant women being aware that the baby should be breast-fed within an hour of birth, only 75% were ready to do it,²⁵ pointing out the disparity between their beliefs and

practices and the pressing need for reinforcement counselling amongst the expectant females with low literacy in developing countries. Similarly, regarding the knowledge about hygienic umbilical cord and skin care, 98.3% of our participants claimed to be aware, but literature shows that the practices of using an unclean blade when cutting the umbilical cord and putting substances such as ghee (a form of fat) on the umbilical stump are rampant in third world countries like ours,¹⁰ both of which can increase exposure to harmful pathogens. Thus, the importance of repeated behaviour change communication via effective strategies like mothers' groups is recommended, as eliminating such poor practices is a very gradual process. Lastly, 26.8% of our participants knew about the need of 4 postnatal care visits, with the remaining majority not visiting the hospital at all, in the absence of their neonate's illness. This made for one of the most worrying misconceptions amongst our patient population which re-emphasises the need for urgent, proper education.

In terms of limitations, the sample population in the current study was pregnant women at just one tertiary care hospital of the city, with an overwhelming majority belonging to the low socioeconomic class and, thus, being poorly educated. This may under-represent the level of knowledge amongst the pregnant women from higher socioeconomic and educational backgrounds. Also, our participants could not be questioned about the details of their postnatal knowledge and practices due to a language barrier and, again, to the low levels of education and awareness which made conducting detailed interviews very difficult. Since our method of data collection was convenience sampling, 24% of our sample population turned out to be primigravida mothers which could have impacted the knowledge score as first-time mothers will naturally have lesser knowledge compared to mothers with children. Educating pregnant women when they visit antenatal clinics should be an integral part of the counselling they receive. Fortunately, the participants in the current study realised the necessity of seeking medical attention immediately in the event of their neonate displaying signs of ill health. However, till women are not fully able to identify the danger signs, their neonates will not be able to benefit completely.

Conclusion

There was poor understanding and knowledge of danger signs amongst pregnant women. This indicates an urgent need to enhance educational efforts aimed at all pregnant and delivered women in the community as they are the key entry-point in improving neonatal health.

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Conflict of interest: None.

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