ASSESSMENT OF MATERNAL KNOWLEDGE OF WORLD HEALTH ORGANIZATION RECOGNIZED NEONATAL DANGER SIGNS

Saffi Ullah[1], Farhat Rehana Malik[2], Anum Gul[3]

[1&3] Department of Paediatrics, Kuwait Teaching Hospital, Peshawar Medical College, Riphah International University, Islamabad - Pakistan.
[2] Department of Community Health Sciences, Peshawar Medical College, Riphah International University, Islamabad - Pakistan.
Address for correspondence:
Dr. Saffi Ullah
Associate Professor
Department of Paediatrics, Kuwait Teaching Hospital, Peshawar Medical College, Riphah International University, Islamabad - Pakistan.
E-mail: saffiullahkhalil@yahoo.com
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ABSTRACT

Objective: To assess maternal knowledge of World Health Organization (WHO) recognized neonatal danger signs and its association with maternal demographic characteristics.

Methodology: This descriptive study was conducted in pediatric unit of Kuwait Teaching Hospital Peshawar among 100 post-natal mothers. A pre structured questionnaire was administered to collect data. WHO recognized neonatal danger signs included; poor suckling, convulsions, increased respiratory rate, difficulty in breathing, fever, hypothermia, lethargy, jaundice and local infection. The total number of nine correct spontaneous responses was scored excellent, 7 as good, 5 as average, 3 as fair and 0 as poor knowledge. Data were analyzed with SPSS version 20 with computation of descriptive statistics and Chi square with significance level at 0.05.

Results: Mean maternal age was 26.42 years with SD as 6.044 (95% CI; 25.32-27.57). Excellent knowledge of mothers was found in poor suckling (87.1%), convulsions (89.1%), fast breathing (81.2%) and difficulty in breathing (86.1%). Moderate knowledge was found for fever (72.3%), lethargy (67.3%) and local infection (63.4%). Poor knowledge was exhibited in hypothermia (44.6%) and jaundice (42.6%). P value was significant for difficult breathing (0.03) and lethargy (0.04). Only age of mothers was found to be significant for fever (0.022) and jaundice (0.030). Overall 31% of the mothers had excellent, 16% very good, 33% average, 16% fair and 5% poor knowledge of danger signs.

Conclusion: The study revealed excellent maternal knowledge in four, moderate in three and poor in two neonatal danger signs. Significant demographic variable was age of mothers.

Key Words: Knowledge, Mothers, Neonate, WHO danger signs.

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INTRODUCTION

Childbirth is not a disease, yet among the 130 million babies born worldwide, more than 10 million are unable to celebrate their fifth birthday and 8 million do not live up to their first birthday. More than 60 countries will miss the Sustainable Development Goals (SDGs) target of decreasing neonatal mortality to as low as 12 deaths per 1000 live births by 2030. About half of them will not reach the target by 2050[1]. Neonatal mortality rate is the ratio of the number of deaths in the first 28 days of life to the number of live births occurring in the same population during the same period of time. Causes of neonatal mortality are prematurity and low birth weight (LBW), neonatal infections, birth asphyxia and birth trauma. Neonatal deaths are closely related to poor maternal health, compromised care during pregnancy, complications of pregnancy and poorly managed delivery. Substandard hygiene during delivery and in first critical hours with lack of newborn care also plays vital role[1].

Initial 28 days of life, defined as 'neonatal period', is the most vulnerable time in infants' life and is crucial for their survival. Three quarters of the newborn deaths occur within first seven days of their life as per global statistics[2]. Global neonatal mortality is 40% of total child deaths, with millions of the young ones dying every year during the first four weeks of life[3, 4].

Neonatal mortality is most prevalent among Asian countries, contributing 2/3 to global mortality. Pakistan is among the 3rd most vulnerable countries with an estimated 29, 8000 neonatal deaths per year, contributing

7% of world's data[5, 6, 7]. Global agenda has now placed neonatal mortality as top priority[8]. Neonatal mortality data are increasing but is still scarce as compared to the burden of the issue[9].

Danger signs among neonates, if recognized earlier by the care givers with immediate and appropriate referral, serves as backbone of the programs in reduction of neonatal mortality[10]. Neonates are more prone to show subtle signs of illness and these can only be identified by the mothers, family members and immediate care givers who have adequate knowledge on features to look for. Difficulty in feeding are sometimes the only sign present and illness may advance quickly[11, 12]. Multiple tools to facilitate identification of these health problems and reduce neonatal mortality have been introduced into health programs in several countries. WHO has developed Integrated Management of Neonatal and Childhood Illness (IMNC) that stresses on general danger signs assessment while examining children who present with illness at health care centers and hospitals. Assessment of danger signs and referral for further evaluation in a sick child is strongly recommended by WHO, if needed[13].

WHO recognized danger signs are; poor suckling, convulsions, fast breathing (breathing rate >60/min), severe chest in-drawing, no spontaneous movement, hyperthermia (temperature >37.5 °C), hypothermia (temperature <35.5 °C), jaundice in first 24 hours of life or yellow palms and soles at any age and local infection[13]. IMNCI strategy is a framework which conceptualizes and gives guidelines to improve neonatal health of low income countries[14]. Global assessment by UNICEF states that Pakistani baby born is 50 times more vulnerable to die as compared to Japan, Iceland and Singapore where chances of survival are better with lowest neonatal mortality rates[15].

Low maternal knowledge of neonatal danger signs was revealed in a study with hyperthermia as the most recognizable sign picked up by the mothers. Most of the mothers knew less than six signs[16]. A descriptive study at primary health care centers of Baghdad in 2018 identified gaps among maternal knowledge and health seeking behavior and good perceptions of WHO recognized newborn danger signs[17]. Another study concluded favorable attitude of post natal mothers with high level of practice for danger signs of neonates and significant correlation among attitude as well as practice[18]. Mothers aged 18- 35 years visiting well baby clinics in Kenya had low knowledge of neonatal danger signs, although maternal child health booklets with basic information were provided to the mothers during antenatal and post-natal clinics. Fever was the danger sign appreciated by most of the mothers. All danger signs were found to be non significant against mother's knowledge[19]. A cross sectional study in urban area of Karachi found appropriate health seeking behavior of the 81.5% literate mothers for their sick children but had low knowledge of neonatal danger signs[20].

Neonatal mortality of Pakistan is alarmingly high with 46/1,000 live births, while a country's future depends upon its next generations. This paved the way to plan this research. This study aimed to assess perceptions of mothers of WHO danger signs of neonates in a tertiary care hospital of Peshawar and explore socio demographic features of mothers that influence knowledge of danger signs.

METHODOLOGY

This cross sectional study was conducted at Pediatric unit of Kuwait Teaching Hospital from October 2018 to January 2019 on 100 postnatal mothers. Sample size was calculated with 5% margin of error, 95% confidence interval and 93% response rate through Raosoft sample size calculator (www.raosoft.com). Women were selected with consecutive sampling. Validated self-structured questionnaire was used to collect data after informed consent. WHO danger signs included; poor suckling, convulsions, fast respiratory rate, difficulty in breathing, fever, hypothermia, weakness or lethargy, jaundice and local infection.

The total number of correct responses (from 0 to 9) was used to measure knowledge of mothers about neonatal danger signs, by first calculating the mean knowledge, termed as average. Excellent knowledge of WHO danger signs was operationally defined as; mothers who gave spontaneous correct responses to all the nine neonatal danger signs, whereas mothers mentioning 7 signs were considered good, 5 prompt answers by mothers were labelled as average, 3 as fair and the mothers who were not capable to mention any sign was marked as 0 depicting poor knowledge[21, 22, 23]. Data were analyzed using SPSS Version[20]. Descriptive statistics were calculated for demographic characteristics and every danger sign. Inferential statistics were calculated through Chi square with significance level at 0.05.

RESULTS

Mothers participating in the present study had mean age of 26.42 years with SD as 6.04 and 95% CI as 25.32-27.57. Mean educational status was 3.29 indicating 48% being illiterate women and 26% were having tertiary level of education. Maternal occupation had mean of 1.42, SD; 1.73, 95% CI; 1.15- 1.79, with 86.1% house wives and 5.9% as teachers. Number of children born had mean of 2.85 (SD; 1.72, 95% CI; 2.53- 3.18). Maximum number of children born were four having 20.8%, 26.7% females had two children and 20.5% with only one child. Mothers having six months old child were 17.8% while 14.9% had two month old child with them. Most of the mothers (17.8%) hailed from urban area

Table 1: Association of Socio- demographic variables with level of knowledge of Danger Signs

WHO Danger Signs	Age (P value)	Occupation (P value)	Education (P value)	Number of Children (P value)
Poor Suckling	0.08	0.95	0.61	0.27
Lethargy	0.92	0.61	0.04*	0.21
Convulsions	0.32	0.99	0.50	0.65
Hyperthermia	0.02*	0.62	0.43	0.53
Hypothermia	0.01*	0.26	0.63	0.89
Jaundice	0.03*	0.63	0.79	0.89
Fast Breathing	0.56	0.18	0.89	0.88
Difficulty in Breathing	0.57	0.29	0.03*	0.82
Local Infection	0.45	0.13	0.93	0.32

(*indicates significant P values for the danger signs with the respective Socio- demographic variable)

Figure 1: Assessment of Mother's Knowledge of Neonatal Danger Signs

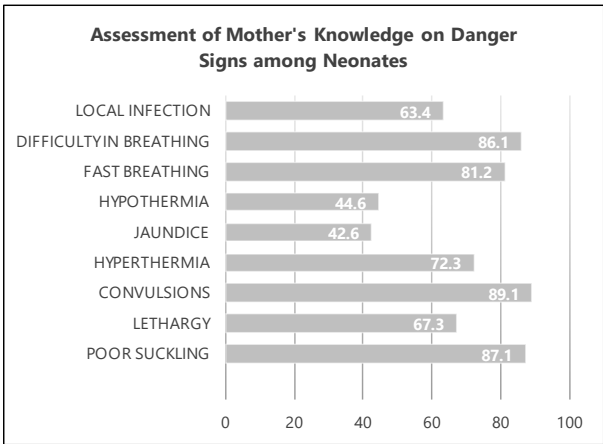
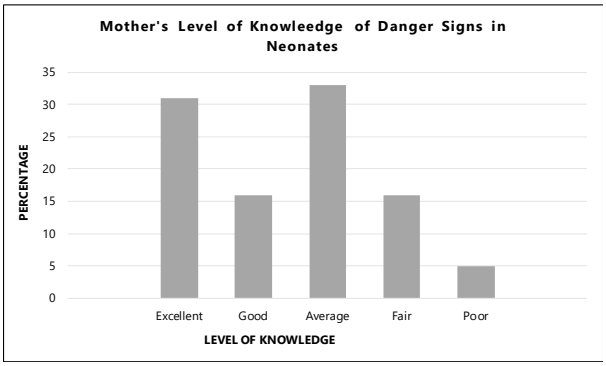


Figure 2: Final Percent Scores of Mother's Knowledge in relation to Neonatal Danger Signs



(These scores were calculated for mother's knowledge on a scale of 0- 9 as follows; 0; Poor, 3; Fair, 5; Average, 7; Good and 9; Excellent)

whereas rest of them (12.9%) were from rural area of district Peshawar (Table 1)

Objective related statistics; maternal knowledge of WHO recognized neonatal danger signs are shown in Figure 1 (as percentages of individual signs) and Figure 2 (as percentages of overall knowledge).

DISCUSSION

Mothers had an average knowledge of the danger signs in neonates, although 80% of the mothers recognized poor feeding, convulsions, fast breathing and difficulty in breathing. Maternal education has a strong impact on survival and childrens' health, as educated mothers tend to seek best available services for their sick children. Age of the mother was also significantly associated with recognition of danger signs which is easily understandable because a mother with greater age is more likely to be familiar with different conditions of the neonate.

An institutional based study in Ethiopia found low level of knowledge in relation to the danger signs among them. Prevalence of good knowledge of danger signs was 11.67 %, however mothers between 18- 35 years had more knowledge as compared to those who were less than 18 Years old. Fever (53.8%), poor suckling (34%) and convulsions (30.5%) were the common danger signs known to the attending mothers. These findings are consistent with the present study results[16]. Recently a cross sectional study among 275 mothers of 26- 36 age group in Baghdad found gap between knowledge of the mothers and health seeking behavior, although the mothers had good perceptions and knowledge regarding WHO recognized danger signs. Highly educated, employed women with maximum antenatal visits had good perceptions of the neonatal danger signs such as fever, poor suckling and jaundice while fair knowledge for hypothermia, chest in- drawing and local infection. Significant association of neonatal danger signs found with maternal characteristics of age, higher education, employment and antenatal visits. However these findings are not consistent with the present research results[17]. These differences might be due to cultural differences.

A quantitative study in India found 90% mothers being able to identify neonatal danger signs, with significant correlation scores among practice and attitude. Highly educated mothers had positive attitude towards neonatal danger signs and surprisingly non-working mothers were able to recognize more as compared to working group. These findings correlate with this present study except for the occupation which was not significant in our study[18].

Maternal knowledge of neonatal danger signs was found to be very low in a peri urban study conducted

in Kenya in 2016. Parity, receiving booklets on danger signs and information received from care providers was found to be significant for knowledge of poor suckling of infants, fever and difficulty in breathing although mothers had poor knowledge regarding the danger signs. Most of the mothers identified less than three danger signs and the most frequently reported signs were fever (74.9%), poor suckling (40.1%) and difficulty in breathing (46.6%). These findings are consistent with the present study as far as poor suckling and fever are concerned[19]. A local study conducted in Karachi by Anwar ul Haq revealed poor understanding of the danger signs in neonates with not a single mother being found to be aware of all the signs. Fever and fast breathing were the recognized signs by the mothers of sick children[20]. This difference might be due to difference in socioeconomic status as most of the population in our study belonged to urban area of modern township. Moreover, the mean age of mothers was 28 years contrary to the present study findings where mean age was 26 years. Another study revealed that 43% mothers with primary education, 21% with secondary education and only 9.6% with a diploma had health seeking behavior for sick neonates[24], contrary to the present study findings where 48% were illiterate and 26% had tertiary level education completed with average of 50% health seeking habits among them. A Nigerian study revealed that percentage of mothers taking their sick children to hospital was 47.7%, whereas health seeking behavior pertaining to education was surprising despite the low level of knowledge among mothers, this being consistent with present study results. The most frequent signs picked up by mothers were fever (25.4%), poor suckling (8.5%) and lethargy (7.1%) as compared to present study where common danger signs recognized by mothers were convulsions, poor suckling and difficulty in breathing[25]. Another African study revealed similar results[26].

Limitations included smaller sample size and single tertiary level hospital. Similarly paternal knowledge and antenatal visits were not taken into account.

CONCLUSION

This study revealed excellent knowledge for four neonatal danger signs i.e. poor suckling, convulsions, fast breathing, difficulty in breathing and moderate knowledge for three danger signs i. e. fever, lethargy, local Infection and poor knowledge for hypothermia and jaundice. Age of the mother was found to be significant for only two neonatal danger signs.

Recommendations

- Raising community awareness of neonatal danger signs through extensive information, education and communication campaigns.
- Teaching expectant mothers for neonatal danger signs during antenatal visits.
- Training of mothers in identifying danger signs in neonates in postnatal visits.
- Training of mothers through text messages about danger signs.

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CONTRIBUTORS

SU conceived the idea, planned the study, critically revised and supervised the study. FRM wrote the manuscript with data entry, analysis, interpretation and generation of tables and figures. AG collected the data and helped in statistical analysis. All authors contributed significantly to the submitted manuscript