



# Knowledge on Neonatal Danger Sign and Associated Factors among Mothers who Give Birth in Arerti General Hospital, Ethiopia from September, 2017 - September 2018

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## Abstract

Newborn danger signs are a major challenge to negotiate successfully from intra-uterine to extra-uterine life of the new-born. Danger signs in the neonatal period (0-28 days) are nonspecific and can be a manifestation of almost any newborn disease. The Aim of this study was to assess the level of knowledge on neonatal danger signs and associated factors among mothers who give birth. Facility based cross sectional study was conducted and data was collected by using structured pre-tested questionnaire. A total of 182 mothers were participated. The data was analyzed by using SPSS version 21 and P-value less than or equal to 0.05 was considered as statistically significant value. From all 182 mothers, only 87 (47.8%) of respondents were knowledgeable about Newborn danger sign. The most common source of information for interviewed mothers was health professionals (92%). The most common danger sign recognized by mothers were persistent vomiting 136 (74.7%), Lethargy/unconsciousness 134 (73.6%) and Poor sucking/Unable to feed 127 (69.8%). The odds of diploma/degree holders postnatal mothers were 57.75 times knowledgeable than as compared with those who were not literate. In general the knowledge of the mothers on neonatal danger sign was good. Majority of health professionals had commitment to provide information for mothers about neonatal dangers signs.

**Keywords:** Knowledge, Mothers, Neonatal danger sign.

## INTRODUCTION

In human life, the period from birth to 28 days of age is known as neonatal period (WHO, 2014). Birth is a major challenge to the new-born to negotiate successfully from intra-uterine to extra-uterine life (Kanchan B et al., 2013). Newborn danger signs refer to presence of clinical signs that would indicate high risk of neonatal morbidity and mortality and the need for early therapeutic intervention. Neonatal mortality remains high despite a declining proportion of deaths among children less than five years of age. Globally, every year, nearly 44% of all deaths in children under-five are among newborn infants. Near to 50% of the newborns die in their first day of life and 75% by seven days. According to 2012 report an estimated of 2.9 million neonates die annually in the first 4 weeks of life globally. Almost all (99%) of these neonatal deaths occurred in low income and middle income countries with the highest rates occurring in sub-Saharan Africa (34 deaths per 1000 live births) accounts

for 38 percent of global neonatal deaths (UN Inter-agency Group for Child Mortality Estimation (IGME), 2013). In Ethiopia Mother's knowledge on newborn danger signs is low. There is also very limited information about newborn care practices in Ethiopia (Jemberia et al., 2018). Around 120,000 newborns die every year and the neonatal mortality rate is 37 per 1000 live births in Ethiopia, which is highest in the world (Central Statistical Agency and ICF International, 2012). Mothers are the primary caregivers of the newborn, thus the knowledge of the mothers regarding newborn danger signs has a great influence on the health of the newborn (Jacob S et al., 2014). Mothers need to know the danger signs of sick newborn. Hence, this study is designed to assess mothers' knowledge on neonatal danger sign.

## METHODS AND MATERIALS

### Study area

The study was conducted at Arerti General Hospital,

Minjar Shenkora woreda located around 125 km to the east of Addis Ababa. The hospital gives the services for all population in the district and neighboring woreda like Berihet district.

### Study design and period

Facility based cross sectional study design was conducted from September, 2017- September 2018.

### Inclusion and exclusion criteria

Mothers who were attending at Arerti General Hospital and willing to participate were included while seriously ill and mothers with have mental problem were excluded. Based on this a total of 182 mothers were included.

### Operational definitions

**Neonatal period:** Refers to the first 28 days of life

**Early neonatal period:** Refers to life of first 7 days

**Late neonatal period:** Refers to life of days 8-28.

**Neonatal danger signs:** Refers to the presence of clinical signs that would indicate high risk of neonatal morbidity and the need for early therapeutic intervention.

**New born danger sign:** Should be considered based on WHO definition.

**Knowledge:** Factual information that the respondent knows regarding the newborn danger sign.

**Knowledgeable on new born danger signs:** A woman was considered as knowledgeable on newborn danger signs if she spontaneously mentioned three or more WHO newborn danger signs.

**Not knowledgeable on new born danger signs:** A woman was considered as not knowledgeable on newborn danger signs if she spontaneously mentioned less than three WHO newborn danger signs.

### Data collection methods and analysis

All necessary data was collected by pre-tested questionnaires after obtaining a written informed consent from study participants. The collected data was clearly summarized and analyzed by using SPSS version 21. Descriptive statistics was presented by using tables, charts and graphs. The association between independent and dependent variables was determined by using logistic regression method. p-value less than 0.005 were considered as statistically significant value.

### Quality assurance

The questionnaires was pretested a week before actual data collection. The data was collected by trained data collectors and the result was recorded carefully and correctly.

### Ethical clearance

Ethical approval was obtained by Minjar Shenkora Worda administrative office and official permission was obtained from head department of Arerti General Hospital. Informed written consent was obtained from all participants.

## RESULTS

### Socio-demographic characteristics of the respondents

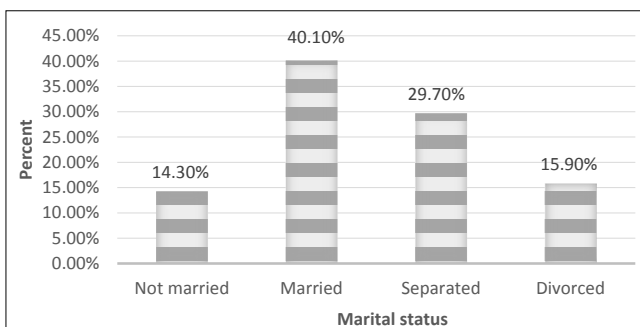
Among a total of 182 mothers, 73 (40.11%) were between the age of 25-29 years. 130 (71.4%) were from rural area. 170 (93.4%) were orthodox Christian. 168 (92.3%) were ethnically Amhara. From 182 study participants, 24 (13.2%) were Employed and 29 (15.9%) were diploma/degree holders. Only 159 (87.4%) of mothers were had a history of pregnancy more than one times (Table 1).

**Table 1: Socio-demographic characteristics of the mothers on the knowledge assessment on neonatal danger signs at Arerti General Hospital, (N=182).**

Socio-demographic variables		Frequency (N=182)
Age	18-24	27 (14.84%)
	25-29	73 (40.11%)
	30-34	67 (36.81%)
	≥ 35 years	15 (8.24%)
Residency	Urban	52 (28.6%)
	Rural	130 (71.4%)
Religion	Orthodox	170 (93.4%)
	Other	12 (6.6%)
Ethnicity	Amhara	168 (92.3%)
	Other	14 (7.7%)
Educational level of mothers	literate (up to 8 grade)	37 (20.3%)
	complete secondary school	83 (45.6%)
	Diploma/Degree holder	39 (21.4%)
	Illiterate	23 (12.7%)
Husbands level of education	literate (up to 8 grade)	71 (39.0%)
	complete secondary school	61 (33.5%)
	Diploma/Degree holder	29 (15.9%)
	not literate (can't read and write)	21 (11.5%)
Mothers occupation	Employed (governmental or private)	24 (13.2%)
	Student	12 (6.6%)
	Merchant and (private work)	32 (17.9%)
	Farmer	86 (47.2%)
	House wife	28 (15.4%)
Family size	≤ 3	58 (31.9%)
	≥ 4	124 (68.1%)
Gravidity	Primigravida	23 (12.6%)
	Multigravida	159 (87.4%)
Parity of the mother	1-3 children	89 (48.9%)
	>3 children	67 (36.8%)

Out of 182 mothers, majority of them were married (40.1%) and 14.3% were not married. While 15.90% were divorced (Figure 1).

From 182 mothers, 33% of them had an estimated



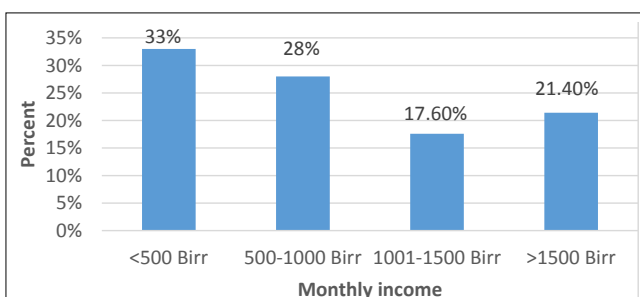
**Figure 1:** Marital status of mothers in Arerti General Hospital (N=182).

monthly income of <500 birr per month and 17% of them had 500-1000 birr per month (Figure 2).

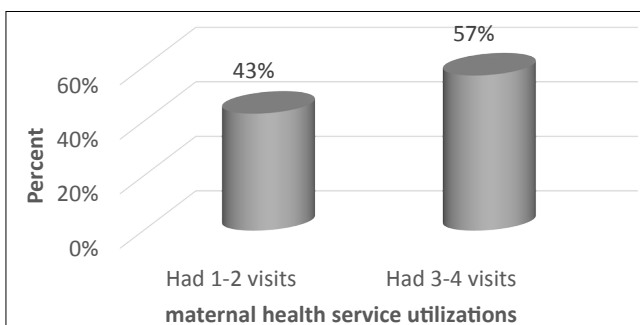
**Results of maternal health service utilizations**

Among 182 mothers, 53 (28.6%) of the mothers had an access to hospital, 67 (36.8%) had access to health center 34 (18.7%) had an access to health posts and 28 (15.4%) had an access to private clinics. All of the mothers were vaccinated with tetanus toxin vaccine. 153 (84.1%) of the mothers got advise (counseling on the neonatal danger signs) in the health institution. 43% had 1-2 times visits to the health institution (Figure 3).

From 182 mothers, 14% were borne the last neonate at the health institution through instrumental assisted



**Figure 2:** Estimated monthly incomes of mothers at Arerti General Hospital.



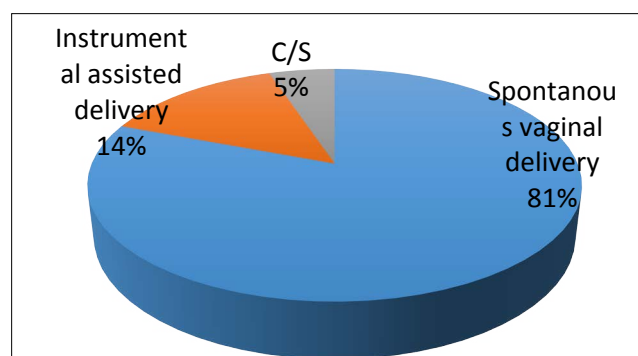
**Figure 3:** Previous experience of mothers on visiting health institution at Arerti General Hospital.

delivery while 81% were give birth through spontaneous vaginal delivery (Figure 4).

Among 182 mothers, 92% got information about neonatal danger sign from health professionals but only 5% got information from radio/TV. (Figure 5).

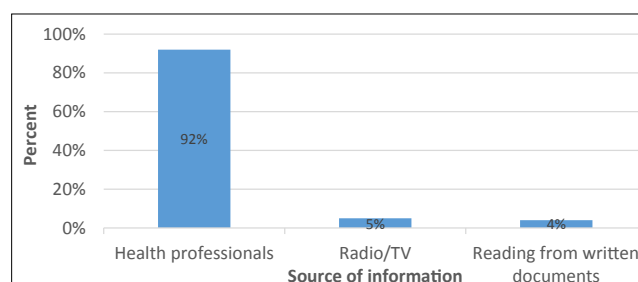
87 (47.8%) of respondents were knowledgeable about Newborn danger sign. The most common danger sign recognized by mothers were persistent vomiting 136 (74.7%), Lethargy/unconsciousness 134 (73.6%), Poor sucking/Unable to feed 127 (69.8%) (Figure 6).

Among 182 mothers, 127 (69.8%) were recognize poor

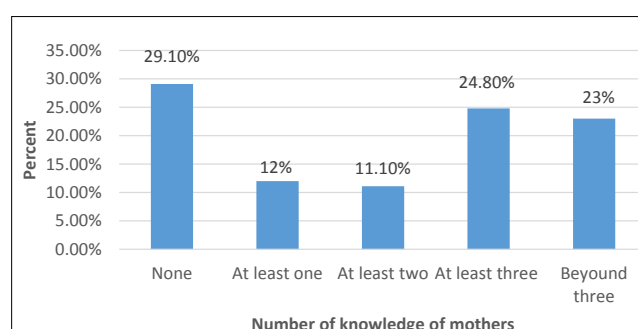


**Figure 4:** Mode of delivery of postnatal mothers at Arerti General Hospital.

Source of information for mothers about neonatal danger signs



**Figure 5:** Mothers source of information on the neonatal danger sign at Arerti General Hospital.



**Figure 6:** Level of mother's knowledge on neonatal danger signs at Arerti General Hospital.

sucking/unable to feed as a neonatal danger sign and 113 (62.1%) were recognize fast breathing (difficulty of breathing) as neonatal danger signs. However, 53 (29.1%) were not recognize all neonatal danger signs (Table 2).

**Table 2: Knowledge postnatal mothers on the neonatal danger signs at Arerti General Hospital.**

Variables	Frequency (N=182)	
	Yes	No
Poor sucking/Unable to feed	127 (69.8%)	55 (30.2%)
convulsion	95 (52.2%)	87 (47.8%)
Fast breathing (difficulty of breathing)	113 (62.1%)	69 (37.9%)
Chest in drawing	67 (36.8%)	115 (63.2%)
Lethargy/unconsciousness	134 (73.6%)	48 (26.4%)
Hypothermia	84 (46.2%)	98 (53.8%)
Fever	93 (51.1%)	89 (48.9%)
Persistent vomiting	136 (74.7%)	46 (25.3%)
Jaundice	72 (39.6%)	110 (60.4%)
Not recognize all of the above	53 (29.1%)	

#### Association of the access of information and knowledge of mothers on neonatal danger signs

Information about neonatal dangers signs from different sources and educational level of mothers have significant association with knowledge of mothers on neonatal danger signs. While, residence, age, gravidity and parity have no significant association (Table 3).

## DISCUSSION

In this study the level of knowledge of mothers on the

neonatal danger signs that mentioned three or above were 87 (47.8%), which is greater than study conducted in Uganda where only 14.8% can name at least two signs (Sandberg J et al., 2014). The most recognized neonatal danger sign was persistent vomiting 136 (74.7%) followed by Lethargy/Unconsciousness 134 (73.6%) and Poor sucking/Unable to feed 127 (69.8%). This is relatively good and it might be due the commitment of the health professionals (Awasthi S et al., 2006).

Majority of mothers 136 (74.7%) recognize persistent vomiting as a neonatal danger sign which is different from study conducted in Peri-urban Wardha, India where 55 (76.4%) mothers identified fever as newborn danger signs (Danger AR et al., 2009). This study also revealed that 113 (73.6%), 127 (69.8%) and 134 (73.6%) mothers identified Difficulty in breathing, Poor sucking and Lethargy/Unconsciousness as newborn danger signs respectively. This difference might be due to accessibility of information and previous history of mothers follow up to health institutions.

In this study the knowledge of mothers on neonatal danger sign was 87 (47.8%) which was lower than the study conducted in Mangalore, India where 43 (62%) had a good knowledge (Dominic A et al., 2013). And also lower than from study conducted at randomly selected 16 governmental health centers of Addis Ababa, Ethiopia were 59.8% were a moderately knowledgeable of neonatal danger signs while 24.2% were highly knowledgeable, and 16% were poorly knowledgeable and 280 (77.1 %) mothers knew at least one neonatal danger sign (Fisseha M., 2013). This might be due to health professional's competency to provide information related to neonatal danger signs for mothers.

The most commonly recognized neonatal danger

**Table 3: Association of the access of information and knowledge of mothers on neonatal danger signs at Arerti General Hospital.**

Variables	Knowledgeable	Not knowledgeable	OR	95% CI		p-value
				Lower limit	Upper limit	
Information about neonatal dangers signs from different sources	Yes	81	4.3125	1.6629	11.1836	0.045
	No	6				
Residency	Urban	47	2.7076	1.3681	5.3588	
	Rural	54				
Age	18-24	15	0.1648	0.0715	1.3665	0.674
	25-29	29				
	30-34	31				
	≥ 35 years	12				
Educational level of mothers	literate (up to 8 grade)	36	3.8889	10.6424	19.6859	0.003
	complete secondary school	42				
	Diploma/Degree holder	33				
	Illiterate	2				
Gravid	Primigravida	8	0.5401	0.2168	1.3453	0.456
	Multigravida	79				
Parity	1-3 had 1-3 children	56	1.9707	1.0342	3.755	0.085
	≥ 3 children	31				

signs were Persistent-vomiting 136 (74.7%), Lethargy/unconsciousness 134 (73.6%) and Poor sucking/Unable to feed 127 (69.8%), which is different from study conducted at 16 selected hospitals in Addis Ababa, where most common mentioned neonatal danger signs are Diarrhea 58.9%, Persistent-vomiting, 43.9%, and Fever, 32.9% (Fisseha M., 2013). This difference might be due to study area and the probability of getting knowledgeable mothers.

This study showed 87 (47.8%) mothers can mentioned three and above neonatal dangers sign which was greater than study conducted in Northwest Ethiopia where 18.2% mothers had knowledge of at least three or more neonatal danger signs (Nigatu SG et al., 2015). This might be due to the difference in accessibility of information to mothers. In contrast, which is lower than study conducted in Chench District, Southern Ethiopia where 50.3% of mothers had good level of knowledge (Abera M et al., 2017). This might be due to the difference in research study design where the last was community based cross sectional study.

Information about neonatal dangers signs from different sources and educational level of mothers have significant association with knowledge of mothers on neonatal danger signs while, residence, age, gravidity and parity have no significant association. Therefore, there is a need of increasing educational levels and providing access to the mothers.

## CONCLUSION AND RECOMMENDATIONS

The knowledge of the mothers about the neonatal dangers signs was good and majority of the health professionals had commitment to provide them information while they give care services for them. Majority of the mothers had antenatal care follow up during pregnancy and all of them were vaccinated for tetanus toxin. However, intensive counseling and information services on newborn danger sign should give emphasis for those mothers having low income and urban residence, who attend health facility for antenatal care, delivery and postnatal care service. Mather to mother education should also strengthen among the society.

## CONFLICT INTERESTS

The author does not have any possible conflict of interest.

## CONSENT FOR PUBLICATION

Not applicable.

## AUTHOR'S CONTRIBUTIONS

TA-Collect and analyzed the data. TA-Wrote and approves the manuscript.

## ACKNOWLEDGMENTS

I would like to thank nurse and midwifery staffs and head

director of Arerti General Hospital for their help during data collection process.

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