WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF MIDWIFERY

ASSESSMENTOF KNOWLEDGE OF NEONATAL DANGER SIGN AND ASSOCIATED FACTORS AMONG MOTHER WHO GIVE BIRTH IN THE LAST 6 MONTHS WHO VISIT PUBLIC HEALT FACILITY FOR IMMUNIZATION IN HALABA PRIMARY HOSPITAL, SNNPR ETHIOPIA 2019.

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Assessment of knowledge of neonatal danger sign and associated factors among mother who give birth in the last 6 months who visit public health facility for immunization in halaba primary hospital, SNNPR Ethiopia 2019.

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ACRONYMS AND ABBREVIATIONS

EDHS	Ethiopia Demographic and Health Survey
ENC	Essential New-born Care
ETB	Ethiopian Birr
HC	Health Centre
IMNCI	Integrated Management of Neonatal and Childhood Illness
IMR	Infant Mortality Rate
MDG	Millennium Development Goal
NMR	Neonatal Mortality Rate
WHO	World Health Organization
WKU	Wolkite University

Abstract

Background: Neonatal period refers to the period of less than 28 days after birth. Danger signs in the neonatal period are nonspecific and can be a manifestation of almost any new born disease. Globally 10 million children die annually before their fifth birthday, most of them in the neonatal period. More than 98% of these deaths occur in developing countries. One of the component in reducing the new-born morbidity and mortality is early recognition of sick new-born and the danger signs of illness and initiation of prompt treatment.

Objective: To assess knowledge of mothers about neonatal danger sign and associated factors among mother who give birth in the last 6 months who visit for immunization in Halaba hospital, southern Ethiopia.

Method: Institutional based cross-sectional study was employed on 348 women. From April 1 to 30, 2019by using face-to-face interview administered structured and pretested questionnaires. The study participant were been selected by Systematic random sampling technique. The data was coded, cleaned, edited and entered in to SPSS. Bivariate and multivariate logistic regression was used to see the association between dependent and independent variables. Adjusted odds ratio with 95% CI was computed to see the strength of association and those variables ($P < 0.05$) **w**as considered as statistically significant. Using figures and tables the result was compared and discussed.

Result: In this study, 31.1% of mothers have good knowledge about neonatal danger sign. Husband who have elementary educational level (AOR=0.0460, CI 0.197, 0.077),sick neonate in the last six months (AOR= 1.92 CI 0.038, 0.151 and source of information were reading book (AOR=0.076 CI 0.038, 0.151) were factors for having good knowledge.

Conclusion and recommendation: There was poor knowledge of mothers towards neonatal danger signs. Town health office and health workers should collaborate to create awareness about neonatal danger sign in the community.

1. INTRODUCTION

1.1 Background

Neonatal period refers to the period of less than 28 days after birth (1). A healthy new born is born at term between 37 to 42 weeks, cries immediately after birth, establishes independent respiration, quickly adopts with extra uterine environment. During this time new born must make many physiological and behavioural adaptations to extra uterine life. A new born baby's survival depends on his ability to adapt to an extra uterine environment. New born undergoes a predictable series of events during the first 6 to 8 hours of life (2).

New born is the most critical period of life many complication and deaths may occur. They are at risk for developing illness, health problems and injuries than adults, so continuous observation and constant care from family member is necessary for the survival of new born. **(**3**)**. Early detection of neonatal illness is an important step towards improving new born survival, New born care is highly cost effective because saving the life of a new born baby is associated with survival and productivity of future adults (4).

The major contributors to new born morbidity and mortality are delay in recognizing the new born danger signs Common danger signs includes poor or no sucking, lethargy or drowsiness, rapid or difficulty breathing, hypothermia and hyperthermia, yellow colour of the palms and soles, abdominal distension, bleeding from umbilical cord, diarrhoea loose stools or bloody stools, convulsion and vomiting.**(**5**).**

Hospitalization of a neonate in the first week of life. Early identification with prompt and appropriate referral serves as backbone of the programs aiming at reduction in neonatal mortality (7).Generally**,** most of the new born deaths can be avoided through simple, affordable interventions, especially in areas with weak health systems and high rates of neonatal morbidity and mortality by requires immediate caregivers recognition of suggestive danger sign in the neonates and visiting the nearby clinic for early treatment. Trends in Ethiopia society so far recognized mother as caretakers for the majority of neonates (8).

1.2 STATEMENT OF THE PROBLEM

Globally, each year, approximately 2.7 million babies die during the first 28 days of life and another three million are stillborn and eleven new born die every minute before their fifth birth day of life. Neonatal mortality accounts for approximately two-thirds of all infant mortality and 45% of deaths of children aged less than five years (under-five mortality). Although neonatal period is a brief and short period of time, neonatal death during this time contributes for the larger share of under-five mortality rate (9**)**

Every year an estimated 4 million babies die in the first 4 weeks of life and, Almost all (99%) deaths arise in low income and middle-income countries. The highest numbers are in south-central Asian countries and the highest rates are generally in sub-Saharan Africa (7). In these regions, especially the sub-Saharan, preventable health conditions with access to affordable and simple interventions account for more than half of child deaths (7, 10).

Nowadays neonatal mortality rate is very high and facilities for appropriate care of very sick neonates are less. It may take a long time for a sick neonate to reach a hospital. Therefore it is important that they are identified early and referred for appropriate treatment about danger signs. Early identification of a sick new born is difficult. The clinical features are nonspecific for example, whether the illness is of infective or metabolic origin; the signs do not help us in differentiating the cause. Moreover, the distinction between variation of normal behaviour and early signs of illness becomes more difficult in low birth weight and preterm infants (2).

Childhood mortality levels are decreasing in Ethiopia. According to Ethiopian Demographic Health Survey (EDHS) 2016 Neonatal Mortality Rate are 29 per 1,000 live births. Infant mortality Rate (IMR) is 48 deaths per 1,000 live births and Under-five mortality was 67 deaths per 1,000 live births (11). Most neonatal death take place at home, this indicating that lack early recognition on the danger sign and low treatment seeking practice of mothers (care taker) towards modern health care service (12).

An acceleration of the pace of the progress of under-five and neonatal mortality reduction is urgently required to achieve the sustainable development goal (SDG) target on the child survival particularly in high mortality countries in sub Saharan Africa. A Promise Renewed, aiming for a

continued post-2015 focus to end preventable child deaths. With the end of the MDG era, the international community is in the process of agreeing on a new framework –the Sustainable Development Goals (SDGs) which proposed SDG target for child mortality represents a renewed commitment to the world's children: By 2030, end preventable deaths of new born and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 deaths per 1,000 live births and under-five mortality to at least as low as 25 deaths per 1,000 live birth(9).

Some studies in Ethiopia assessed mother's knowledge about neonatal danger signs and identified some factors that affect the knowledge, Therefore to reduce the incidence of neonatal mortality and morbidity through increasing maternal awareness, adequate information about neonatal danger signs are mandatory (13).

1.3 SIGNIFICANCE OF THE STUDY

This study will assess knowledge of mothers about new born danger signs and associated factors. The study is expected to give insight to the public about neonatal danger sign, used as a tool for decision makers in the study area for improving and developing evidence based intervention. This study can also be an input for further research to be conducted. The beneficiaries of this study can be community, Health officials and other organization who are working in the area.

CHAPTER TWO: LITERATURE REVIEW

2.1. Level of Mothers' Knowledge about neonatal Danger signs

A cross section study conducted in India on knowledge on warning sign of new borne illness among 70 mothers. It was found that (62%) had good knowledge, (36%) of the same had average knowledge,(1%) of the sample had excellent and (1%) sample had poor knowledge. A cross section study conducted in the India on knowledge and behaviour out of 72 mothers (40.3%), (22.2%) and 1(13.9%) identified difficulty in breathing, poor sucking and lethargy or unconsciousness as new born danger sign respectively. only (9.7%) and (2.8%) identified convulsion and hypothermia as new born danger sign respectively(15).Another study which is conducted in Enugu stat, south east Nigeria among 376 mother and/or care givers knowledge of more than three of the Ten who recognized danger sign was poor (0.0-30.3%). Majority of the mothers had knowledge of one (i.e. fever) WHO recognized danger sign (95.2%). (16).

A cross section study conducted in North West of Ethiopia on level of mother's knowledge about neonatal danger sign and associated factors showed that mothers who had knowledge of three or more neonatal danger sign (good knowledge) were found to be 18.2%. The odds of having good knowledge were positively associated with mothers and fathers higher education achievement(17). A cross section study conducted in Addis Ababa, Ethiopia on knowledge about neonatal danger sign out of the total respondent's about 280mothers knew at least one neonatal danger sign. The most common mentioned neonatal danger sign were diarrhoea 58.9%, persistent vomiting, 43.9%, and fever, 32.9 %. About 121(39.5%) of mother had seen a sick neonate with common manifestation of fever and health care was thought for 65.3% of sick neonates. Overall, most of the respondents 59.8% were a moderately knowledgeable of neonatal danger sign while 24.2% were highly knowledge, and 16% were poorly knowledgeable (20).

A cross section study conducted in Chencha District, Southern Ethiopia Mother's Level of Knowledge on Neonatal Danger Signs 50.3% (95%CI: 46.4%, 54.2%) of mothers had good level of knowledge who knows three or more neonatal danger signs out of WHO stated 10 neonatal danger signs(17).A study conducted in Wolkite town SNNPR on level of mother's knowledge about neonatal danger sign and associated factors showed that mothers who had knowledge of three or more neonatal danger sign (good knowledge) were found to be was 31.32%*(18).*

2.2. Factors associated with knowledge of danger sign

Knowledge about danger sign is determined by multiples of factors related to socio demographic, socio economic status, and parity are majorly impact on women's knowledge of danger sign. Similarly, the odds of having good knowledge about neonatal danger sign were higher among antenatal care and postnatal care attendant mothers. Furthermore, access to television was also associated with mother's good knowledge about neonatal danger sign (21)

2.2.1. Socio Demographic Factors

According to a survey conducted in Kenyatta national hospital Nairobi Mother knowing more than one danger sign of neonate illness increased with age of the mother**(16)**The study conducted in North West of Ethiopia showed that 18.2% mothers who attended; collage and above were knowledgeable than primary[21,23].A study conducted in Chencha District Mothers who lived in urban were 1.58 times more likely knowledgeable as compare to mothers who lived in rural area (AOR=1.58, 95%CI: 1.05, 2.37) (24).

Another study conducted in Tenta District, Northeast Ethiopia Mothers' secondary educational level (AOR=4.64, 95% CI=1.1-19.81), (26).A study conducted in Wolkite town, maternal educational level was significantly associated with knowledge of mothers towards neonatal danger sign. Mothers who attended secondary and above were 1.21 times more knowledgeable when compared to primary educational level. Mothers secondary and above. Mother knowing more than one danger sign of neonate illness increased with age of the mother, higher level of education (OR 3.6, 95% CI 1.8-7.4). Age (OR 2.8, 95% CI 1.1-1.4 (19).

2.2.2. Obstetric Factors

According to a study conducted in Kenyatta national hospital Nairobi, Kenya was up to 97.7% of the mother knew at least one danger sign, higher parity (COR 1.2, 95% CI 7.1-25.7) multiparity (OR 2.8, 95% CI 1.03-7.4) (25).A study conducted in Chencha Distric mothers who had PNC follow up were 6.19 times more likely to go health institution when compared to those who did not follow PNC care. Mothers who had ANC follow up is (AOR=1.37, CI 0.90, 2.08), (24).Another study conducted in Tenta District, Northeast Ethiopia have given birth in health centre (AOR=3.35, 95% CI=1.31-8.56), practicing optimal thermal care (AOR=2.52, 95%

CI=1.08-5.85), and having higher decision-making abilities is (AOR=11.28, 95% CI=4.36-29.22) were significant predictors of mother's knowledge about neonatal danger sign (26).

A study conducted in Wolkite town, Ethiopia, mothers who deliver their last child in health institution were 6.45 times bring their sick neonate to health institution as compared to mothers who had given birth at home. Who deliver their child in institution is (AOR=1.867, CI 1.102, 3.164). Those mothers their source of information other than health professionals were 83% less likely knowledgeable as compare to mothers who gain information from health professionals (AOR=0.173, CI 0.034, 0.875) , higher parity(OR 1.2, 95% CI 7.1-25.7)and multi parity (OR 2.8, 95% CI 1.03-7.4) (19,25).Another study conducted in Tenta District, Northeast Ethiopia have given birth in health Center (AOR=3.35, 95% CI=1.31-8.56), practicing optimal thermal care (AOR=2.52, 95% CI=1.08-5.85), and having higher decision-making abilities (AOR=11.28, 95% CI=4.36-29.22) (16).

CHAPTER THREE: OBJECTIVES

3.1 General objective:

To assess knowledge and association factors about neonatal danger signs among mothers visit immunization unit in public health facilities of Halaba hospital Southern, Ethiopia, April 1 -30 2019.

3.2 Specific objective:

- To determine knowledge of mothers about neonatal danger signs among mothers visit immunization unit in public health facilities of Halaba hospital Southern, Ethiopia, April 1 -30 2019.

- To identify factors associated with knowledge of neonatal danger sign among mothers visit immunization unit in public health facilities of Halaba hospital Southern, Ethiopia, April 1 -30 2019.

CHAPTER FOUR: METHODS

4.1 Study area and period

The study was conducted in southern Ethiopia, SNNPR, Halaba particularly at halaba primary hospital of Halaba town. Halaba town located 245Km from the capital city of Ethiopia Addis Ababa and 90 Km from the south nation nationality population regional city Hawassa. The population of town estimated 38,577census in 2010 and from the total population 19503(50.55%) were male and 19,074(49.45%) were female and from total female population 8,988(23.29%) were under childbearing age and from the total population 6,615(17.14%) are under five years. The town has two governmental health facilities and from those one is primary hospital and named Halaba primary Hospital which was established in 2002 E.C. with the peoples of Halaba and Irish aids and the other one is Halaba Health Centre. Immunization of children is one of PHC activity that most women visit the health institution for this purpose This study was conducted in Halaba primary hospital in Halaba town and the study period was ranges from April 1 Up to 30 2019.

4.2 Study Design

Institution based cross sectional study design was done

4.3 Population and sample

4.3.1 Source population:

Mothers who had children aged less than 6 month and come for immunization in Halaba primary hospital.

4.3.2 Study population

Mothers who had children aged less than 6 month and attending health facility for immunization during data collection period in Halaba primary hospital.

4.4. Inclusion and Exclusion criterion

4.4.1 Inclusive criteria

- All mothers those who had children less than 6 month of age who came for immunization for their infants.

4.4.2 Exclusive criteria

- Those women who had difficulty in communication due to hearing problem, severely ill and unable to respond, infant with care giver/ guardians were excluded from the study.

4.5. Sample size determination and sampling technique:

4.5.1 Sample size determination:

The sample size (n) required for the study was calculated using the formula to estimate a single population proportion by considering the following assumptions: 95% confidence level, proportion (p) from finding 31.32% of mothers knew at least one neonatal danger sign from a study conducted in Wolkite town() and 5% marginal error.

$$n = \frac{(Z_{\alpha/2})^2\, p\,(1-p)}{W^2}$$

Where n= minimum sample size required for the study

Z= standard normal distribution (Z=1.96) with confidence interval of 95% and α=0.05

P=prevalence/ population proportion (p= 0.3132)

w=is a tolerable margin of error (w=0.05)

$$n = \frac{(1.96)^2\,(0.3132)\,(1-0.3132)}{(0.05)^2} = 331$$

Taking 5 % non-response rate the final sample size is 331+17=348 individuals.

4.5.2 Sampling procedure

Study participants were selected by using systematic random sampling technique until required sample size obtained during the actual data collection period. The total number of mother come to Halaba primary hospital 700 (N=700)

K=N/n

K=700/348=2.01 K≈2.

Where: N = total number of mothers came to Halaba public facility's for immunization.

n = sample size

K= sampling interval

So the data will be collected every two mothers apart.

The first mother choose by lottery method 2, 4, 6, 8…….

4.6 Study variables:

4.6.1. Dependent variable

- ❖ Knowledge about neonatal danger sign.

4.6.2. Independent variable

- ❖ **Socio demographic factor**

- Age of mother
- Age of child
- Marital status
- Ethnicity
- Occupation
- Religion
- Mother educational level
- Father educational level

- Income

❖ **Obstetric factors**

- Parity
- Place of delivery
- Mode of delivery

4.6.3. Operational Definition

Good knowledge neonatal danger sign: Good knowledge on neonatal danger sign: Mother who mention three and above from the ten key danger sign for neonatal and three or more danger sign.

Poor knowledge on neonatal danger sign: Mothers who were capable of mention two and less key danger signs of neonatal (31).

4.7 Data collection instrument and procedures.

4.7.1 Data collection instrument:

Structured interview administered questionnaire was used to collect the data which was adapted from relevant literatures and modified to local context in such a way that all the variables to be assessed was include. First the questionnaires was prepared by English and then translated in to Amharic then retranslated back to English by other individual to check for any inconsistencies.

4.7.2 Data collection method:

Structured interviewer administered questionnaire was used for data collection purposes. Data was collected on socio demographic characteristics and obstetrics factors of the mother.

4.7.3 Data collectors:

The final modified English questionnaires were translated to Amharic and back translate to English to keep consistency of the questionnaire. Data was collected through interviewer administered structured questionnaire. The data collectors were collect the information by face-to-face interview of mother. Before interviewing the mothers, data collectors gave information about the aim of the study, purposes, possible risks and benefits, the right and refusal to

participate in the study and after information will collected the confidentiality issues. Then those mother who are willing and who signed in the voluntary consent were interviewed.

4.7.4 Data quality control

Questionnaires were prepared first in English by the Investigator and then translated to Amharic. Another individual translated the questionnaires back to English in order to maintain its consistency. Data were collected by trained data collectors and pretesting of the instrument were done before the actual data collection. The BSc midwife supervisor was supervise on daily basis for completeness and consistence of the field questionnaires. During analysis, data were cleaned carefully; missing values were handled not to be excluded in analysis by checking repeatedly through data exploration.

4.7.5 Pre-test

The questionnaires were pre-tested among 5% of the study subjects in Halaba health centre and the necessary modifications and correction were made to standardize and ensure its validity.

4.7.6 Data processing and analysis:

The data was cleaned, edited and analysed by using SPSS version 24 a frequencies and proportion was used for the descriptive analysis of the data and its result are presented by table and graph, bivariate, multivariate analysis was also performed to look at the association between the independent variable and knowledge about neonatal danger sign.

4.7.7 Ethical Consideration

Ethical clearances were obtained from research committee of Wolkite University College of medicine health sciences department of midwifery. A formal letter from Wolkite University was submitted to Halaba primary hospital, health office and concerned bodies to obtain their co-operation. The purpose of the study was explained to the study participants. At the time of data collection, a verbal consent was taken from the participants to confirm whether they are willing to participate. Those not willing to participate were given the right to do so. Confidentiality of responses was also ensured throughout the research process.

4.7.8 Dissemination plan

The findings of this study will presented to WKU College of medicine health science Department of Midwifery and the hard copy was available in WKU library. It was also disseminating to health facility in Halaba town and as well as concerned body.

CHAPTER FIVE: RESULT

5.1 Socio demographic characteristics

From 348 mothers selected to participate, 334 mothers were complete the interviewed which made the response rate of 96%. About 72.5% were urban residents. (53.6%) of mothers were Muslim. All of respondents were married and 59% were housewife. Regarding educational levels, majority of respondents attend formal education **(table. 1**

Table 1**: Socio-demographic characteristics of mothers in halaba primary hospital, SNNPR, Ethiopia, 2019 (N=334).**

Variables	***Category***	***Frequency***	***Percentage***
Residence	Urban	242	72.5
	Rural	92	27.5
Religion	Protestant	74	22.2
	Orthodox	68	20.3
	Catholic	13	3.9
	Muslim	179	53.6
Age of the mother	15-19	12	3.6
	20-24	95	28.4
	25-29	131	39.22
	30-34	78	23.3
	Above 34	18	5.3
Ethnicity	Hadiya	28	8.4
	Kambata	58	17.4
	Woliata	20	6
	Siltae	39	11.7
	Gurage	24	7.2
	Halaba	165	49.4
Mother's educational	Can't write and read	75	22.5
	Primary(1-8)	151	45.2
	Secondary(9-12)	61	18.3
	Tertiary(above 12)	47	14.1
Educational level of husband	Can't write and read	49	14.7
	Primary(1-8)	131	39.2
	Secondary(9-12)	56	16.8
	Tertiary(above 12)	89	26.6
Occupation of the mother	Government employed	39	11.7
	Self employed	38	11.4
	Merchant	48	14.4
	House wife	197	59
Marital status	Married	334	100
Monthly income	Below 500	52	15.5
	500-1500	90	26.9
	Above 1500	192	57.4

5.2 Obstetrics history of the respondents

Among the interviewees, 125(37.4%) were primigravida and 209(62.6%) were multigravida. From this mother 193(57.7%) were gave their last birth in the hospital.

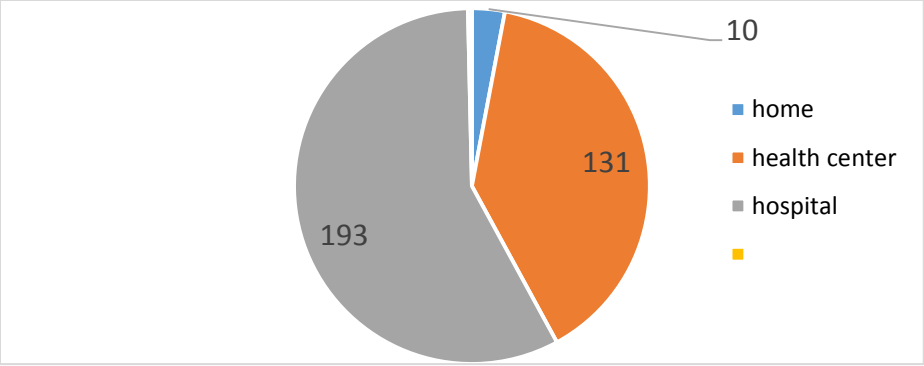


Figure 1: place of delivery of mothers in halaba primary hospital, SNNPR, Ethiopia, 2019 (n=334).

5.3 Mode of delivery

Among the interviews more than three fourth, 258(77.2%) gave birth by spontaneous vaginal delivery followed by 39(11.7%) and 37(11.1%) caesarean section and assistant vaginal delivery respectively

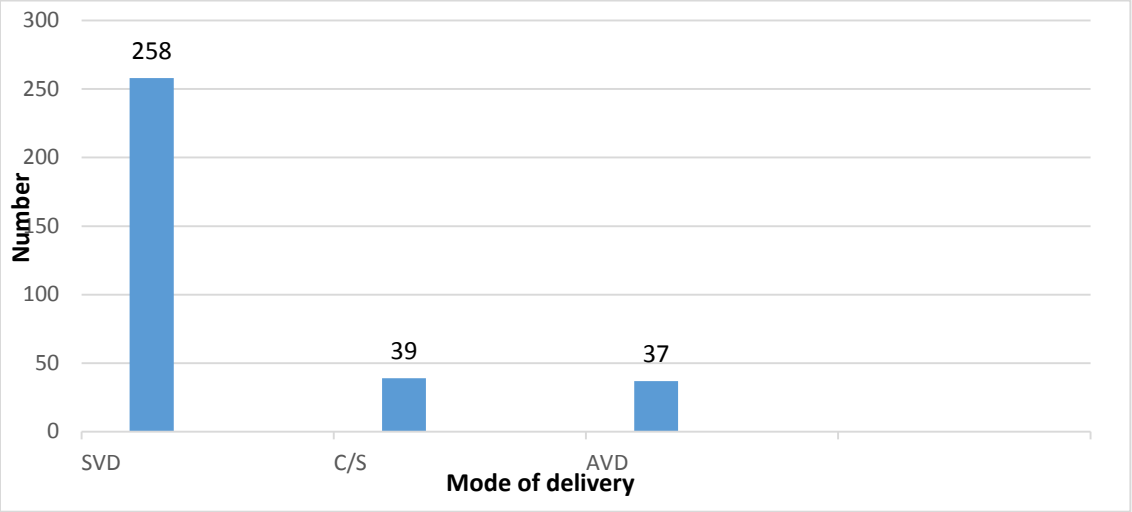


Figure 2. Mode of delivery of the mother in halaba primary hospital halaba zone, SNNPR, Ethiopia2019

5.4 Mothers' knowledge about neonatal danger sign

Out of the total 334 respondents, 173 (51.7%) of them had information (heard) about neonatal danger sign. The new born danger sign for which there was high awareness among mothers was diarrhoea 142 (42.5%), vomiting 141 (42.2%) and followed by fever and hypothermia 139 (41.6%) (Table 2).

Table 2: RECOGNITION OF NEONATAL DANGER SIGNS OF MOTHERS IN HALABA PRIMARY HOSPITAL, HALABA ZONE, SNNPR, ETHIOPIA, 2019

Variable	Response	Frequency	Percentage
Heard information about neonatal danger sign	Yes	173	51.7
	No	161	48.2
	Total	334	10.00
List of neonatal danger sign	Diarrhoea	142	42.5
	Vomiting	141	42.2
	Fever and cold body(hypothermia)	139	41.6
	Poor feeding (unable to feed)	97	29
	Difficult of breathing	94	28.1
	Unconsciousness	69	20.7
	Convulsion	46	13.8
	Bleeding or pus from umbilicus	19	5.7
	Abdominal distension	16	4.8
	Yellow skin colour (jaundice)	11	3.3

5.5 Source of information

The total respondents who recognize at least one neonatal danger signs, the major Source of information 91(47.9%) was health professionals, followed by media, 39(20.5%) (Figure 3).

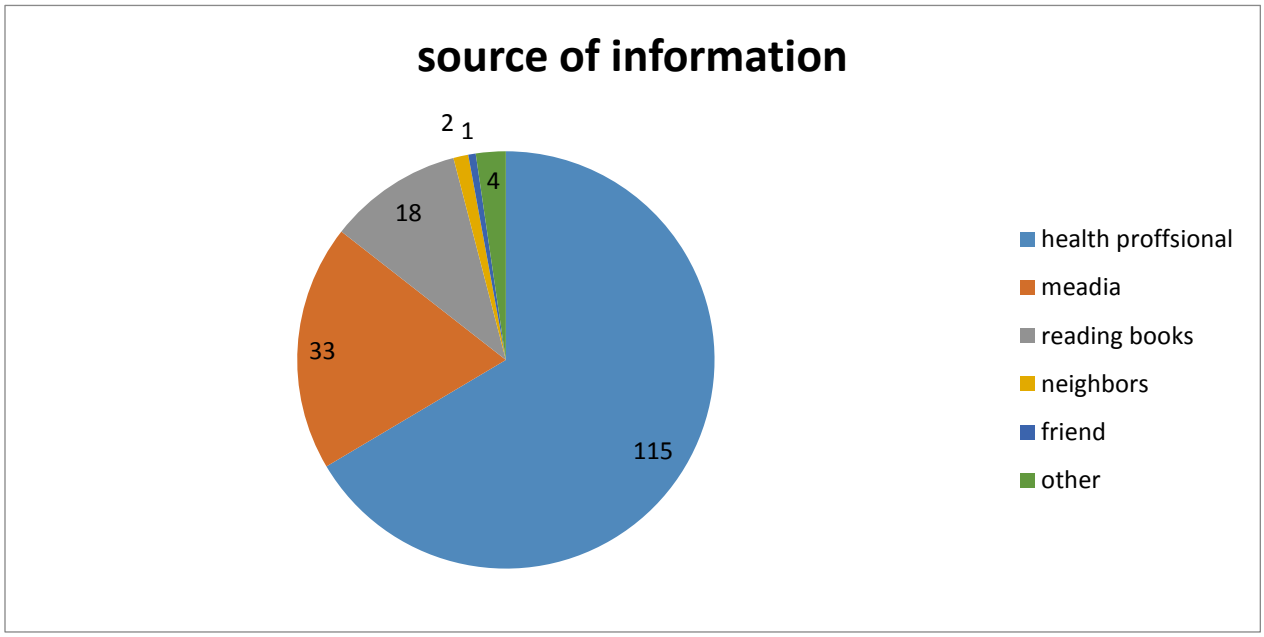


Figure 3: SOURCE OF INFORMATION FOR NEONATAL DANGER SIGNS OF MOTHER'S HALABA PRIMARY HOSPITAL HALABA ZONE, SNNPR, ETHIOPIA, 2019.

5.6Level of knowledge about danger signs of neonate

According to this study more than half most of respondents about 230 (68.9%) CI [63.8, 73.5] was poor knowledge and 104(31.1%) CI [26.5, 36.2] had good knowledge and about neonatal danger signs.

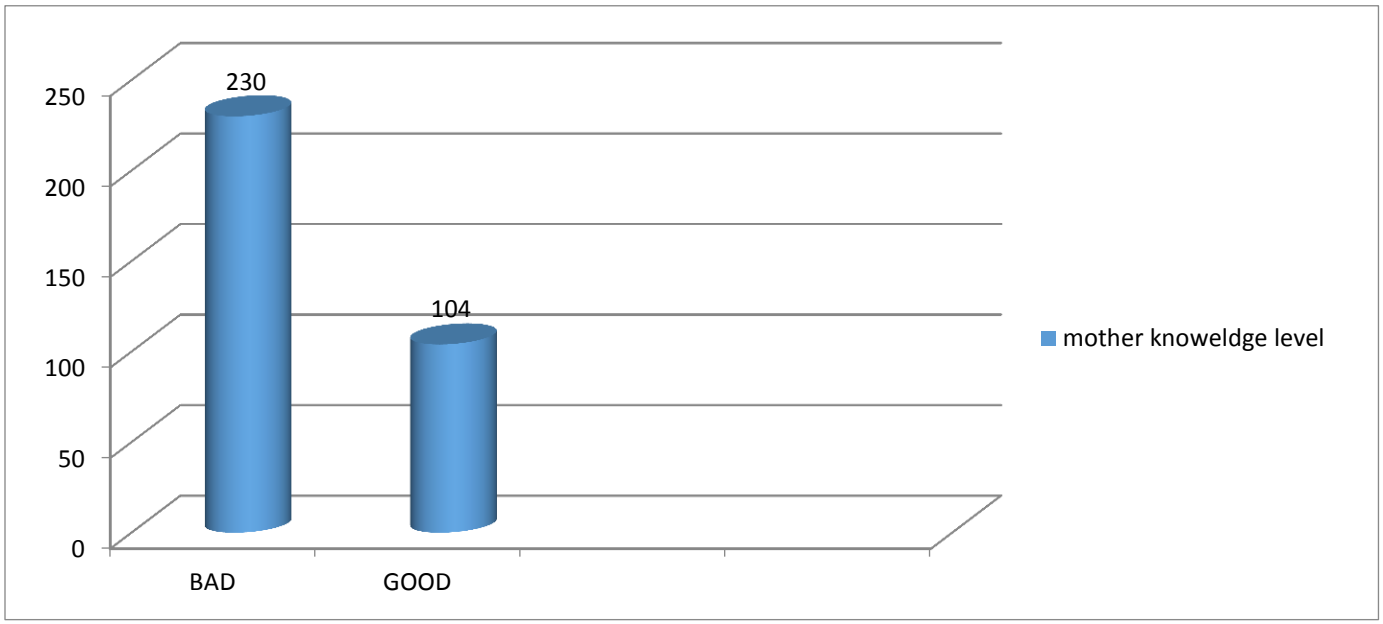


Figure 4: level of knowledge of the mother in Halaba primary hospital, Halaba zone, SNNPR, Ethiopia 2019.

5.7Associated factors of maternal knowledge about neonatal danger signs

Both the simple and multiple logistic regression methods were used in the analysis of predictors of the dependent variables. The simple logistic regression analysis was carried out to examine the associations between each of the independent variables and the outcome variable separately and the unadjusted odds ratios of the associations and the 95% confidence intervals of each independent variable with the outcome variable were obtained. Those variables showed association with outcome variables at $p<0.25$ in the bivariable analysis such answer selected as candidate variables for multivariable logistic regression analysis.

The multivariable logistic regression analysis was used by taking all these factors into account simultaneously and only three of them remained to be significantly and independently associated with the outcome variables. Those three variables include; education status of the father, source of information and sick neonate in the last six month.

Table 3: Predictors of maternal knowledge about neonatal danger signs in halaba primary hospital in SNNPR, Ethiopia, 2019.

variables	Level of knowledge		COR	AOR29.3%	P value
	Good	Poor			
Education status of the mother					
Not educated	22 (29.3%)	53 (70.6%)	1	1	0.517
Primary	40 (26.4%)	111 (73.5%)	0.652 (0.347, 1.225)	1.013 (0.369, 2.775)	0.358
Secondary and above	42 (41.17)	66 (64.7%)	0.56 (0.334, 0.962)	1.083 (0.363, 3.234)	0.296
	Husband education level				
Not educated	24 (49%)	25 (51%)	0.652(0.347, 1.225)	5.012(1.055, 23.803)	0.54
Primary	2 (1.7)	114 (98.3)	0.566 (0.334, 0.962)	0.0460 (0.197, 0.077)*	0.046
Secondary and above	54 (37.3%)	91 (62.7)	1	1	0.63
Husband occupation					
Government employed	52 (61%)	34 (39%)	2.103 (1.064, 4.155)	0.573 (0.16, 2.033)	0.61
Private	45 (65.2)	24 (34.7%)	1.748 (0.848, 3.605)	0.583 (0.188, 1.801)	0.403
Merchant	73 (72.2%)	28 (27.7%)	1.257 (0.634, 2.492)	0.642 (0.221, 1.865)	0.630
Farmer	59 (	18	1	1	0.56
			Income		
<500	45 (86.5%)	7 (13.5%)	0.214 (0.092, 0.502)	0.383 (0.099, 1.488)	0.4
500-1500	83 (78.3%)	23 (21.7%)	0.382 (0.22, 0.662)	0.67(.294, 1.527)	0.76
>1500	102 (58%)	74 (42%)	1	1	0.56
Previous history of sickness in the last 6 month					
Yes	62 (39.4%)	95 (59.6)	2.098 (1.309, 3.361)	1.912 (1.036, 3.528)**	0.017
No	42 (23.7%)	135 (76.3%)	1	1	0.45
Source of information					
Health professions	67 (58.7%)	47 (41.2%)	1	1	0.55
Media	18 (47.3%)	20 (52.6%)	0.652 (0.347, 1,225)	0.739 (0.313, 1.743)	0.64
Reading books	19 (10.4%)	163 (89.6%)	0.566 (0.334, 0.962)	0.036 (0.038, 0.151)***	0.009

Where * significant at p<0.05, COR= Crude odd ratio, AOR= Adjusted odd ratio

CHAPTER SIX: DISCUSSION

Reducing child morbidity and mortality requires immediate caregiver's recognition of suggestive danger signs in the child and visiting the nearby health facility. But in this study only 31.1% of mothers have good knowledge about neonatal danger sign. This knowledge level report is higher when compared to the reports of the studies conducted in North West of Ethiopia 18.2% (2), slightly lower than the study conducted in Geode zone SNNPR, Ethiopia which is 32.4%.And this discrepancy may be due to sample size variation, time gap, and socio demographic.

Husband educational level is important to bring the neonate to health institution. Those mothers their husbands' educational level primary were (AOR=0.0460 CI,(0.197, 0.077) 95% less likely knowledge about neonatal danger sign as compared to secondary and above. This report ishigher than the study conducted in Wolkite zone SNNPR, Ethiopia which is 82% (18).Education of the father have strong effect on child survival in developing countries. The possible justification for this could be educated father acquire knowledge through their academic life.

Women's source of information were significant predictors for knowledge of neonatal danger sign. Those mothers their source of information other than health professionals were (AOR=0.076 CI, 0.038, 0.151) 97.3% less likely knowledgeable as compare to mothers who gain information from health professionals. The study done in Kenya, showed that mothers receiving information on neonatal danger signs from care provider are increased having knowledge of neonatal danger sign. This report is higher than the study conducted in Wolkite zone SNNPR, Ethiopia which is 82% (18).The possible justification for this is health professional's increases their awareness and they pied attention what they told.

Mothers who experienced neonatal illness in the past six months were (AOR=1.912 CI, 1.036, 3.528) 1.9 times more likely to have knowledge about neonatal danger sign. This might be due to exposure to different symptom and education is given in health facility during their visit.

Conclusion

The findings of this study showed that there was poor knowledge of mothers towards neonatal danger signs in the studied area. Husband education level, sick child in the last six month and source of information are contributing factors for good knowledge of danger sign.

Strength and limitation

Strength

The study included mothers who delivered in the last 6 months preceding data collection period to reduce recall bias for that of practice related questions.

Even though it is facility based study, the study finding can be generalized to the target population due to the fact that currently, almost all mothers who have less than one year child attend immunization service for their infant

Limitation

There were some limitations to this study, since it is cross sectional study it did not addressed the cause and effect relationship of the factors and the outcome variables.

RECOMENDATION

Health extension worker and health professional should work more on giving education about early recognition of neonatal danger sign, further study should be done to employee strategies.

Future researcher: Neonate danger signs relatively crucial research topic and is of government concern in order to substantially decrease morbidity and mortality of new born and to achieve sustainable development goal by 2030. Therefore, it is suggested that for the future researchers to undertake a repeatable studies in different part of the country in order to identify nationally representative information

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Declaration of Informed Voluntary Consent

My name is _____and I am working as a data collector for the study being conducted in this institution on the title of knowledge of neonatal danger sign and associated factors among mother who give birth in the last 6 months who visit public facility for immunization in Halaba town. I kindly request you to lend me your attention to explain you about the study and being selected as the study participant.

I have read/ she/ He is read for me the participant information sheet. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any question. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with my initials (signature).

Signature of Participant: _____Date_____Time_____

Name and Signature of Data Collector: _____Date_____Time _____

Thank you!!!

ANNEX: QUESTIONIARE FOR DATA COLLECTION

No	**Section one: Socio-Demographic Characteristics**		Skip
	Question	Options	
1	Where do you live now?	1. Urban 2. Rural	
2	Age of mother (in complete year)		
3	Age of child(wk)		
4	Religion	1. Orthodox 2. Catholic 3. Protestant 4. Muslim 5. Other (specify)	
5	Ethnicity:	1. Hadiya 2. Kembata 3. Siltei, 4. Guragae, 5. Welaita 6. Other ……	
6	What is your level of education?	1. Didn't attend school 2. Read and write 3. Primary (1-8) 4. Secondary (9-12) 5. Tertiary (above 12)	

7	Husbands' level of education?	1. Didn't attend school 2. Primary (1-8) 3. Secondary (9-12) 4. Tertiary (above 12)	
8	What is your occupation?	1. Employed 2. Student 3. Merchant 4. Farmer 5. Housewife 6. Other (specify)	
9	What is your marital status now?	1. Not married 2. Married 3. Separated 4. Divorced 5. Widowed……	
10	Income (ETB)	1. <500 2. 500-1500 3. >1500	

No	**Section Two: Obstetric Factors**		**Skip**
	Question	**Categories**	
11	Gravidity	1. Primigravida 2. Multigravida	
12	Parity	1. Primiparous 2. Multipara	
13	Place of delivery	1. Home 2. Health center 3. Hospital	

14	Mode of delivery	1. Spontaneous vaginal delivery 2. Assisted vaginal delivery 3. C/S	

	Section Three: Knowledge about neonatal danger signs		Skip
No	Question	Categories	
15	Do know any neonatal danger signs?	1. Yes 2. No	
16	Can you mention neonatal danger Signs? ***(More than one answer is possible)***	1. Difficult/fast breathing 2. Lethargy/unconsciousness 3. Convulsion 4. Fever 5. Baby is cold 6. Pus discharge from umbilicus 7. Poor feeding or unable to suckle 8. Persistent vomiting 9. Diarrhea 10. Abdominal distention 11. Yellow Skin color (jaundice)	
17	From whom did you get the Information?	1. Health professional 2. Media 3. Neighbors 4. Friends	

		5. Reading books 6. Other (specify) ……..	
18	Do you know what causes neonatal Illnesses problems? ***(More than one answer is possible)***	1. Lack of cleanliness 2. Hanger 3. Coldness 4. Evil spirit (eye) 5. I don't know 6. Other (specify) ……..	

No	Question	Category	Skip
19	Have you seen sick neonate in yourown family in the past 6 month?	1. Yes 2. No……..	If 2 go to 32

THANK YOU!!!