WOLKITE UNIVERSITY

COLLEGE OF MEDICINE AND HEALTH SCIENCE
DEPARTMENT OF PUBLIC HEALTH

ASSESSMENT OF KNOWLEDGE,PRACTICE AND ASSOCIATED FACTORS TOWARDS NEONATAL DANGER SIGNS AMONG MOTHERS WHO HAD GIVEN BIRTH IN THE LAST TWELVE MONTH IN AGENA TOWN

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AGENA, ETHIOPIA

Assessment of knowledge,practice and associated factors towards neonatal danger sign among mothers who had given birth in the last twelve months in Agena town

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Acronyms/Abbreviations

CI…… Confidence Interval
CSA……. Central Statistical Agency
EDHS……. Ethiopia Demographic and Health Survey
ENC…….Essential Newborn Care
IMCI……Management of Childhood Illnesses
IMNCI…….. Integrated Management of Neonatal and Childhood Illnesses
IMR…… Infant Mortality Rate
MDG……Millennium Development Goal
NMR……Neonatal Mortality Rate
SPSS…….Statistical Package for Social Scientists
WHO…….. World Health Organization
AOR……Adjusted odds ratio
COR……Crude odds ratio

Abstract

Background: Danger signs in neonates are nonspecific and can be a manifestation of almost any neonatal disease. Early identification of neonatal danger signs by mothers with prompt and appropriate referral service is backbone programs aiming at reduction in neonatal mortality. In Ethiopia, a country where a neonatal mortality rate high, raising the awareness of mothers on danger signs of neonate and appropriate care seeking behavior is crucial to sustain the achievement done.

Objective-To assess knowledge,practice and Associated factors towards danger sign of neonatal illness among mothers who had given birth in the last twelve months in Agena town .

Method- Community based cross-sectional study was conducted from December 24 –january 6 ,2024 G.C on a sample of 171 mothers who gave birth within the last 12 months prior to the survey. A pre-tested questionnaire was used to collect quantitative data. Data entering, coding and clearing was performed and analyzed by using SPSS version 25. Bivariable and multivariable logistic regression model was used for identifying significant predictors of the outcome variable.

Results-mothers who had knowledge of neonatal danger sign were found to be 50.29% .The odds of having knowledge was positively associated with husband educational status (AOR=1.355,CI[0.181,10.12]).From a total of mothers 48.5% respondents practice was unsafe.Factors associated with mothers practice were ;mothers educational status (AOR=10.753 CI(1.972,58.624),mothers occupation (AOR=95% CI 0.032(0.006,0.179),husband occupation (AOR=11.514(1.762,75.23)

Conclusion-This study showed maternal knowledge about neonatal danger sign and maternal practice towards neonatal danger sign was low.Therefore intervention modality to aware mothers on neonatal danger sign and practice should be implemented.

UNIT ONE: INTRODUCTION

1.1 Background of the study

Danger signs in the neonatal period (0-28 days) are nonspecific and can be a manifestation of almost any newborn disease. Neonates are more prone to show subtle signs of illness. Lethargy or difficulty feeding are sometimes the only signs present and illness may advance quickly. Since most neonates are either born at home or are discharged from the health facility early, families should be able to recognize signs of newborn illnesses and bring the newborn infant to a health worker (1).

Globally 10 million children die annually before their fifth birthday, most of them in the neonatal period (1).

More than 98% of these deaths occur in developing countries. Almost half of the deaths in under-five-year-olds occur in infancy. Of the infant deaths, about two-thirds occur in the neonatal period. It has also been noted that one-third of all neonatal deaths occur on the first day of life, almost half within 3 days and nearly three-quarters within the first week of life. In developing countries, about34 of every 1000 live births result in neonatal death (1).

Lack of specificity of the clinical manifestations of various neonatal morbidities has been noted, resulting in difficulty in making a definitive diagnosis (3). Delay in seeking care and resultant became in high mortality. However, the Integrated Management of Neonatal and Childhood Illnesses (IMNCI)approach has attempted to provide a standard case definition of various neonatal morbidities, for example neonatal sepsis, jaundice and pneumonia, based on presence of certain clinical signs. For effective implementation of the IMNCI strategy it is necessary for the caregivers and health-care providers to recognize danger signs in a sick neonate and thereafter seek the appropriate level of health care, which in turn would reduce mortality. This has been the basic conceptual framework for improved neonatal care in developing countries (4, 5)

1.2 Statement of the problem

Early detection of neonatal illness is an important step towards improving newborn survival. Worldwide the average neonatal mortality is estimated to be (16-19) per 1000 live births in 2022. It is estimated that each year 2.3 million neonatal deaths occur, and almost exclusively in low-income countries. Three quarters of neonatal deaths occur in the first week of life, suggesting the need for early care (6, 7).

Over the past several decades, the global incidence of child mortality has steadily decreased. More than 40% of under-five deaths now occur in the first month of life-the neonatal period; thus, achievement of Sustainable

Development Goal 3 (SDG-3) for child survival depends on more effectively addressing neonatal deaths, particularly early deaths in the first week of life. Despite the progress made worldwide in newborn survival, the speed is low in developing countries where the burden of neonatal death accounted for 99% of all deaths (8,9,10,)

Neonatal morbidity and mortality rates in Ethiopia are among the highest in the world and stem from a range of socio-economic, political and demographic factors. Many of these deaths are preventable. Childhood mortality levels are decreasing in Ethiopia. According to Ethiopian Demographic Health Survey 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 birth (48). 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 (49).

The newborn cannot explain or express their discomfort and therefore identification and diagnosis of illness may be delayed if parents are not intelligent, observant, and concerned .Mothers is the primary caregivers of the newborn. Thus the knowledge of the mother's regarding newborn danger signs has a great influence on the health of the newborn. Integrated Management of Newborn and Childhood Illnesses emphasize on mothers, community leaders and health workers to identify danger signs among newborns for early referral to appropriate health care provider/ facility. Early identification with prompt and appropriate referral serves as backbone of the programs aiming at reduction in neonatal mortality (13,14,15).

Absence of health care seeking and late seeking are associated with numerous infant deaths in developing countries. In these countries, easily treatable diseases like pneumonia and diarrhea are still the principal causes of illness and death among children under one year of age. Some studies have shown that perceived illness severity, maternal recognition of certain signs and symptoms of childhood illness were critical factors determining health care-seeking behavior. In order to achieve The Sustainable Development Goal (SDG) is to reduce preventable death of newborn and children under five years of age by 2030 , it is important to study distribution of neonatal illnesses, Care-seeking behavior, and direct enabling and disabling factors related to health systems which affect neonatal health(19).Various studies from developing countries have reported that delay in seeking appropriate care and not seeking any care contributes to the large number of child deaths(20). Mothers need to know the danger signs of sick newborn. They can explain these signs to others or family member in a simple language so as

to enable them to identify the danger signs and to seek early and prompt medical help.in Ethiopia a few researches were done to asses mothers knowledge about neonatal danger signs but the finding shows that mothers have poor knowledge and research conducted to asses mothers practice,percentage of mothers who sought care for neonatal danger sign was relatively low.This research aimed to assess the mothers knowledge and practice about neonatal danger sign and what factors influence mothers to have poor knowledge and not seeking modern medical care for there sick neonates . Hence, this study will be carried out to assess mothers' knowledge and practice about danger sign of neonatal illness.

1.3 Significance of the study

The greatest gap in new born care is often during the critical first week of life when most neonatal deaths often occur at home and without any contact with the formal health sector. These conditions can be managed if mothers are aware of newborn danger signs and develops experience of early recognition and health care seeking behavior for newborn illness. This study will assess prevalence of knowledge,practice and associated factors of mothers about danger signs of neonatal illness. The results of the study will be used as base line information to design appropriate policies, strategies, and intervention, which can improve mothers' early recognition of danger signs of neonatal illness and support the maternal and child health service improvement.

The results of the study will also add the evidence about mother's recognition of danger signs of neonatal illness and give background information for further studies in neonatal health.

CHAPTER TWO: LITERATURE REVIEW

Newborn danger signs

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. Now a day's mortality among sick neonates 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. It is therefore important that they are identified early and referred for appropriate treatment. Early identification of a sick newborn however, has some problems. The clinical features are nonspecific e.g. 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 behavior and early signs of illness becomes more difficult in low birth weight and preterm infants (18).

It is estimated that 75% of neonatal deaths could be avoided with simple low cost tools like: antibiotics for pneumonia and sepsis, sterile blades to cut the umbilical cords, and using knit caps and kangaroo care to keep babies warm. This is only possible if mothers' knowledge regarding the above neonatal danger signs is good enough to make decision to seek health service. Different tools to facilitate identification of neonatal health problems and management were introduced into the health programs in several countries like Ethiopia. Integrated Management of Newborn and Childhood Illness developed by WHO was the one which focused on assessment of neonatal danger signs and apply prompt timely treatment .So far, studies in different countries reported the inconsistency of finding related to level of mothers' knowledge and related factors about neonatal danger signs. Three and above neonatal danger signs were mentioned among 28, 13.9, 20.3 and 29% of mothers included in the study from Afghanistan, India , Ghana and four regions of Ethiopia respectively . The repeatedly reported danger signs were: difficulty in breathing, poor sucking of breast milk, and lethargy/unconsciousness (19).

Articles from Uganda, Ghana, and India reported the positive effect of birth preparedness, exposure to TV/Radio, and older age of mother to improve the knowledge of maternal key danger signs. In contrast, studies elsewhere have shown that there had been absence of relationship between ages, educational status of mother, birth order, and place of birth, ANC, access for skilled birth attendance, wealth, and parity (20).

New born Danger Signs

Lethargy/poor feeding

In a full-term baby, lethargy and poor sucking, especially in an infant who was feeding well earlier, are very important and sensitive indicators of neonatal illness. Most of the mother's shall be able to give this history and most of the times mothers are rightly concerned. In a preterm baby, however, poor feeding and/or lethargy may at times be normal. Such infants must be carefully assessed for referral, as even these babies often need better health care facilities available in some hospitals only (22).

Thermal imbalances

Temperature instability is a very important danger signs in neonates. Hypothermia (temperature below 36.5 degrees centigrade) is a common signs in sick neonates especially in low birth weight babies. Auxiliary temperature recorded for at least three minutes will indicate the extent of hypothermia in a baby who is "cold to touch". Unlike adults, neonates often manifest hypothermia as a sign of infection. Fever (temperature above 37.5 degrees centigrade) is a sign of infection usually in term neonates (22).

Convulsions

Convulsions happen because of **sudden, abnormal electrical activity in the brain**. Febrile convulsions are seizures that occur because of fever, which is a temperature higher than 38°C.High fevers might come with an infection. We don't know why, but in these cases, the rapid rise in temperature causes an abnormal electrical discharge in the brain. Febrile convulsions are pretty common, occurring in about 4% of children between the ages of six months and five years. Two-thirds of these children will only ever have one fit. Most will occur while the child is younger than three years old. Children who have their first febrile convulsion before the age of one year have a higher risk of having recurrent febrile convulsions. This type of convulsion tends to run in families, and affects boys more often than girls (22).

Respiratory problems

Breathing difficulties indicate serious illness in the new born. An increased respiratory rate (more than 60 per minute when counted for at least one minute) and chest retractions indicate a serious problem. It could be due to pneumonia, hyaline membrane disease, heart failure or malformation. Since neonates, especially preterm babies, have a very soft chest wall and their breathing is mainly diaphragmatic, one needs to count the rise of abdomen in a minute for counting respiration (inspiration). The normal breathing pattern in the new born is characterized by brief periods of cessation of breathing called periodic breathing. The common causes of apnea in a neonate can be

(any one or in combination): hypo -or hyperthermia, hypoglycemia, septicemia, anemia, meningitis, intracranial hemorrhage or apnea of prematurity (22).

Cyanosis

Cyanosis is bluish discoloration of skin and mucosa. Peripheral cyanosis or acrocyanosis is seen in the extremities only. It may be normal in babies in the first few days of life, especially when they are cold. Central cyanosis is a very important danger signs. It is seen all over especially on lips and tongue. Central cyanosis indicates underlying cardiac or respiratory disease and therefore always requires prompt attention and appropriate referral. Neonates may not manifest cyanosis till very late due to the presence of fetal hemoglobin (22).

Vomiting

Regurgitation or vomiting soon after feeds is often due to faulty feeding technique or aerophagy.In case of persistent, projectile or bile stained vomiting in association with failure to pass meconium during the first 24 hours and or abdominal distension, the baby should be investigated for intestinal obstruction. Such neonates must reach the hospital before becoming dehydrated or worse due to electrolyte imbalance (22).

Diarrhea

Change in established bowel pattern towards greater frequency and looseness should be taken seriously. Many infants pass stools while being fed but otherwise remain alright and keep on gaining weight. Breast fed babies pass more frequent stools than formula fed babies. Maternal ingestion of drugs (ampicillin, laxatives) and certain fruits like mango may result in loose stool in breast fed babies; it does not need any specific treatment (22).

Failure to Pass Meconium and Urine

All healthy babies must pass meconium within 24 hours of age. Non passage of meconium by 24 hours age is an indication for doing appropriate investigations to exclude intestinal obstruction. After birth, most babies pass urine by 48 hours of age. Infants with delayed passage of urine should be investigated for congenital conditions like obstructive uropathy and agenesis of kidneys. Normal neonates pass urine 6 to 10 times in a day if feeding is adequate (22).

Pathological Jaundice

Jaundice in the newborn may be physiological, but when it appears on the first day of life or the skin staining is up to palms and soles or it persists beyond 2 weeks of life, needs investigation and appropriate treatment. Hyper-bilirubinemia in the first week could lead to kernicterus and severe disabilities (22).

Excessive drooling and choking during first feed

A new born baby with excessive drooling, frothy saliva and choking and cyanosis during first feed should alert staff to rule out atresia of the upper digestive tract. Overflow of milk and saliva from esophagus and regurgitation of secretions through the fistulous tract into the lungs results in pneumonia

Excessive Weight Loss

If birth weight or previous weight records are available, weight loss pattern is an objective indicator of not being well in a new born. Weight loss more than 10 per cent over birth weight in a term baby and more than 15 per cent in preterm and any acute loss of more than 5 percent should be viewed with concern and one should attempt to seek the cause as early as possible (22)

Execessive sweating during breast feeding

Cardiac disease should be suspected when there is significant distress with cyanosis, tachycardia, murmur and hepatomegaly. Tachypnea may be marked but chest retractions are minimal. If the baby presents in shock and distress one should suspect cardiac disease (22).

Knowledge about neonatal danger signs

Although many babies will have a healthy birth and will breath easily and begin feeding soon after being placed on the mother's breast, other babies will have a range of needs, some urgent, in order to ensure their safety and wellbeing. It is very important to check the newborn for the danger signs of illness as the actions taken to help the newborn are crucial to ensure prompt and safe care. It is also need to teach the mother to look for these signs in the newborn and advise her to seek care promptly if she observes any one of the danger signs.

A study conducted in Uganda on inadequate Knowledge of Neonatal Danger Signs among Recently Delivered Women showed that Knowledge of at least one of the defined key danger signs was present in 58.3% of all women: however, only 14.8% could name at least two signs."Fast or difficulty breathing" was the most commonly known danger sign and referred to by almost 30% of the women. The response "fever" and "difficulty feeding" was given by approximately 20% of the women. The least known danger signs were "convulsions", "movement only when stimulated" and "hypothermia", stated by less than 5% of the respondents. There is also no significant association seen between knowing at least one danger sign and any socio-demographic characteristic were found. Knowledge of at least one of the defined key danger signs was present in 58.3% of all women: however, only 14.8% could name at least two signs. "Fast or difficulty breathing" was the most commonly known danger sign and referred to by almost 30% of the women. The response "fever" and "difficulty feeding" was given by approximately 20% of the women. The least known danger signs were "convulsions", "movement only when stimulated" and "hypothermia", stated by less than 5% of the respondents (23).

A study conducted in Northern India on the perception of care giver an health worker about the danger signs of neonatal illness with 200 mothers reported that more than one-third of the caregivers recognized fever, irritability, weakness, abdominal distension/vomiting, slow breathing and diarrhea as danger signs in neonates. Seventy-nine (39.5%) of the caregivers had seen a sick neonate in their own family in the past 2 years. Continuous crying was reported as a common manifestation of neonatal illness and this was supported by the findings of eight key informant interviews with caregivers who had experienced adverse neonatal events. Twenty-three percent (46/200) of respondents sought health care and administered medicines for neonatal illness 26.According to the study the preferred health-care provider was either a local medical doctor(60.7%; 28/46), followed by a traditional healer (19.6%; 9/46) while the remainder were treated with home remedies. Modern medicines were administered to 78.3% (36/46), while the rest used indigenous medicine and traditional homemade medicines, either alone or in combination with modern medicine (24).

Another study conducted in Wardha India on knowledge of mothers on newborn danger signs and health care seeking behaviors reported that about 67.2 % mothers knew at least one complication of newborn danger signs. Poor sucking, low birth weight, lethargy/unconsciousness, rapid/difficulty inbreathing were known as danger signs to 34.4%, 25.8%, 25.5%, 10.3% mothers respectively, while hypothermia and convulsions were referred as danger signs by 10.3% and 8.6% mothers respectively (25).

The study also showed that majority of mothers (87.4%) responded that the sick child should be immediately taken to the doctor but only 41.8% of such sick newborns got treatment either from government hospital (21.8%) or from private hospital (20%) and 46.1% of sick babies received no treatment. As told by mothers, the reasons for not taking actions even in presence of danger signs/symptoms were ignorance of parents, lack of money, faith in supernatural causes, non availability of transport, home remedy, non-availability of doctor and absence of responsible person at home. For almost all the danger signs/symptoms supernatural causes were suspected and remedy was sought from traditional faith healer followed by doctor of primary health center and private doctor (25).

A study conducted in Peri-urban Wardha, India on Awareness and health care seeking for newborn danger signs among mothers in with 72 identified mothers of children (0-11 months) in social mapping by interview method reported that Out of 72 mothers, 29 (40.3%), 16 (22.2%) and 10 (13.9%) identified difficulty in breathing, poor sucking and lethargy/unconsciousness a newborn danger signs respectively. Majority *i.e.,* 55(76.4%) mothers identified fever as newborn danger signs. The awareness of mothers regarding newborn danger signs was found to be poor.

Only 7(9.7%) and 2 (2.8%) identified convulsion and hypothermia as newborn danger signs respectively. All sick newborns with danger signs were taken to the doctor and only two mothers consulted faith healer for treatment (26).

According to study conducted in Mangalore, India on knowledge on warning signs of newborn illness among the 70 mothers with, reported that It was found that 43 (62%) had good knowledge and 25 (36%) of the samples had average knowledge. 1(1%) of the samples had excellent knowledge and 1(1%) of samples had poor knowledge (27).

Poor care seeking contribute significantly to high neonatal mortality in developing countries. A study conducted to identify care-seeking patterns for sick newborns in rural Rajasthan, India, reported that 70% of mothers mentioned at least one medical condition during the neonatal period that would have required medical care, and 137% reported a danger signs during the illness. However, only 63 (31%) newborns with any reported illness were taken to consult a care provider outside home, about half of these to an unqualified modern or traditional care provider. In response to hypothetical situations of neonatal illness, families preferred home treatment as the first course of action for almost all conditions, followed by modern treatment if the child did not get better. For babies born small and before time, however, the majority of families did not seem to have any preference for seeking modern treatment even as a secondary course of action. The study also showed that Perceptions of 'smallness', not appreciating the conditions as severe, ascribing the conditions to the goddess or to evil eye, and fatalism regarding surviving newborn period were the major reasons for the families' decision to seek care. Mothers were often not involved in taking this critical decision, especially first-time mothers.

Decision to seek care outside home almost always involved the fathers or another male member. Primary care providers (qualified or unqualified) do not feel competent to deal with the newborns (28).

Mothers practice for danger sign

The study conducted to assess mothers practice in Uttar Pradesh, northern India, showed that 23% of respondents sought health care or administered medicines for neonatal illness. The preferred health-care provider was either a local medical doctor (registered or non-registered) (60.7%), followed by a traditional healer (19.6%) while the remainder were treated with home remedies. Modern medicines were administered to 78.3% (36/46), while the rest used indigenous medicine and traditional homemade medicines, either alone or in combination with modern medicine (26).

In sub-Saharan Africa, a study conducted in Ghana, reveals that only 29.1% of neonates with danger signs received postnatal care in the first two days, and 52.4% at two weeks of life indicating delays in seeking care (37). In Nigeria, the behavior is somehow appreciable in which, approximately half (47.7%) of the 263 Nigerian mothers, took the child to the hospital immediately without any home intervention. One hundred thirty three (50.5%) took other remedies instead of seeking care from health facilities (38).

Traditional practices preclude caregivers and parents from taking neonates outside the home even if they are ill. In a study on care-seeking and adherence to treatment for neonatal illnesses conducted in a periurban cohort in New Delhi, India, 40% of caregivers did not seek outside care (43).

2.1Factors associated with maternal knowledge about neonatal danger signs

2.1.1 *Socio-demographic factors*

The study done in Kenya to assess knowledge about neonatal danger sign among mothers attending well baby clinic showed that Age of the mother, level of education, mothers receiving information on neonatal danger signs from care provider are increased having knowledge of neonatal danger sign (39).

The study conducted in North West Ethiopia show that economy, maternal obstetric factors, mother educational status, husband educational status, and mothers‟ access for television service were the factors that significantly affect maternal knowledge. Mothers secondary education and above college level are three times knowledgeable about neonatal danger signs as compared to mothers at primary education level. Similarly, husbands secondary education and above college level were nearly four times to mention at least three neonatal danger signs as compared to husbands with primary education(40).

Factors associated with maternal practice about neonatal danger signs

Study conducted in Southern Tanzania on understanding home-based neonatal care practice reported that majority of mothers reported that they knew what action to take when the baby became sick, but accessibility, and lack of money were mentioned as barriers to neonatal care- seeking (41).

Education of mother and father and their work status have strong effect on child survival in developing countries. Educated women tend to provide better healthcare, hygiene and are more likely to seek help when a child is ill (42).

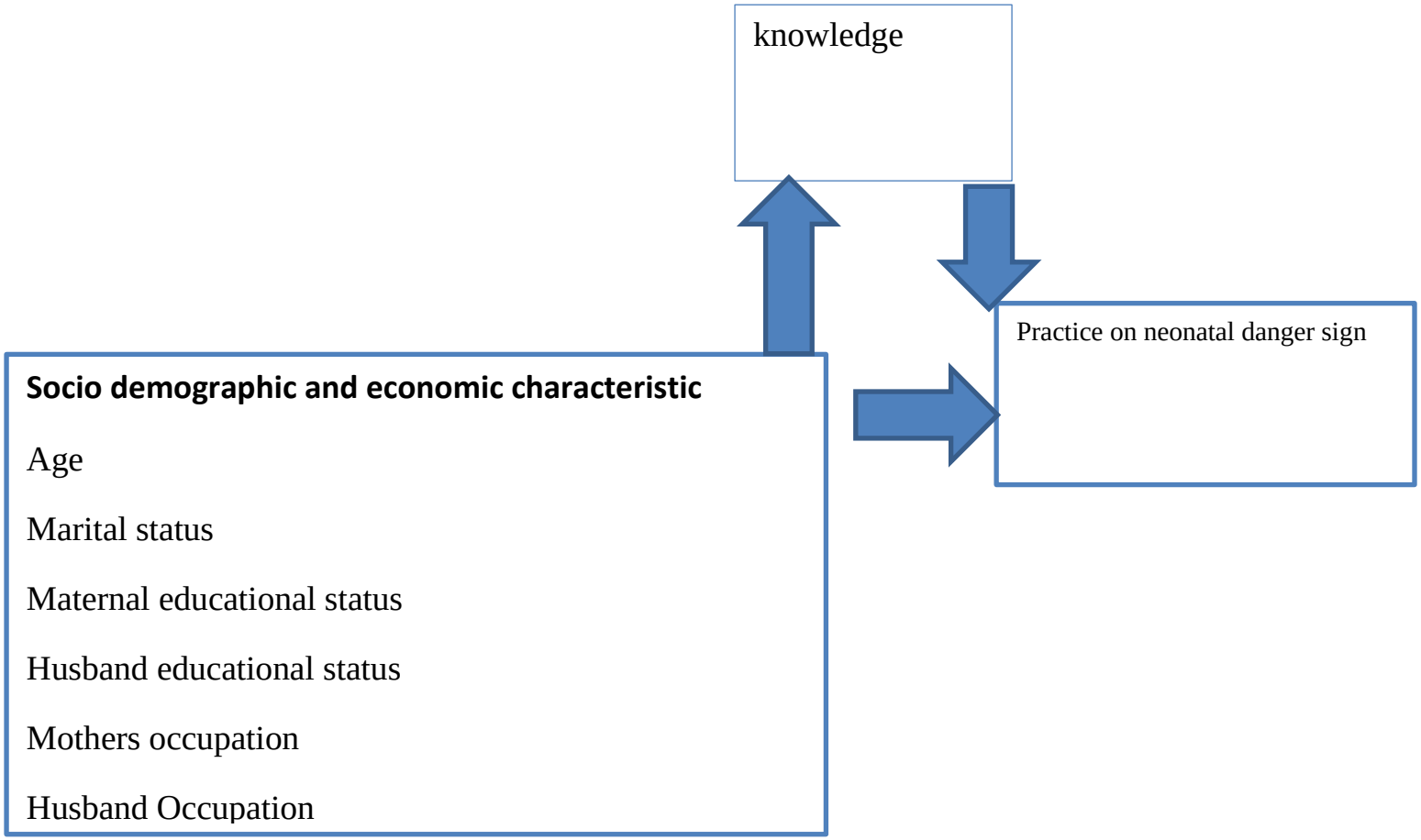

Fig 1 :conceptual framework.

CHAPTER THREE: OBJECTIVE OF THE STUDY

3.1 General Objective

To asses knowledge,Practice and Associated factors towards neonatal danger signs among mothers who had given birth in the last twelve months in agena town 2024 G.C

3.2 Specific Objective

1. To determine knowledge level of mothers on neonatal danger sign in 2024 G.C.
2. To assess practice of mothers towards neonatal danger sign in 2024 G.C.
3. To identify factors affecting mothers knowledge of neonatal danger sign in 2024 G.C
4. To identify factors affecting practice of mothers for neonatal danger sign in 2024G.C

CHAPTER FOUR: METHODOLOGY

4.1 Study Area and Period

Study was conducted in Agena town from December 24_january 6. Agena town is found in Gurage zone ,Ezha woreda ,.Agena town which is 181 km far from Addis Ababa. its geographical coordinates are latitude 8º,8, 8”North and longitude 38º,0,12” , East and an elevation 2316.18 meters above sea level. It has 3 kebeles, electrical power, telephone and postal service, bank and other financial institutions,. Based on the 2007 Census conducted by the Central Statistical Agency, this town has a total population of 7,657 of which 3,167 are men and 4,490 women it has a total of 1,563 households.The town consists of 1 health center and 1 hospital

4.2 Study Design

Community based quantitative cross sectional study design was conducted to assess knowledge and practice and associated factors towards neonatal danger signs among mothers who had given birth within the last twelve months in Agena town.

4.3. Source Population

All household Mothers who gave birth within the last 12 months prior to survey in Agena town,2024.G.C

4.4. Study Population

All mothers who gave birth with in the last 12 Months prior to survey and available during data collection period in Agena town.

4.5. Inclusion and exclusion criteria

4.5.1. Inclusion

All Mothers who gave birth within the last 12 months of the survey.

4.5.2. Exclusion

Mothers those who are mentally and physically not capable of being interviewed

Mothers who are not willing to participate in the study.

4.6. Sample Size Determination and Sampling Procedure

4.6.1. Sample size determination

Sample size was determined by using single population proportion formula based on the following assumptions:

$$n=(Z\ \alpha\ /2)^2(p(1-p))/d^2$$

.

Where; n= the desirable calculated sample size

P = prevalence of knowledge for neonatal danger sign 50.3%, since similar study was done in Chencha district shows p=50.3%
d = margin of error to be tolerated (5%)
Therefore the value of n will be calculated as

$$n = \frac{(1.96)^2 0.53(1-0.53)}{(0.05)^2} = 383$$

Since the population of mothers in the town are less than ten thousand the finite correction formula was used.n=n / (1+ (n/N))

N=283

nf = (383)/1+383/283 = 163
Considering 5% non-response rate, the final sample size become, 163+8 = 171

4.6.2. Sampling Technique and Procedure

4.6.2.1. Sampling Procedure

Simple random sampling method was used to select one kebele from the total of Three kebele found in Agena town.A systematic random sampling technique was used to select 171 mothers by using sample frame of mothers give birth within twelve month was obtained from health extension workers and sampling interval calculated as

Where N=total number of mothers give birth with in twelve months

n=sample size

k=N/n

k=283/171=1.65,approximately= 2

finally by using systematic random sampling 171 mothers was selected at every 2 from 283 mothers.Then the first mothers was selected randomly from 1 and 2 ,the mother on number 1 was selected,then the interview proceed in order of 1,3,5….mothers

4.7. Variables in the study

4.7.1.dependent variable

Knowledge about danger signs of neonatal illness.

Practice on neonatal illnesss

4.7.2. Independent variable

Age of mother

Marital status

Occupation

Ethnicity

Religion

Obstetric characteristics(parity,Gravidity,ANC follow up,PNC follow up)

4.8. Operational Definition

Neonate: - are children from birth to 28 days of life.

Neonatal danger sign: – refers to, „presence of clinical signs that would indicate high risk of neonatal morbidity and mortality and the need for early therapeutic intervention. This includes poor sucking, lethargy or drowsiness, rapid or difficulty of breathing, hypothermia and hyperthermia, yellow color of palms and soles, diarrhea loose or bloody stools, convulsions and vomiting.

Good Knowledge: – those mothers listing three and above neonatal danger signs. Poor knowledge: - those mothers list less than three of neonatal danger signs. (17)

Safe practice: - mothers who score mean and above mean for positive questions.

Unsafe practice: - those mothers who score below mean for positive questions

4.9. Data Collection Instrument and Procedure

4.9.1. Data collection instrument

Quantitative data was collected from selected participants starting from December 24 – January 6, 2024 G.C by using a pretested structured questionnaire. Structured English version questionnaire Was prepared by using literature review used in this study and related studies done in other countries.then it was translated in Amharic for the understanding of study subject.It includes three main parts about mothers socio demographic factors, knowledge and practice about danger sign of neonatal illness.

4.9.2. Data Collection Procedure

Before the actual data collection, pretest (5% of questionnaire) was done and data collectors taken half day training about the aim of the study, the content of the instrument, and how to conduct it as data collectors. Face to face interview was held privately after verbal consent is obtained from each participant. The data was collected for 10 days under close supervision.

4.10. Data Quality Assurance

The questionnaire was pretested to minimize ambiguity of words applicability to the local context in kebele which was not included in the study. Additional adjustment was made based on the results of the pre-test. Data collection was carried out by trained students who are from public health department. Close supervision was taken during data collection and questioners was checked daily for consistency and completeness by data collectors. Finally the completeness of the questionnaire was checked before entering data into computer software program and before analysis and interpretation.

4.11. Data Analysis

Data was collected, cleaned ,coded and analyzed by computer software program SPSS version 25 software packages.Finally frequency table and statistical graphs was used to describe variables.Binary logistic regression analysis was used to identify candidates variable for multivariable logistic regression.variables that had P-value less than 0.25 were candidates for multivariable regression.Model fitness test was checked by Hosmer and lemeshow test,finally variable that had p-value less than 0.05 was considered as statistically significant.

4.12. Ethical Clearance

Paper of approval and letter of permission was obtained before the beginning of data collection from head of Department of public health, College of Health Science, Wolkite University. The purpose of the study was briefly explained for the respondents and informed consent was obtained. During data collection the study participants was informed that the information collected would be kept anonymous and confidential.

4.13. Dissemination of the result

At the end, of the study will be submitted and presented to Wolkite Uniersity Departement of public health.Moreover,the result of this study also will be disseminated to the relevant Organization including district health office ,health institution and it helps as baseline information for future research and intervention to conduct.

CHAPTER FIVE :RESULTS

5.1 Socio demographic characteristics of respondent

A total of 171 mothers were interviewed with the response rate of 100%. Nearly half (48%) of the respondents were in the age group 26-33 years and about 139 (81.3%) were Gurage ethnic groups. Majority, 158 (92.4%) were married and more than half (53.2%) were orthodox religion followers. Seventy one (41.5%) of mothers had attended primary education whereas 75 (43.9%) of their husband had diploma and above level of education. Sixty nine (40.4%) of the respondents were housewife in occupation and 68 (39.8%) were gaining an average monthly income ranging from 4500-7000. Other socio-demographic profile of study participants is summarized in table1 below

Table:1 socio demographic characteristics of mothers in Agena town,Gurage zone,central Ethiopia,Ethiopia 2025 G.C(N=171)

Variables	Category	Frequency	Percent (%)
Mothers age in years	18-25	36	21.1
	26-33	82	48.0
	33+	53	30.0
	total	171	100.0
Marital status	married	158	92.4
	single	3	1.8
	divorced	6	3.5
	widowed	4	2.3
	total	171	100
Living with partner	yes	158	92.4
	no	13	7.6
	total	171	100
Family size	1-3	40	23.4
	4-6	81	47.4
	6+	50	29.2
	total	171	100
Ethnicity	Guragae	139	81.3
	Amhara	19	11.1
	oromo	7	4.1
	other	6	3.5
	total	171	100
Religion	orthodox	91	53.2
	Muslim	53	31.0
	Protestant	24	14.0

	Other	3	1.7
	total	171	100
Mother's educational status	No formal education	26	15.2
	primary	71	41.5
	secondary	34	19.9
	diploma and above	40	23.4
	total	171	100
Husband educational status	No formal education	8	4.7
	primary	54	31.6
	Secondary	34	19.9
	diploma and above	75	43.9
	total	171	100
Mother occupation	house wife	69	40.4
	government employee	50	29.2
	merchant	28	16.4
	Private employee	18	10.5
	daily laborer	6	3.5
	total	171	100
Husband occupation	government employee	57	33.3
	merchant	34	19.9
	daily laborer	30	17.5
	private employee	22	12.9
	other	28	16.4
	total	171	100
Family monthly Income	1000-3000	22	12.9
	3000-4500	40	23.4

	4500-7000	68	39.8
	≥7000	41	24.0
	total	171	100
Type of communication media used	Television	127	74..3
	Radio	24	14.0
	Television and radio	6	3.5
	no	14	8.2

5.2 Obstetrics history of the respondents

Among mothers interviewed 169(98.8%) of them attend ANC follow up for their last pregnancy.168(98.2%) mothers were gave their last birth at health institution and 168(98.2%) of mothers had PNC follow up in last delivery.from a total of a mothers interviewed 4(2.3%) of mothers had a child died during neonatal period;the cause of these death are diarrhea/loose stool(2),inability to feed(1) and vomiting(1) these died neonates did not get any treatment yet

Table:2 Obstetric characteristics mothers in Agena town,Gurage zone,Central Ethiopia,Ethiopia 2025 G.C

no of pregnancy	1-3	113	66.1
	4-6	47	27.5
	>6	11	6.4

	total	171	100
no of birth	1-4	118	69
	≥4	53	31
	total	171	100
no of children alive	≤4	145	84.9
	>4	26	15.1
	total	171	100
ANC follow up	Yes	169	98.8
	No	2	1.2
	total	171	100
no of ANC follow up	<5	42	24.6
	≥5	127	74.3
	total	169	98.8
place of last birth	health institution	168	98.2
	home	3	1.8
	total	171	100
PNC follow up	yes	168	98.2
	no	3	1.8
	total	171	100
no of PNC follow up	<3	74	43.3
	≥3	94	54.9
	total	168	100
Child died within 28 day	Yes	4	2.3
	No	167	97.7
	Total	171	100
Reason for the	Diarrhea	2	1.1

death	Inability to feed	1	0.6
	Vomiting	1	0.6
	Total	4	2.3

5.3 Mothers knowledge about neonatal danger sign

- Out of the total 171 respondents, all had information (heard) about neonatal danger sign,at least 1 neonatal danger sign. From the respondents 86(50.29%) have mentioned three and above neonatal danger sign and 85(49.71%) mention less than 3 neonatal danger sign. The newborn danger sign for which there was high awareness among mothers was fever 42(23.9%), persistent vomiting 42(23.9%) followed by diarrhea36(20.5%),

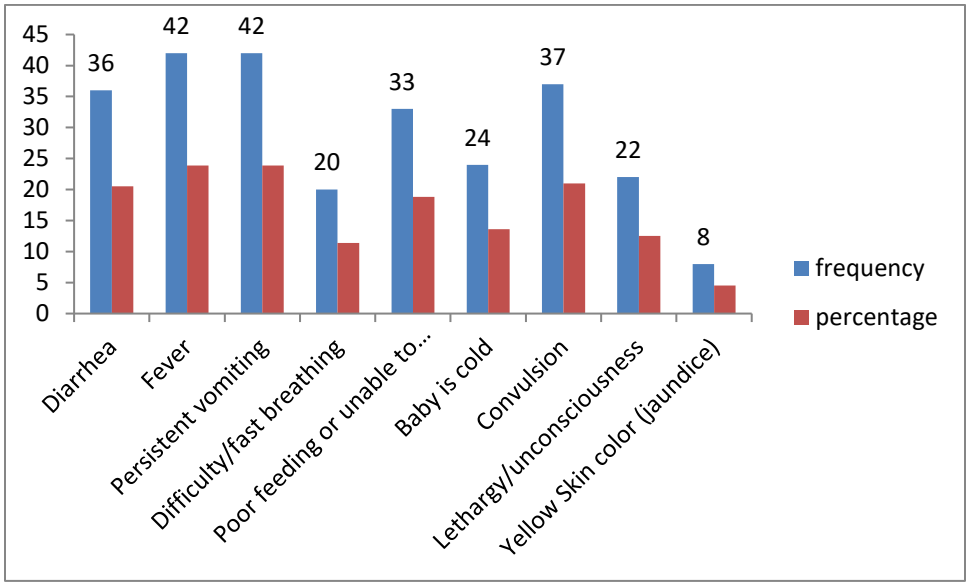

Fig: 2. Distribution of mothers by their knowledge about neonatal danger sign in Agena town, gurage zone, Central Ethiopia, Ethiopia, 2025 G.C

From mothers who were heard about neonatal danger signs, they asked about their source of information on neonatal danger sign, they stated that they gained information from media

44(25.7%) , health professional 119(69.5%), friends 4(2.3%), neighbors, 4(2.3%),.

Regarding to cause of neonatal illness majority of mothers responded that lack of cleanliness 80(45.5%) ,followed by hunger 47(26.7) and coldness 42(23.8%) are the cause of neonatal illness.

Table 3: . Mothers response about cause of neonatal illness in Agena town, gurage zone, Central Ethiopia, Ethiopia, 2017.

Variable	response	Frequency	Percent
Cause of neonatal illness	lack of cleanliness	80	45.5
	hunger	47	26.7
	coldness	42	23.9
	Other	22	12.5

Over all knowledge among mothers

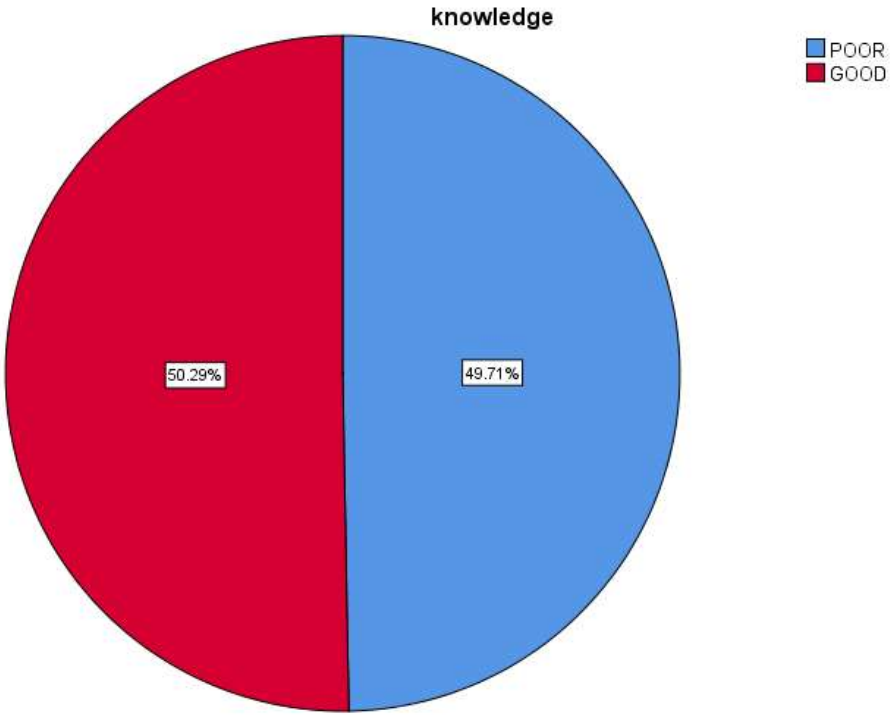

Fig 3: knowledge level of mothers in Agena town, Gurage zone, Central Ethiopia,Ethiopia,2024 G.C

5.4Practice of mothers for neonatal danger signs

From a total of mothers asked to respond weather they had a sick neonate in the last one year or not, All mothers (even 1 manifestation) have sick neonate in the last 1 year. The most type of clinical manifestation observed on neonates was fever 60(34.28%), diarrhea/loose stool 49(28%), vomiting 30(17.14%), cough or breathing problem 13(7.42%), inability to feed/suckle 23(13.14%), Regarding place of seeking a care 171(100%) of mothers preferred place of seeking a care for their sick neonate was health institution, some of mothers give home treatment in addition to health institution, those mothers practice home treatment uses 'demekesie',tenadam and honey as a treatment for their neonates.

The majority 156(91.2%) of mothers continued breast feeding for their sick neonate while 15(8.8%) were not. The reason why they didn‟t continued breast feeding ,15(100%) responded as it exacerbate vomiting,due to this they prefer to stop breast feeding

Regarding actions taken for persistent vomiting, 161(94.2%) of mothers take their sick neonate to health institution, 15(8.8%) of the mothers‟ stop breast feeding and 45(25.6%) of mothers give home treatment for vomiting neonates. 107 (60.7%) of mothers were take their sick neonate faced by diarrhea to health institution and 69(39.3%) of them give home treatment. 171(100%) mothers were bring to health institution a neonate with breathing problem

Table 4: Actions taken by mothers for danger signs in Agena town, gurage zone, Central Ethiopia, Ethiopia, 2025 G.C

Variables	Category	Frequency	Percent
persistent vomiting	stop breast feeding	14	8.1
	give home treatment	45	26.3
	take to health institution	112	91.5
Diarrhea	take to health institution	107	60.7
	i give home treatment	69	39.3
Breathing problem	take to health institution	171	100
Fever	take to health institution	151	88.3
	Home treatment	16	9.35
	Other	4	2.3

From the 171 respondent ,88(51.5%) mothers score above mean for positive question whereas 83(48.5%) mothers score below the mean for positive question.

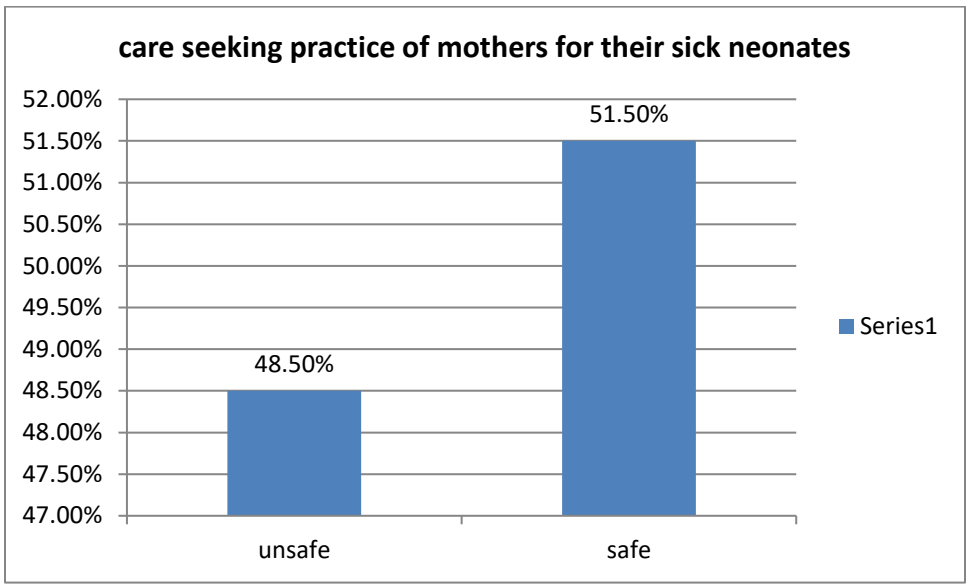

Fig 4. practice category of mothers in Agena town, Gurage zone, Central Ethiopia, Ethiopia, 2017.

Factors associated with maternal knowledge about neonatal danger signs

In bivariate analysis; living with partner,Ethnicity,maternal educational status and husband educational status factors contributes for mothers knowledge towards neonatal danger signs and In multivariable logistic regression, mother's husband educational status is factors that contribute for mothers‟ knowledge towards neonatal danger sign.

Those mothers their husband no formal education 1.355 more knowledgeable than the mothers their husband is diploma and above(AOR=1.355,CI[0.181,10.12]), this result contradict previously conducted research result ,the rationale behind this might be due sample size included in study is very small in case of husband no formal education.

Table:5 Bivariate and Multivariate logistic regression for factors associated with mother‟s knowledge about neonatal danger signs in Agena town, Gurage zone, Central Ethiopia, Ethiopia, 2025 G.C

Variable	knowledge level		Odds ratio and 95%CI	
	Good	Poor	Crude	Adjusted
Live with partner				
Yes	77(48.9%))	81(51.3%	0.422(0.125,1.429)	1.911(0.501,7.280)
No	9(69.2%)	4(30.8%)	1	1
Ethnic group				
Gurage	76(54.7%)	63(45.3%)	6.032(0.687,52.978)	4.906(0.522,46.107)
Amhara	6(31.6%)	13(68.4%)	2.308(0.219,24.316)	1.589(0.132,19.104)
Oromo	3(42.9%)	4(57.1%)	3.750(0.274,51.373)	4.369(0.285,66.902)
Others	1(16.7%)	5(83.3%)	1	1
Maternal educational status				
no formal education	8(30.8%)	18(69.2%)	0.923(0.319,2.674)	0.595(0.150,2.363)
Primary	44(62.9%)	26(37.1%)	3.515(1.548,7.982)	1.068(0.304,3.747)
Secondary	21(60%)	14(40%)	(3.115(1.210,8.024)	2.145(0.761,6.047)
Diploma and above	13(32.5%)	27(67.5%)	1	1
Husband educational status				
no formal education	2(25%)	6(75%)	0.593(0.112,3.143)	**1.355(0.181,10.12)**
Primary	30(55.6%)	24(44.4%)	1.222(1.088,4.540)	2.993(0.974,9.195)
Secondary	27(79.4%)	7(20.6%)	(6.857(2.637,17.832)	6.39(1.857,21.99)
Diploma and above	27(36%)	48(64%)	1	1

Factors associated with maternal practice about neonatal danger signs

In bivariate analysis living with partner,ethnic group,mothers educational status,mothers occupation and husband occupation and in multivariable logistic regression mothers educational status , mothers occupation and husband occupation are factors contribute to mothers practice towards neonatal danger signs

Mothers their educational level is diploma and above 10.753 times (AOR=10.753 CI(1.972,58.624) visit health institution for their sick neonate when compared with no formal education.

Those mothers their occupation is government employee are 96% times (AOR=95% CI 0.032(0.006,0.179) less likely bring their neonates to health institution as compared to housewife

Mothers those their husband is government employee 11.514 times (AOR=11.514(1.762,75.23) visits health institution for their sick neonates as compared to merchant.

Table:6 Bivariate and multivariate logistic regression for factors associated with mother‟s practice about neonatal danger signs in Agena town, Gurage zone Central Ethiopia, Ethiopia, 2025 G.C

Variables	Practice category		Odds Ratio and 95% CI	
	Safe	Unsafe	Crude	Adjusted
Living with partner				
Yes	79(50%)	79(50%)	1	1
No	9(69.2%)	4(30.8%)	0.444(0.131,1.503)	3.74(0.764,18.37)
Ethnic group				
Gurage	75(54%)	64(46%)	1	1
Amhara	10(52.6%)	9(47.4%)	0.948(0.363,2.477)	0.828(0.223,3.065)
Oromo	1(14.3%)	6(85.7%)	0.142(0.17,1.213)	0.175(0.017,1.83)
Others	2(33.3%)	4(66.7%)	0.427(0.76,2.406)	0.631(0.074,5.384)
Mother educational status				
no formal education	10(38.5%)	16(61.5%)	1	1
Primary	35(50%)	35(50%)	1.600(0.639,4.009)	1.064(0.299,3.77)
Secondary	16(45.7%)	19(54.3%)	1.347(0.480,3.784)	0.541(0.101,2.915)
diploma and above	27(45.5%)	13(32.5%)	3.323(1.186,9.313)	**10.753(1.972,58.624)**
Mother occupation				
house wife	42(60.9%)	27(39.1%)	1	1
Merchant	15(53.6%)	13(46.4%)	0.742(0.306,1.799	0.732(0.214,2.502
Daily laborer	0(0%)	6(100%)	0.000	0.000
Government employee	23(46%)	27(54%)	0.548(0.262,1.144)	**0.032(0.006,0.179)**
Private employee	8(44.4%)	10(55.6%)	0.514(0.180,1.467)	0.798(0.114,5.592)

Husband occupation				
Merchant	15(44.1%)	19(55.9%)	1	1
daily laborer	20(66.7%)	10(33.3%)	2.533(0.916,7.005)	4.058(1.000,16.464
government employee	29(50.9%)	28(49.1%)	1.312(0.559,3.079)	**11.514(1.762,75.23)**
private employee	16(72.7%)	6(27.3%)	3.378(1.062,10.742)	10.74(1.559,74.003)
Student	5(31.3%)	11(68.8%)	0.567(1.64,2.020)	0.544(0.086,3.440)

CHAPTER-SIX: DISCUSSION

The knowledge of neonatal danger signs among mothers is crucial for reducing neonatal and infant mortality rates to an acceptable level.This knowledge is fundamental for a mother's intentions to seek care,as it serves us the starting point for providing comprehensive neonatal health care.This study aimed to asses mothers knowledge,practice and associated factors towards neonatal danger sign among mothers who had given birth in the last twelve months in Agena town.

In this study ,50.29% of mothers have good knowledge about neonatal danger sign.Factors significantly associated to mothers knowledge of neonatal danger signs was husband educational status.The knowledge of neonatal danger signs in this study was consistent with study done in Tigray region,Ethiopia(Nuredin,et al,2017) which was 50.6%(45) and nearly similar to study conducted in chencha district,Ethiopia which was 50.3%(46) and ,inline with study conducted in north india which was 50%(26) however,this study is higher than study conducted in wolkite town which was 31.32%(44) and also higher than study conduted in kenya which was 15.5%(39).This discrepancy may be due to difference in study setting,time gap,sample size variation and difference in knowledge assessment question and evaluation method.Health seeking practice of mother for their sick neonates was important to avoid delays in making decision which contributes for neonatal mortality.in this study 51.5% whom their baby developed danger sign visit health care from health facility immediately.This finding was higher than study done in Tenta district which was 41.8%(47) ,the possible reason for this might be due to the variation in time,study setting,study population and cultural variation

In this study husband educational status was found to be significantly associated with mothers knowledge; those mothers their husband has no formal education 1.355 times more knowledgeable than the mothers their husband is diploma and above. This result contradict previously conducted research result ,the rationale behind this might be due sample size included in study is very small in case of husband no formal education.

The result of this regarding to practice of mothers towards neonatal danger sign; mothers educational status , mothers occupation and husband occupation are factors contribute to mothers practice towards neonatal danger signs. Mothers their educational level is diploma and above 10.753 times visit health institution for their sick neonate when compared with no formal education,this rationale could be educated women have awareness about neonatal danger sign which can increase health care seeking practice.The other socio-demographic status significantly associated was husband occupation; Mothers those their husband is government employee 11.514 times visits health institution for their sick neonates as compared to merchant,the rationale of this study might be government employees typically have higher level of education and better acces to health care information,leading to a greater likelihood of seeking prompt medical attention for their neonates when necessary. Those mothers their occupation is government employee are 96% times (AOR=95% CI 0.032(0.006,0.179) less likely bring their neonates to health institution as compared to housewife,the reason for this might be housewife early recognize the danger signs because most of the time they spent their time with their neonates which help them to seek care.

Regarding to mother's towards neonatal danger sign ,nearly half percentage(48.5%) of mothers did not take their neonates to health facility during illness the reason for not visiting health institution is under estimate of neonatal danger sign,they took their child to religious institution because they considers evil sprit as cause of neonatal danger sign and they some of them think as home treatment is better than health institution to treat neonatal danger sign.

Strength of study

Since study is conducted at community level,it has the opportunity to collect the opinion of participant

Limitation of the study

Since the study was cross sectional it is difficult to demonstrate a causal relationship between dependent and independent variables

It is not free of recall bias, since mothers included in the study were those mothers who have give birth with in twelve months were interviewed for the content of their baby aged before 28 days of life.

CHAPTER SEVEN:CONCLUSION AND RECOMMENDATION

CONCLUSION

The finding of this was showed poor knowledge of neonatal danger sign and unsafe practice among the mothers.Factors significantly associated with mothers knowledge towards neonatal danger sign was husband educational status and factors significantly associated with mothers practice were mothers educational status,mothers occupation and husband occupation.

RECOMMENDATION

Emphasis should be given in creating awareness on knowledge and practice towards neonatal danger sign.

Health extension workers should teach about neonatal danger sign and practice towards neonatal danger signs during home to home visist.

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ANNEX I: QUESTIONNAIRE

CONSENT FORM

Hello, my name is _____. I come here just to collect a data for a thesis title named " mothers" knowledge and practice regarding neonatal danger sign and associated factors in Agena Town, gurage zone, Centeral Ethiopia, Ethiopia 2017.This is going to be carried out by 4th year public health students.who are a Undergraduate student of Wolkite University, college of Health Science, department of Public health. The aim of this study is to assess mothers" knowledge and practice about neonatal danger sign and associated factors in Agena town. You have the right to refuse or withdraw from the study. I can assure you that your current or future medical services will not be affected if you refused to participate or with draw from the study. The inquiry is confidential and the information provided by you will not identify with any third person and it will only be used for the aim of the study.

Can you spare me 5-10 minutes to answer my question? Can we begin?

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1. Yes
2. No

WRITTEN CONSENT FORM

In signing this document, I am giving my consent to participate in the study titled “mothers‟ knowledge and practice about neonatal danger sign and associated factors in Agena town, Gurage zone, Centeral Ethiopia, Ethiopia 2017.” I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I understood that participation in this study does not involve risks except the time spent for completing the interview. I understood that these students are the contact person if I have questions about the study or about my rights as a study participant.

Participants signature…….date……

001. Respondent's number/ code _____

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Section I: Socio-economic information

S.NO	Questions	Answers	Skip
Q1	How old are you now?	1._____years 2. I don‟t know	
Q2	What is your Current marital status?	1. Married 2. Single 3. Divorced 4. Widowed	
Q3	Are you currently living with your partner?	1. Yes 2. No	
Q4	What is your family size?	In no. …….	
Q5	Which ethnic group does you belongs to?	1. Guragae 2. Amhara 3. kabena 4. kembata 5. Other specify _____	

Q6	What is your religion?	1. Protestant 2. Orthodox 3. Muslim 4. Catholic 5. Other specify _____	
Q7	What is your educational status?	1. No formal education 2. Primary 3. secondary 4. Diploma and above	
Q8	What is your Husband‟s educational status?	1. No formal education 2. Primary 3. secondary 4. Diploma and above	
Q9	What is your Occupation?	1. House wife 2. Merchant 3. Daily laborer 4. Government employee 5. Private employee 6. Student 7. Other Specify _____	

Q10	What is your husband‟s Occupation?	1. Merchant 2. Daily laborer 3. Government employee 4. Private employee 5. Student 6. Other Specify _____	
Q11	What type of communication media did you have at home?	1. television 2. radio	
Q12	What is your average monthly household income?	- ---------- ET birr	

Section II: Obstetric characteristics

S.N	Questions	Answers	Skip
Q13	How many times did you become pregnant?	Number ----------	
Q14	How many times did you give birth?	Number _____	
Q15	How many alive children did you have?	Number _____	
Q16	Have you ever had a child died after birth within 28 days?	1. Yes 2. No if the answer is no	Skip to Q19

Q17	What was the reason (cause)?	Malaria..... 1 Diarrhea/loose stools.....2 Cough/breathing problem ..... 3 Inability to feed.....4 Vomiting ..... 5 Other specify.....6	

Q18	If yes for Q16, have they provided treatment within 28 days?	1. Yes 2. No	
Q19	Have you ever had an ANC follow up?	1. Yes 2. No if the answer is no	Skip to Q21
Q20	If yes, how many ANC follow up did you had?	1. <4 visits 2. 4 visits	
Q21	Where did you give birth for the last child?	1. Health institution 2. home	
Q22	Did you have PNC follow up?	1. Yes 2. No if the answer is no	Skip to Q 24
Q23	No. of PNC visits	1. <3 2. ≥3	

Section III: Knowledge about neonatal danger signs

s.no	Questions	Answers	Skip
Q24	Have you ever heard about neonatal danger sign?	Yes .....1 No..... 2	If 2 go to Q28
Q25	Can you mention neonatal danger signs? ***(More than one answer is possible)***	Difficult/fast breathing ..... 1 Lethargy/unconsciousness..... 2 Convulsion .....3 Fever.....4 Baby is cold..... 5	

		Poor feeding or unable to suckle ..... 6 Persistent vomiting.....7 Diarrhea.....8 Yellow Skin color (jaundice) ..... 9 Other (specify) 10	
Q26	From whom did you get the information about neonatal danger signs?	Health professional ..... 1 Media .....2 Neighbors .....3 Friends.....4 Reading books/newspaper.....5 Other(specify).....6	
Q27	Do you know what causes neonatal illnesses? ***(More than one answer is possible)***	Lack of cleanliness ..... 1 Hunger.....2 Coldness .....3 Evil spirit (eye) ..... 4 I don‟t know..... 5 Other (specify).....6	

Section IV: practice of mothers for neonatal danger sign

s.no	Questions	Answers	Skip
Q28	Have you ever seen a sick neonate in your own family in the past 1 year?	Yes ..... 1 No 2	If 2 stop
Q29	What type of manifestation you saw on him/her?	Fever ..... 1 Diarrhea/loose stools ..... 2 Cough/breathing problem ..... 3 Vomiting ..... 4 Convulsion ..... 5 Lethargy ..... 6 inability to feed/suck ..... 7 Other specify 8	
Q30	Where did you bring the neonate for any of manifestations of illness for seeking care?	Take to Health institution ..... 1 I gave Home treatment ..... 2 Take to Traditional healer ..... 3 Do nothing ..... 4 Others 5	Other than 2 go to Q32
Q31	If the answer is home treatment, what are the treatments?	.....	
Q32	What you have done for diarrhea?	Give home remedy ..... 1 Take to health institution ..... 2 Not give any fluid orally ..... 3 I don‟t know ..... 4 Other (specify) 5	

Q33	What you did to a neonate that had persistent vomiting?	Stop breast feeding ..... 1 give home treatment..... 2 Take to health institution ..... 3 take to traditional healer..... 4 I don‟t know ..... 5 Other (specify).....6	
Q34	Did you continue breast feeding for your sick neonate?	Ye..... 1 No..... 2	
Q35	Reason for not continuing breast feeding?	----------	
Q36	What you did for convulsing neonate?	Take to health institution ..... 1 I gave Home treatment .....2 Take to Traditional healer .....3 Do nothing..... 4 Others.....5	
Q37	What you did for the neonate face breathing problem?	Take to health institution.....1 Take to Traditional healer ..... 2 Give home treatment..... 3 Do nothing .....4 Others 5	
Q38	What you did for the neonate faced by fever?	Take to health institution.....1 I gave Home treatment ..... 2 Take to Traditional healer ..... 3 Others 4	
Q39	What you did for neonate faced by jaundice?	Take to health institution.....1 I gave Home treatment ..... 2 Take to Traditional healer ..... 3 Others 4	