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RESEARCH ARTICLE

Assessment of Knowledge, Attitude, Practice, and Associated Factors towards Neonatal Danger Signs among Women Attending Immunization Clinic at Public Health Institutions in Arba Minch Town, Ethiopia, 2025

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Abstract

Background: UNICEF and WHO define the following signs and symptoms as Neonatal Danger Signs. feeding problem, convulsions, fast breathing, severe chest in-drawing, fever, feeling cold, movement when stimulated or not even when stimulated, yellow soles, reddened or pus draining umbilicus, and reddened or pus draining eyes.

Objective: The study aims to assess knowledge, attitude, practice, and associated factors towards neonatal danger signs among postnatal women at public health institutions in Arba Minch town, Arba Minch, Ethiopia, 2025

Methods: An institution-based cross-sectional study was conducted among 422 women attending an immunization clinic at public health institutions in Arba Minch town from October 25 to November 25, 2025. A systematic sampling technique was employed to recruit participants. Data was collected through face-to-face interviews using a pretested structured questionnaire. Descriptive statistics were used to summarize the data. Bivariate and multivariable logistic regression analyses were conducted. Variables with a p-value less than 0.25 in the bivariable analysis were included in the multivariable logistic regression model. Statistical significance was declared at $p < 0.05$ with 95% confidence intervals.

Results: total of 422 mothers involved. The knowledge, attitude, and practice of the study participants were 35.6%, 41%, and 79%, respectively. number of conception [(AOR = 2.38; 95% CI: 1.00, 5.69) mother's autonomy in healthcare seeking(AOR = 3.30; 95% CI: 1.76, 6.18). were associated with the knowledge. educational status [(AOR =(0.292; 95% CI: 0.087, 0.986)] and parity(AOR = 0.325; 95% CI: 0.157, 0.673) were associated with attitude while woman's educational level(AOR = 2.729, 95% CI: 1.142, 6.525), planned pregnancy[AOR = 0.146, 95% CI: 0.033, 0.646)], heard danger signs(AOR = 0.384, 95% CI: 0.165, 0.892) and autonomous of decision [AOR = 19.704, 95% CI: 9.846, 39.433] had association with the practice of neonatal danger signs.

Conclusion: The findings indicate a significant gap of attitude toward neonatal danger signs, Knowledge and practice levels are insufficient to ensure neonatal health.

Keywords: knowledge; Attitude; practice neonatal danger signs; Arba Minch

Introduction

The neonatal period is the most vulnerable time for survival [1]. Globally, 2.6 million newborns died in 2016, or 7000 every day, and Sub-Saharan Africa accounts for 38% of global newborn deaths [2]. Half of all newborn deaths occurred in India, Pakistan, Nigeria, the Democratic Republic of Congo, and Ethiopia. Studies showed that there are disparities across regions and countries to end preventable deaths of newborns to at least as low as 12 deaths per 1000 live births [3]. The majority of neonatal deaths (46.3%) occur within the first 24 h, and 75% occur during the 1st week of life [4,5]. In Ethiopia, neonatal mortality ranges from 27.6 to 63/1000 live births, with 37 in 2011, 29/1000 live births in 2016, and 33/1000 live births in 2019 [6,8]. Early detection of neonatal illness is an important step toward improving newborn survival [8,9].

Globally, neonatal mortality is still a significant public health problem, which accounts for more than 60% of newborn deaths before their first birthday. Over 1800 newborns die every day, mostly resulting from mothers' failure to identify danger signs of neonates worldwide. Most neonatal deaths (99%) occur in low- and middle-income countries, with approximately 50% of these deaths taking place at home due to a lack of maternal knowledge about neonatal danger signs [19]. Nearly 80% of the world's neonatal deaths occur in sub-Saharan Africa, which alone accounts for about 41% of these deaths. This high burden is largely attributed to limited awareness and poor recognition of neonatal danger signs among mothers and caregivers in the region [20]. According to the Ethiopian demographic health survey (EDHS) 2019, the neonatal mortality rate accounts for 33 deaths per 1000 live births, and almost half of these deaths occur due to a lack of knowledge and health-seeking behavior of mothers [21].

NDS has become a common health problem in many developing countries, including Ethiopia. More than 25% of neonates were born with dangerous signs. Neonates with multiple danger signs were more likely to develop multiple complications during the neonatal period and the mortality risk may be even higher [11].

Maternal knowledge of neonatal danger signs (NDSs) is low in Africa, including Ethiopia, with only 14.8% of mothers identifying danger signs in Uganda and 20.3% in Ghana [22,9,23,17] .

In Ethiopia, despite different strategies, intervention programs like integrated management of newborn and childhood illness (IMNCI), institutional delivery are implemented to reduce danger sign-related complications and mortality among neonates. Neonatal death due to danger signs remains a concern, and further study is needed [24]. In Ethiopia, nearly all 94% of neonatal and nationally 42% of under-five deaths occurred at home because of the lack of maternal recognition of neonatal danger signs [25,14].

In Ethiopia, knowledge and practice of NDSs were diverse; the neonatal mortality rate is unacceptably high, with little reduction. It is important to develop appropriate strategies and to reduce these unacceptably high death rates; the present study is justified by the critical need to fill this gap in Arba Minch town. While national data provide a broad overview, a localized, institution-based study is essential to identify the specific knowledge, attitudes, and practices gaps of mothers in this unique setting. The study's focus on postnatal mothers.

Early detection of neonatal illness is an important step toward improving newborn survival. A mother is the nearest person to a neonate to identify, present, and manage the neonate's problem, but in the study area, there was a limitation of data on mothers' knowledge of neonatal danger signs. Therefore, this study aimed to assess the knowledge, attitude, and practice of NDSs among mothers attending immunization clinics in Arba Minch General Hospital, Ethiopia.

Method

Study area and period

The study was conducted in Arba Minch Town, a public health institution, a regional hub located approximately 505 km south-west of Addis Ababa in Southern Ethiopia, from October 15 to November 15, 2025.

Study design

An institutional-based cross-sectional study design was employed

Source population

All women attending immunization clinics in public health institutions in Arba Minch town

Study population

All mothers of children under 12 months who visited the immunization clinic in public health institutions during the data collection period

Inclusion criteria

Mothers who came to vaccinate their child at the public health institutions at the time of data collection were eligible.

Exclusion criteria

Those mothers who have mental health problems and serious illnesses that make communication difficult to get the necessary. Mothers who are not willing to consent to participate in the interview

Sample size determination

The sample size for this study was determined using the single population proportion formula for cross-sectional studies, assuming a 95% confidence level and a 5% margin of error.

Based on previous study conducted in chencha district in 2019, (50.2%) had good knowledge of NDS [15]

$$n = \frac{(Z^{\alpha}/_{2})^{2} p\,(1-p)}{d^{2}}$$

$$n = \frac{(1.96)^{2} 0.503(1-0\ 503)}{(0.05)^{2}} = 384.4 \quad \textit{with 10\% non- response rate consideration}$$

To account for a 10% non-response rate, the sample size becomes 422

Sampling procedure

In Arba Minch town, four public health institutions provide Immunization services. The sample size was proportionally allocated to each health institution. A total average of yearly reported used to get the estimate of the study population. AMGH 5770/12=480, DFGH 2736/12=228, Secha HC 2108/12=175 and Weize HC 1600/12=133. So a total of 1016 were estimated to be available during the data collection period in the health institutions. A systematic random sampling method was used to select study participants. To calculate the interval (Kth) by dividing the reported population by the total sample size

K=1016/422=.2.4 so, every 2 mothers were interviewed. A random number between 1 and 2 was selected using a lottery method. The Subsequent mothers were interviewed based on arrival at every 2 intervals until the required sample size (422), as shown in (Figure 1) below.

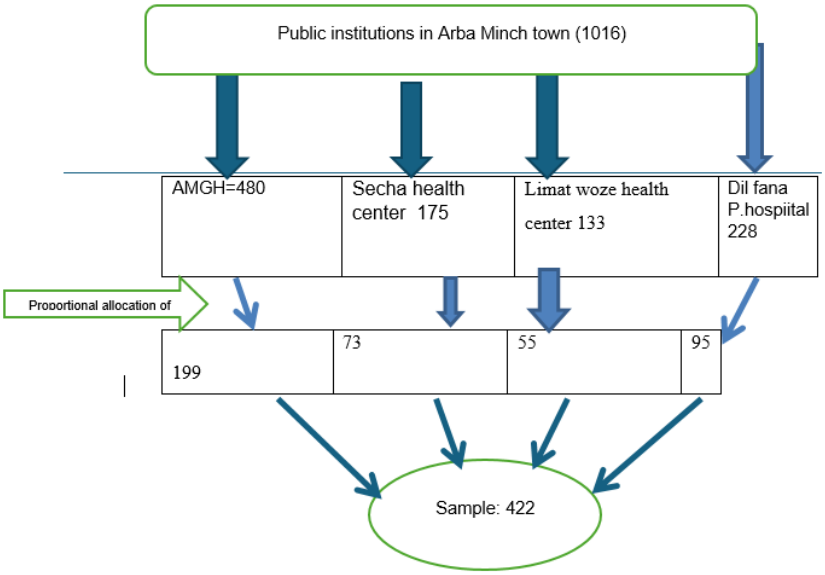

Figure 1: Schematic representation of sampling procedure to assess knowledge, attitude, and practice of neonatal danger signs and associated factors among mothers attending child immunization clinics in public health institutions at Arba Minch town, 2025

Data collection tool, techniques, and person

A structured questionnaire was adapted by reviewing different related literature from prior studies conducted in different areas and modified according to our context [10-14,18,22]. The questionnaire was prepared in English, then translated into Amharic, and then back to English after the data collection in order to ensure its consistency. It consisted of information on socio-demographic characteristics, Obstetric characteristics, and knowledge, attitude, and practice questions. Data was collected through face-to-face interviews by four BSc midwives.

Variables

Dependent variable

Knowledge

Attitude

Practice

Independent variable

Socio-demographic characteristics

Maternal age

Marital status

Educational status

Occupation

Religion

Residence

Income

Family size

Husband's educational status and occupation.

Maternal health service exposure and obstetric factors

ANC

PNC

Place of delivery

Parity

Mode of delivery

Number of conception

Gestational age of the current child born

Being advised on breastfeeding

Being advised on neonatal danger signs

Birth preparedness

Source of information

Media (television and radio)

Health professionals (nurses, doctors, public health officers and health extension workers)

Operational definition

Neonatal danger signs: signs that indicate an abnormal health condition and happen during the first 28 days of life [6]. This includes the yellow color of palms and soles, diarrhea, loose or bloody stools, poor sucking, lethargy or drowsiness, rapid or diffi-

culty of breathing, hypothermia and hyperthermia, convulsions, and vomiting.

Knowledge: mothers' level of awareness or mindfulness about neonatal danger signs. There was a total of 10 questions to assess mothers' knowledge of neonatal danger signs, and each right response was given a score of "1" while a wrong or unsure response was given a score of "0".The total knowledge score ranges between 0 and 10.

Good knowledge: mothers who scored greater than or equal to the mean of the total knowledge-based questions.

Good attitude: who score above the mean value the attitude-based questions?

Good practice: who score above the mean value practice-based questions?

Data quality management

Training was given for data collectors and supervisors on the techniques of data collection and briefed on each question. After that, a pre-test was conducted on 5% of the sample size in Shele health centers before the actual data collection to ensure the consistency of the tool, and then the correction was made. During the data collection procedures, all the collected data were reviewed and checked daily by the supervisor and principal investigators for completeness, and coding was undertaken. An incomplete questionnaire was discarded.

Data processing and analysis

The collected data using the Kobo toolbox were checked, coded, cleaned, and finally exported into SPSS version 26 for analysis. Descriptive statistical analysis, such as frequencies, percentages, mean, and standard deviation, was used to describe the characteristics of participants. Binary logistic regression was employed, bivariate analysis of $p<0.25$ was moved to multivariate analysis, and was done through a stepwise multivariate logistic regression technique to control the effects of confounding and to identify predictors of appropriate practice on newborn danger signs. A P value of < 0.05 was declared statistically significant.

Ethical consideration

Ethical clearance and permission was obtained from the IRB of Department Midwifery Arba Minch College of health science. An official letter was obtained from department of Midwifery. Respondents were informed about the purpose of the study, the importance of their participation, the right to withdraw any time, wish to stop. Privacy and confidentiality issue will also be noted. Name will not be recorded while unique codes was used instead.

Result

Socio-demographic characteristics of participants

From a total of 422 mothers selected to participate, 422 mothers completed the interview, making the response rate of 100%. Of the participants, 99 (23.3%) were older than 34, and 39 (9.2%) were younger than 20. Regarding educational attainment, nearly half (45.5%) had attended college or above. The majority of participants resided in urban areas (93.6%). see below in (table 1).

Table 1: Socio-demographic characteristics of women attending at public health institutions in Arba Minch Town, Ethiopia, in 2025

No.	Variables	Category	Frequency	Percent
1	Age	<20years	39	9.2
		>34years	99	23.3
		20-34years	284	67.5
2	Religion	Catholic	5	1.2
		Muslim	34	8
		Orthodox	166	39.2
		Protestant	213	50.2
		Other	6	1.4
3	Educational status of the mother	Cannot able to read and write	26	6.1
		Grade 1-8	125	29.5
		Grade 9-12	80	18.9
		college and above	191	45.5
4	Place of residence	Urban	395	93.6
		Rural	27	6.4
5	Occupation status of mother	Daily laborer	16	3.8
		Government employee	116	27.4
		House wife	171	40.8
		Merchant	93	21.9
		NGO employee	2	0.5
		Other, Specify	24	5.7
6	Marital status	Divorced	25	5.9
		Married	374	88.7
		Single	4	0.9
		Widowed	19	4.5
7	husband's educational status	Can't read and write	8	1.9
		Grade 1–8	60	14.2
		Grade 9–12	70	16.5
		college and above	236	56.1
8	Husband occupation	Daily laborer	50	11.8
		Government employee	164	38.7
		Merchant	100	23.6
		NGO employee	12	2.8
	Family size	<2	38	9
		>5	75	17.7
		5-Mar	309	73.3

Obstetrics characteristics of the study participants

Pregnancy was wanted, planned, and supported for the majority of respondents (n=393, 93%). 97.4% (n=413) of the respondents received antenatal care (ANC) at least once. 95.3% (n=404) of the study participants reported having made prior preparations for childbirth, nearly all women gave birth in the health institution (98%). Spontaneous vaginal delivery (SVD) was the most common mode of delivery, accounting for 82.5% (n=350) of mothers, followed by Caesarean section (13.9%) and instrumental assisted delivery (3.5%). The majority of the infants were born at term (n=365, 86.1%), while 9.7% were post-term and 4.2% were preterm. Immediate postnatal care (PNC) utilization was high, with 93.2% (n=395) of women receiving a visit. While 80.9% (n=343) of the mothers received counseling on breastfeeding, more than half 59.4% (n=252) of participants recognized the postnatal period as a dangerous time for neonates, while 40.6% (n=172) were unaware of the risky period. See (table 2)

Table 2: Obstetrics characteristics of the study participants attending at public health institutions in Arba Minch Town, Ethiopia, in 2025

N	Variables	Category	Frequency	Percent (%)
1	Is the last pregnancy wanted, planned and supported?	No	31	7.3
		Yes	391	92.7
2	Did you have antenatal care contact?	No	11	2.6
		Yes	411	97.4
3	Number of conception in your last pregnancy	Multiple	30	7.1
		Single	392	92.9
4	Gravidity	>5	47	11.1
		2-Jan	206	49.1
		5-Mar	169	39.9
5	Parity	>5	34	8
		2-Jan	220	52.4
		5-Mar	168	39.6
	How many alive children did you have?	>5	45	10.6
		2-Jan	220	52.4
		4-Mar	157	37
6	Preparations for your delivery?	No	20	4.7
		Yes	402	95.3
	Place were			
gave delivery	Health Center	171	40.3	
		Home	11	2.6
		Hospital	240	57.1

	Who gave			
Delivery assistance for you?	Family	1	0.2	
		Health Extension Worker (HEW)	1	0.2
		Health professionals (Nurses, Doctors, Midwifery, Public health officer)	410	97.2
		Neighbor	1	0.2
		Others	1	0.2
		Traditional Birth Attendant (TBA)	1	0.2
	In which mode of delivery did you give birth?	Caesarean section	59	13.9
		Instrumental assisted delivery	15	3.5
		Spontaneous vaginal delivery	348	82.5
	Did you have immediate Post Natal Care visit?	No	29	6.8
		Yes	393	93.2
	Gestational age of the last baby	Post term	41	9.7
		Preterm	18	4.2
		Term	363	86.1
	Did you receive advise on breast feeding	No	81	19.1
		Yes	341	80.9
	Do you know Post Natal Period (PNP) is a danger time for neonates?	No	172	40.6
		Yes	250	59.4

Knowledge of Neonatal Danger Signs among Women

Out of the 422 participants, more than half of the mothers, 272(64.4%), were found to have poor knowledge regarding neonatal danger signs (Figure 2).

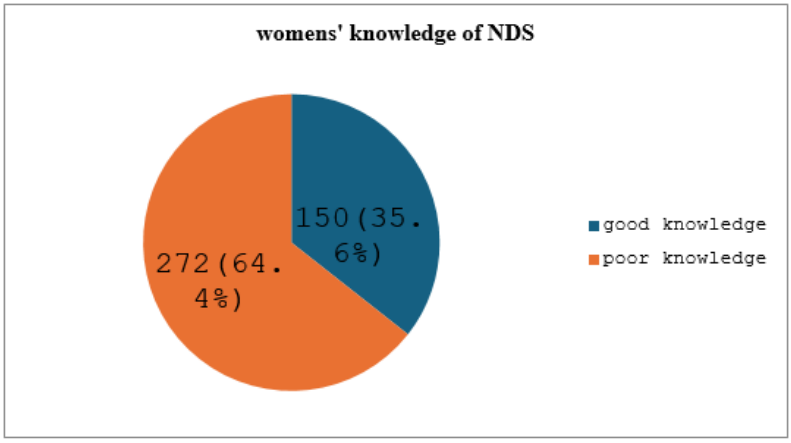

Figure 2: Knowledge of neonatal danger signs among mothers attending at public health institutions in Arba Minch Town, Ethiopia, in 2025

Attitude towards Neonatal Danger Signs among Women

The study found that a sizable majority of the mothers, 331 (79.0%), had a positive attitude toward newborn danger signs (Figure 3)

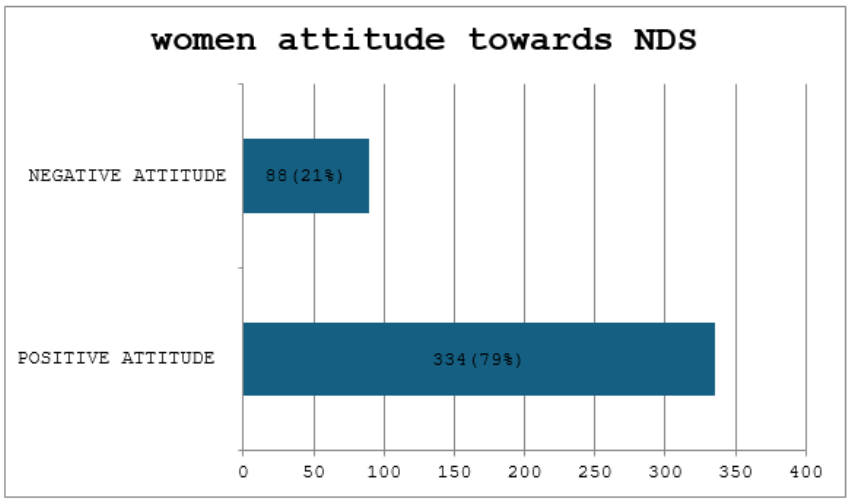

Figure 3: Attitude of neonatal danger signs among mothers attending Immunization clinic at public health institutions in Arba Minch Town, Southern Ethiopia, in 2025

Practice of Neonatal Danger Signs among Women

The assessment of maternal practices related to neonatal danger signs showed that 173 (41.0%) of the mothers had good practice, while the majority, 249 (59.0%), were categorized as having poor practice (Figure 4).

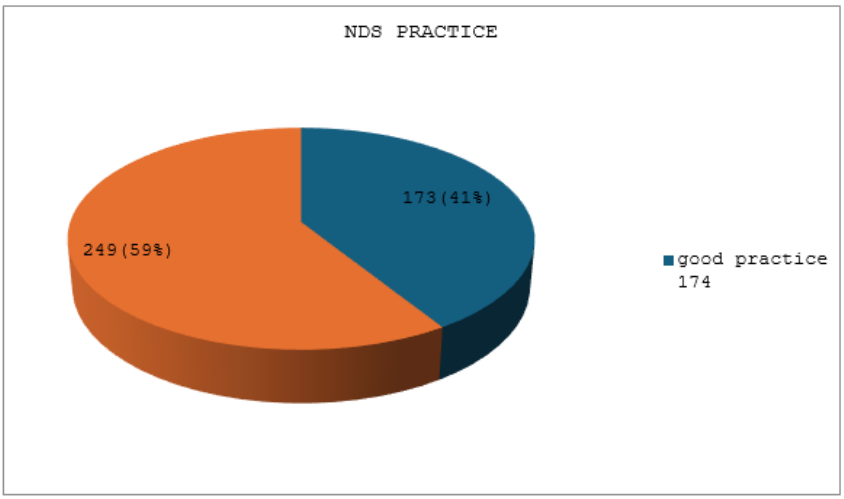

Figure 4: Practice of neonatal danger signs among mothers attending Immunization clinic at public health institutions in Arba Minch Town, Southern Ethiopia, in 2025

Factors associated with maternal knowledge of neonatal danger signs

Women who had a higher number of conceptions or multiple gestations in their last pregnancy were 2.38 times more likely to have good knowledge compared to mothers who had a singleton pregnancy (AOR = 2.38; 95% CI: 1.00, 5.69).

Mothers who could make their own decisions to seek treatment for their baby were 3.3 times more likely to have good knowledge of neonatal danger signs compared to those who did not have such autonomy (AOR = 3.30; 95% CI: 1.76, 6.18).

Factors associated with maternal attitude toward neonatal danger signs

To determine the independent predictors of mothers' attitudes toward neonatal danger signs, variables were analyzed using multivariable logistic regression. The model revealed that educational status and parity (number of births) were significantly associated with maternal attitude. Mothers who can.t read and write were 70.8% less likely to have a favorable attitude compared to the mothers with an educational background of college and above (AOR = 0.292; 95% CI: 0.087, 0.986; pv = 0.047). Similarly, mothers with an educational background of secondary education were 67.5% less likely to possess a positive attitude compared to the college and above educated mothers (AOR = 0.325; 95% CI: 0.157, 0.673; pv = 0.002).

The number of times a mother has given birth also significantly influenced her attitude. Mothers who had given birth 1-2 times were 42% less likely to have a positive attitude toward neonatal danger signs compared to mothers who gave birth more than five times(AOR = 0.580; 95% CI: 0.347, 0.971; pv = 0.038).

Factors associated with maternal practice of neonatal danger signs

The woman's educational level, planned or supported pregnancy, having ever heard of danger signs, and autonomous of decision-making to seeking treatment for the baby were significantly associated with the practice of neonatal danger signs. Women who had college and above educational backgrounds were 2.7 times more likely to have good practice compared to the can.t read and write (AOR = 2.729, 95\% CI: 1.142, 6.525), while those with [grade 9-12] were 3.4 times more likely [AOR = 3.463, 95\% CI: 1.332, 9.003]. The mothers whose pregnancy was unplanned were 85.4% less likely to have good practice compared to mothers who had planned, wanted, and supported pregnancy [AOR = 0.146, 95\% CI: 0.033, 0.646)]. Mothers who had never heard about neonatal danger signs were 61.6% less likely to have good practice compared to mothers who had heard neonatal danger signs previously. (AOR = 0.384, 95\% CI: 0.165, 0.892). The odds of having high level autonomy of decision in seeking

treatment for the baby were 19.7 times more likely to demonstrate good practice compared to those with lower decision-making power to seek treatment [AOR = 19.704, 95\% CI: 9.846, 39.433] see (table 3).

Table 3: Bivariate and Multivariable logistic regression analysis of factors affecting practice of neonatal danger signs among mothers attending Immunization clinic at public health institutions in Arba Minch Town, Southern Ethiopia, in 2025

		NDS practice		COR(95%CI)		P-VALUE
Variables	Category				AOR(95%CI)	
		Good practice (%)	Poor practice (%)			
Educational status	Can.t read	7	17		1	
	Grade 1-8	54	71	0.857(.406,2.955)	1.713(.397,7.394)	0.471
	Grade 9-12	23	57	5.3(2.91,9.66)	3.463(1.332–9.003)**	0.024
	College and above	90	103	4.62(2.64,8.09)	2.729 (1.142–6.525)**	0.011
the last pregnancy wanted, planned	No	5	26	0.255(.096,.678)	0.146(0.033–0.646)**	0.011
	Yes	168	223		1	
ever heard about neonatal danger sign	No	20	60	0.411(.238,.712)	0.384(0.165–0.892)**	0.026
	Yes	152	190		1	
Mothers decisions to seek for treatment for the baby	High autonomous	152	39	7.1(3.9,12.7)	19.704(9.846–39.433)**	0
	autonomous	22	209		1	
	Low					

** at p-value <0.05 .

Discussion

The current study revealed that only 35.6% of mothers had good knowledge of neonatal danger signs. This finding is remarkably consistent with a cross-sectional study conducted in Bangladesh 35.63% [26], and closely aligns with findings from Harar town 32.9% [13] and Debre Tabor (36.5%).However, the level of knowledge in Arba Minch is notably lower than results reported in Mekele 50.6% [28], Chencha 50.3% [15], and Sodo town 67.1% [29]. The discrepancy between Arba Minch and the nearby Sodo town study is particularly striking; this could be attributed to differences in the implementation of postnatal counseling (PNC) or variations in media exposure and community-based health education between the two zones. Conversely, the knowledge level in this study is significantly higher than that reported in Ambo (20.3%) and Kenya 15.5% [16]. These varia-

tions across different regions of Ethiopia and East Africa likely stem from differences in maternal educational status, the quality of ANC/PNC counseling, and the accessibility of health information.

According to the current study, 79% of mothers had a favorable attitude of neonatal danger signs. This indicates that a vast majority of Arba Minch Town women view neonatal danger signs as serious health risks necessitating quick medical attention. This finding is consistent with a study conducted in Tigray, Northern Ethiopia, which reported a positive attitude level of 76.2% [31]. The similarity may be attributed to the standardized nature of the Ethiopian Health Extension Program, which has been consistent in delivering behavioral change communication (BCC) across different regions. However, the result is higher than a study conducted in Wolkite Town, Southern Ethiopia, where only 58.3% of mothers had a favorable attitude [32]. This discrepancy might be due to the urban nature of Arba Minch Town, where mothers have better access to mass media, higher literacy rates, and more frequent exposure to health education at public institutions compared to smaller or more rural towns. Furthermore, being in 2025, the cumulative effect of a decade of maternal and child health (MCH) initiatives may have fostered a more proactive health-seeking mindset among the current generation of mothers.

The prevalence of good health-seeking practice in this study (41%) indicates a significant gap in neonatal care, with more than half (59%) of the mothers failing to demonstrate optimal practices. This finding is higher than reports from rural Northern India, where only 23% sought medical healthcare [27], but lower than the health-seeking practice reported in Debre Tabor, Ethiopia, which was notably high at 78.7% (30). The 59% prevalence of poor practice in Arba Minch aligns with trends observed in South Asia (Nepal) and Sub-Saharan Africa (Ghana). In Nepal, literature suggests that mothers frequently resort to home remedies or faith healers first, seeking formal healthcare only after this fail [27]. Similarly, in Ghana, significant delays were noted, with only 29.1% of neonates with danger signs receiving care within the first two days [16].

In contrast, the practice in our study area appears slightly better than that of Ambo Town, where only 60.5% of mothers sought immediate medical care despite their babies developing danger signs [6]. The variation across these Ethiopian towns might be attributed to differences in urban-rural settings, the availability of health infrastructure, and the specific counseling provided during clinical visits. This study found that mothers who have the autonomy to make decisions regarding seeking treatment for their infants were over three times more likely to have good knowledge of neonatal danger signs. This finding is consistent with studies conducted in Northwest Ethiopia [33] and Tigray [32], which reported that women's involvement in household decision-making significantly improves their health-seeking behavior and awareness of neonatal complications. When a mother is empowered to seek care, she is more likely to engage with health information and recognize the urgency of danger signs.

The association between the number of conceptions and knowledge suggests that increased contact with the healthcare system during multiple pregnancies (twins and above) provides more opportunities for health education.

Higher educated mothers were significantly more likely to use neonatal danger sign management, according to the study. This is in line with research conducted in Wolaita Sodo and Chencha District, Southern Ethiopia, which concluded that education increases a mother's ability to recognize, interpret, and act upon health information [29,15].

There was a strong significant association between practice and mothers who had supported and planned pregnancies. This is consistent with the idea that planned pregnancies frequently result in improved financial and emotional readiness as well as increased use of maternal health services. Similar results from Northwest Ethiopia indicate that mothers who had "wanted" pregnancies have a greater psychological interest in the baby's survival and well-being [33].

Maternal practice was significantly associated with having "ever heard" of neonatal danger indications. This emphasizes how crucial health education is. But the AOR of 0.384 indicates that learning about signs alone is insufficient; the quality of that knowledge and how it applies to real-world situations are crucial. A study conducted in Addis Ababa that found that although

many mothers "hear" such symptoms, only a small percentage are able to accurately recognize and handle them gives support to this claim.

The mother's ability to make treatment decisions was the most important factor in this study (AOR = 19.7). The practice of handling danger indications significantly improves when women are free to choose when and where to seek care without waiting for outside approval (e.g., from husbands or elders). This result is in line with findings from the EDHS 2016 and previous research conducted in sub-Saharan Africa that highlight the direct relationship between women's empowerment and a decrease in newborn mortality [34].

Limitation of the study

The study was limited to public health institutions in Arba Minch Town. Therefore, the findings may not be fully generalizable to mothers attending private facilities or those living in extremely remote rural areas who do not access immunization services.

Conclusion

The finding indicated that the knowledge, attitude and practice of the study participants towards neonatal danger signs in the study area were 35.6%,79% and 41% respectively. The findings indicate a significant gap in maternal health literacy and a poor attitude toward neonatal emergencies in Arba Minch, despite the study being conducted at immunization clinics where mothers are in contact with the health system. Knowledge and practice levels are insufficient to ensure neonatal health.

Abbreviations

EDHS Ethiopian Demographic Health Survey

IMNCI Integrated Management of Newborn and Child Illness

NDS Neonatal Danger Sign

WHO World Health Organization

Declaration

Ethics Approval and consent to participate

Ethical clearance and permission were obtained from the IRB of the Department of Midwifery, Arba Minch College of Health Science. An official letter was obtained from the Department of Midwifery. All methods were carried out following the relevant guidelines and regulations of Arba Minch College of Health Science. Before participants signed the consent form, the researcher ensured that they completely understood all the provided information. Upon agreeing, participants signed the consent form, indicating their voluntary participation in the study and granting permission for interviews. Confidentiality was ensured by assigning codes instead of names during transcription and analysis. All identifiable information was removed and securely stored. Interviews were conducted in private spaces to protect anonymity

Consent for publication

Not applicable

Clinical trial

Not applicable

Availability of data and materials

The data sets used for this study are available from the corresponding author on reasonable request.

Competing interest

None of the authors has a financial or other conflict of interest.

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Author contribution

GG, DA played a key role in identifying the problem, designing, and writing the proposal, as well as analyzing and interpreting the data. DA was a primary contributor to the manuscript writing. Authors reviewed and approved the final version of the manuscript. ZC, MS, BY, AND AT participate in data collection, data entry and analysis.

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