Research Article

Healthcare-Seeking Behavior and Associated Factors for Newborn Danger Signs among Mothers Who Gave Birth in the Last 12 Months in Anlemo District

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Background. Healthcare-seeking behavior is referred to as any action taken by individuals who believe they have a health problem or are ill in order to find an appropriate remedy. The aim of this is to assess healthcare-seeking behavior on newborn danger signs and associated factors among mothers who gave birth in the last 12 months in the Anlemo district. *Methods.* A community-based cross-sectional study was conducted in the Anlemo district from June 15th, 2019 to July 16th, 2019. Data were collected from 421 randomly selected mothers through a face-to-face interview. Data were cleaned and entered into Epi-Data version 3.1, and then, exported to SPSS version 22.0 for analysis. Binary logistic regression with p values less than 0.25 was entered into a multivariable logistic regression for analysis. Finally, adjusted odds ratios (AOR) with 95% confidence intervals at a p value of <0.05 were considered as a statistically significant association with the outcome variable. *Results.* Among mothers whose newborns faced newborn danger signs, 34.5% (95% CI: 28.7, 40.5%) sought medical attention for newborn danger signs. When mothers were faced with neonatal danger signs, the multivariable logistic regression model identified three independent variables that were associated with their healthcare-seeking behavior. Mothers who had a college degree or above were 6.34 times more likely than mothers who could not read or write to seek medical care (AOR = 6.34, 95% CI: 1.23–32.69). Mothers or healthcare seekers who did not travel a long distance (less than 5 kilometers) to acquire healthcare were 2.53 times more likely than mothers who traveled a long distance (AOR = 2.53, 95% CI: 1.05–6.08), which had a significant association with the dependent variable. *Conclusions.* In this study, the proportion of mothers seeking care for newborn danger signs was low, and the mothers' education, time to reach the nearest health facility, and place of delivery were factors of statistical significance with the dependent variable.

1. Introduction

A newborn is an infant that was born within the first few minutes to hours after birth and will live for up to 28 days [1]. The symptoms of a dangerously ill infant that necessitate rapid care or, if possible, hospitalization are known as newborn danger signals [2]. Ten newborn danger indicators have been identified by the World Health Organization (WHO) and the United Nations International Child Education Fund (UNICEF) as endangering neonatal survival:

convulsions, a respiratory rate of 60 breaths per minute or more, severe chest in-drawing, temperature >37.50°C, temperature 35.50°C, movement only when stimulated or movement even when not stimulated, yellow soles (a sign of jaundice), a reddened or pus draining umbilicus, and a reddened or pus draining eye [2].

According to a World Health Organization (WHO) data sheet, 5.3 million children under the age of five died worldwide in 2018, with over half of those dying in the first 28 days of life, resulting in 7000 neonatal deaths every day,

with sub-Saharan Africa accounting for 40% of neonatal deaths. Ethiopia, together with India, Nigeria, Pakistan, and the Democratic Republic of the Congo, was responsible for half of all child deaths under the age of five. As a result, successful interventions in developing countries to enhance newborn survival involve a thorough understanding of the patterns and determinants of newborn-care seeking behavior among mothers, relatives, and other newborn caregivers [3].

Low- and middle-income countries account for the great majority of neonatal fatalities. Two-thirds of all newborn mortality occurs in twelve countries, six of which are in sub-Saharan Africa. In 2013, 60 percent of all newborn fatalities occurred in countries with a death rate of 30 or more per 1000 live births [4]. Healthcare usage for newborn diseases is low in low- and middle-income developing countries. Despite the fact that various actions were carried out to increase healthcare-seeking and utilization, education level, postnatal (PNC) accompaniment by mothers, danger sign communication to mothers, and site of living were the most determining factors [5].

Improving families' care-seeking behavior is one of the most important ways to reduce child mortality in underdeveloped countries. According to the World Health Organization, receiving prompt and appropriate medical attention can reduce infant mortality from acute respiratory infections by 20% [6]. To reduce newborn death, early detection of newborn danger signs (NBDS) and the provision of high-quality curative health services for sick neonates are critical [7].

The first four weeks of life are when newborns are most vulnerable to death. Appropriate food and care must be provided at this time, both to improve the child's chances of survival and to lay the foundation for a healthy future [8]. Newborn danger signs are one of the most common causes of neonatal mortality in impoverished countries. Some say that current efforts to reduce newborn mortality are complicated by a lack of understanding of social determinants of health as well as neonatal danger signs and devising appropriate mitigation techniques [9]. The highest rate of neonatal mortality occurs at home, where only a few mothers seek medical help for indications of neonatal illness and where practically no babies are taken to hospitals when they are sick. Delays in seeking medical help can increase the chances of an infant dying [10]. Understanding how people seek medical treatment helps to avoid unnecessary delays and improves neonatal health [11].

Every year, 2.4 million children are born in Ethiopia, but the death rate is exceedingly high: 1500 children under the age of five die every day, 210,000 infants per year, and 350,000 children die before they turn five [12].

Millions of mothers and their newborns around the world live in a societal environment that discourages them from seeking medical help. As a result, many mothers do not seek official healthcare during the postpartum period, which has a significant impact on both the mothers' healthcare and the survival of their newborns [5].

According to Ethiopian studies, inadequate healthcare-seeking behavior and associated NBDS cause over 80% of

mothers to postpone seeking care, resulting in increased newborn mortality, a critical entry point for improving neonatal health. This could lead to a rise in the child's morbidity and mortality rates [13]. NBDS have been linked to better newborn outcomes and lower mortality rates when detected early [14]. Given the high rate of home births and early hospital discharges, parents should be able to recognize signs of newborn disease and bring their babies to the hospital as soon as possible. However, there have been few studies in this area. As a result, the aim of this study was to assess the proportion of healthcare-seeking behavior and factors associated with healthcare utilization among mothers who gave birth in the previous 12 months in the Anlemo district.

2. Materials and Methods

2.1. Study Area and Period. The research was carried out among mothers who had given birth in the previous 12 months in Anlemo district, Hadiya Zone, southern Ethiopia, which is located 198 kilometers west of Hawassa, the capital city of the Southern Nation Nationalities People Region (SNNPR's) capital city, and 214 kilometers south of Addis Ababa, Ethiopia's capital city. In the district, there were two urban and twenty-seven rural kebeles. According to 2017 population projections, the district's total population was estimated to be 91, 464 people, with a male to female ratio of 1 : 1. The district had 38,293, 3,164, 2,918, and 14,277 households, expected deliveries per year, surviving infants, and children under the age of five, respectively. According to the Anlemo district health office report, the district had five health centers, twenty-seven health posts, eight private primary clinics, one private medium clinic, and four private drug stores. In the 12 months leading up to June 29th, 2019, there were 2724 mothers who gave birth (Anlemo district health office annual plan and performance evaluation report, unpublished). The study was conducted from June 15th, 2019 to July 16th, 2019.

2.2. Study Design and Participants. A community-based cross-sectional study was conducted among randomly selected mothers in the Anlemo district who had given birth within the previous 12 months. Mothers who had given birth within the previous 12 months and who were residing in selected kebeles, regardless of marital status, and who had an infant alive during the study period were included in the study. Those who were unable to respond or were extremely ill were, however, excluded.

2.3. Sample Size Determination. The required sample size was determined using the following formula based on a single population proportion:

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

where n = required sample size, Z_2 = critical values at a 95 percent confidence level of certainty = 1.96 (two-sided test), design effect (d) = 2, P = 83 percent (P from another similar

study conducted in Tiro Afeta district in southwest Ethiopia) [15], $q = 1 - P$, d = margin error = 5%, and adjustment for nonresponse 10%. Taking these assumptions into account, the formula produces 217 sample populations. Because the number of mothers who gave birth in Anlemo district in the previous 12 months was 2724 (less than 10,000), the following correction formula was used: $nf = n/(1 + n/N) = nf = 217/(1 + 217/2724) = 201$. With a 10% nonresponse rate and a design effect of 2, the total sample size required was 442.

For the second objective, the required sample size was calculated using Epi-Info software version 7.0. The variables associated with healthcare-seeking behavior are as follows: mother's educational status (20.4%), place of delivery of last child (26.2%), optimal thermal care (29.7%), decision-making ability to seek neonatal healthcare (12.5%) with confidence level (95%, power 80% assumption), and ratio (no. of outcomes in unexposed: no. of outcomes exposed). Sample size was calculated for the second objective from a previous study from Tenta District, northeast Ethiopia [16] (Table 1).

The second objectively calculated sample size was 111, 116, 188, and 38, respectively, but the maximum sample size of 442 was taken.

2.4. Sampling Procedures.

The study subjects were chosen using a multistage sampling technique. There were 29 kebeles in Anlemo district, which were divided into two urban and twenty-seven rural kebeles. One urban and eight rural kebeles were chosen using a simple random sampling technique to increase representativeness. The sample was drawn from these kebeles using a proportional allocation of sample size based on the number of delivered mothers in the previous 12 months in the selected kebeles. If a household had more than one mother who had given birth within the previous 12 months, one was chosen at random using the lottery method. If the mothers in the chosen households did not have infants, the next household was visited. The required number of mothers with infants under one-year-old was obtained using a systematic sampling procedure that calculated the Kth value by dividing the total number of women who gave birth prior to the data collection period by the total number of sample size, and the first interviewing mother was identified using a lottery method among the mothers in the first sampling interval "K1." The proportional allocation technique was used to determine the sample size for each kebele (Figure 1).

2.5. Data Collection Tolls and Quality Assurance.

Researchers adapted a structured interviewer-administered questionnaire after reviewing various literatures on similar studies that had previously been done. The questionnaire was written in English, translated into the local language (Hadiyisa), and then, independently re-translated back into English to check to ensure consistency. Structured questionnaires were used to collect data on dependent and independent study variables. A 5% sample pretest was conducted outside of the study setting on mothers who had given birth within the previous 12 months to identify any ambiguity, inconsistency, validity, completeness, skip patterns, and acceptability of the questionnaire, and necessary corrections were made before the actual data collection. Data were collected by three diploma nurses and one supervisor BSc holder (public health officer) who were recruited from outside the study area. Data collectors were trained, and data collection tools were thoroughly reviewed to ensure that all members had a common understanding. Each night on the same day, all of the questionnaires were checked for incompleteness.

2.6. Measurement and Definitions

2.6.1. Dependent Variable. Healthcare-seeking behavior (yes/no) and independent variables: age, family size, religion, ethnicity, marital status, residence, occupation, education, sex of the newborn, household income, decision-making ability, ANC, delivery, PNC service utilization, traditional practice and presence of home remedy, accessibility, source of information, and perception of mothers towards healthcare providers and knowledge.

2.6.2. Neonatal Danger Signs. Symptoms indicate that a newborn is critically ill and requires immediate treatment or, if possible, hospitalization [2].

2.6.3. Postnatal Care. Care was provided to a mother for six weeks following delivery.

2.6.4. Healthcare-Seeking. A response to neonatal danger signs in order to reduce severity and complications after recognizing the danger signs and perceived nature of illness [6].

2.6.5. Mother's Knowledge on Newborn Danger Signs. In this study, danger signs during childbirth were assessed using five items, with a correct answer receiving a score of "1" and an incorrect answer receiving a score of "0." This questionnaire is graded by calculating a percentage of the median and above score, which is categorizing as adequate or inadequate knowledge. Adequate knowledge was associated with mothers who answered more than or equal to 75% of the knowledge questions correctly, whereas inadequate knowledge was associated with mothers who answered less than 75% of the knowledge questions correctly [17–19].

2.6.6. Mother's Knowledge on Neonatal Danger Signs. If a mother can spontaneously mention at least three of the ten WHO recognized neonatal danger signs (good knowledge) and poor if they fail to mention three neonatal danger signs [20].

2.6.7. Good Healthcare-Seeking Behavior. If a mother seeks medical care when their neonate experiences newborn danger signs, the WHO provides it in between her postnatal visits, regardless of its severity and cost.

TABLE 1: The second objective the required sample size was calculated by using Epi-Info software version 7.0, to identify independent variable and compare for the largest sample size.

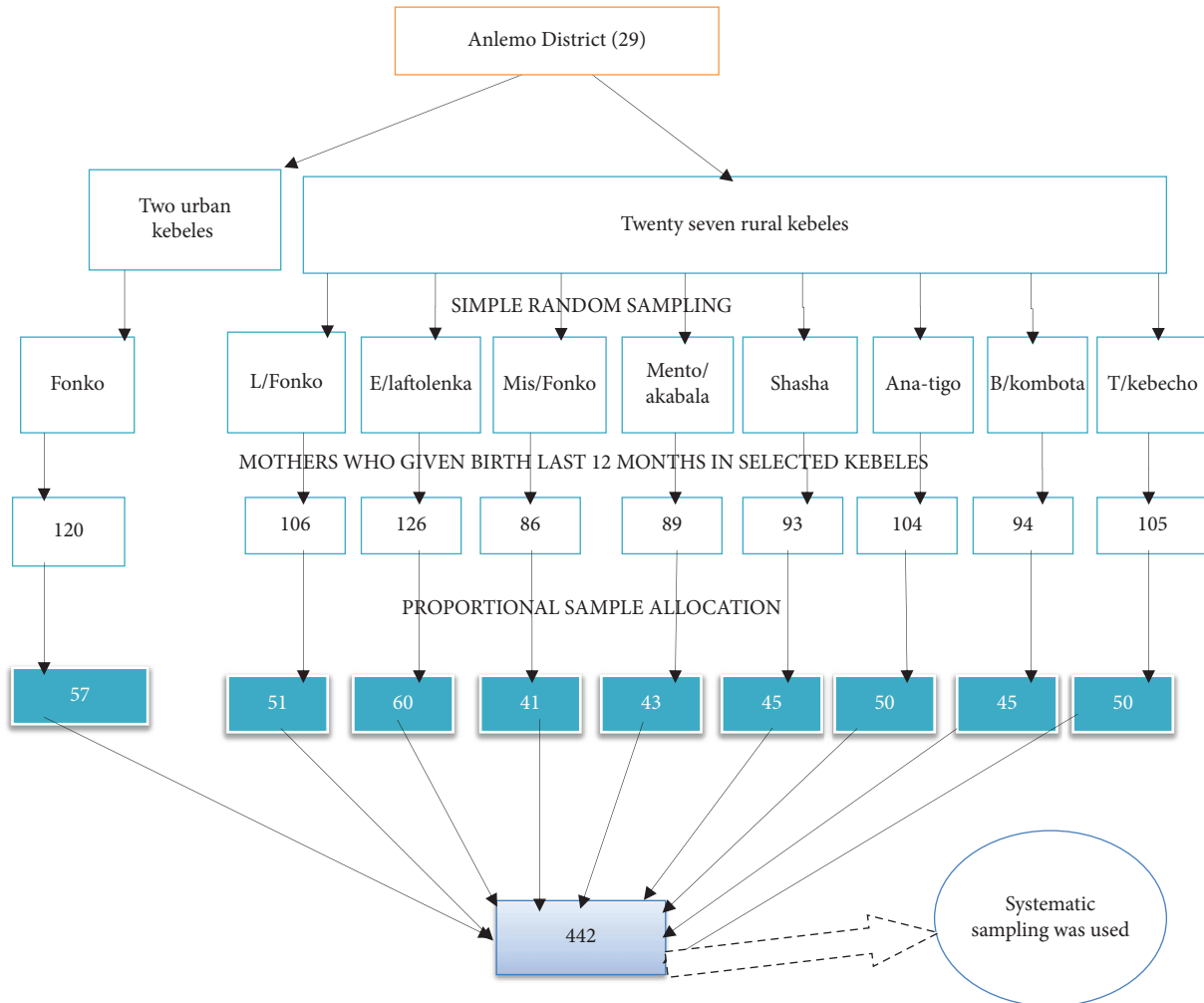| Variables	% of outcome in unexposed	Ratio (unexposed: Exposed)	Power	OR	Sample size
Mother educational status	20.4	3.87	80	4.46	111
Place of delivery of last child	26.2	1.85	80	3.35	116
Optimal thermal care	29.7	1.78	80	2.52	188
Decision-making ability to seek neonatal healthcare	12.5	0.65	80	11.28	38

FIGURE 1: Schematic presentation of sampling procedure.

2.6.8. Poor Healthcare-Seeking Behavior. We refer to those mothers who seek traditional, spiritual, and homemade treatments for their newborn after experiencing neonatal danger signs.

Accessibility to health facilities: we refer to the distance from the client's residence to the health facility that took less than 5 kilometers or 30 minutes to walk, and more than 5 kilometers or 30 minutes was considered inaccessible [21].

2.7. Data Processing and Analysis. Data were cleaned and entered into Epi-Data version 3.1 software and then exported to SPSS version 22.0 for analysis. For categorical variables, descriptive statistics were presented as frequencies, percentages, means, and standard deviations, and means and standard deviations were present for continuous variables. All independent variables with a p value of 0.25 in the bivariate logistic regression analysis were included in the

multivariable logistic regression analysis to identify independent factors. Statistical significance was determined using a 95% confidence interval (CI) and a *p* value of 0.05 to ensure that the necessary assumptions for multivariable logistic regressions were met. The Hosmer and Lemeshow goodness-of-fit test was used to assess whether the necessary assumptions were fulfilled.

2.8. Ethics Approval and Consent to Participation.

The study was conducted in accordance with the guidelines of the Hindawi journal after receiving ethical approval from the Wachemo University's Ethical Review Committee (reference no. WCU/SGS/538/2011E.C). An official letter was submitted to the concerned administrative office in the district to get permission for the study, and verbal consent was taken from each participant who participated in the study following an explanation of the purpose and the importance of the study in their local languages. The confidentiality of study participants was maintained by using codes instead of identifying them with their name. The participants agreed to participate voluntarily and were informed of their right to withdraw from the study at any time.

3. Results

3.1. Sociodemographic Characteristics of the Respondents.

The study included 421 mothers, with a response rate of 95.2%. The mean age of respondents was 30 years (SD ± 6.07); around 118 (28.0%) were between the ages of 30 and 34, followed by 116 (27.6%) who were over 35; and the majority of 356 (84.6%) lived in rural areas. In terms of religion, Protestants, Muslims, and Orthodox accounted for over half of the mothers, with 203 (48.2%), 175 (41.6%), and 36 (8.6%), respectively. Concerning the occupational status of respondents, housewives, laborers, merchants, and others were 275 (65.3%), 94 (22.3%), 34 (8.1%), and 18 (4.3%), respectively. Regarding education of respondents, those unable to read and write, elementary, secondary, and college level and above were 193 (45.8%), 165 (39.2%), 39 (9.3%), and 24 (5.7%), respectively. In terms of the total number of families living in the house, about 247 (58.7%) had less than five and 174 (41.3%) more than five family members; nearly two-thirds of 259 (61.5%) families had more than three children (Table 2).

3.2. Healthcare Service Utilization Characteristics.

Nearly half of the 217 participants (51.5%) came from a long distance away; caretakers/clients had to travel more than thirty minutes from their residence to reach the nearest health institution. Approximately 296 (70.3%) of responders had ANC follow-up during their pregnancy. Among these mothers who had ANC follow-up, all got ANC counseling services while counseled/advised about newborn danger signs, nutrition, breastfeeding, low birth weight, and family planning were 86 (29.1%), 69 (23.3%), 67 (22.5%), 49 (16.6%), and 25 (8.5%), respectively (Table 3).

3.3. Knowledge Level of Mothers Regarding Newborn Danger Signs.

About 318 (75.5%) of the mothers who responded had heard about WHO-recognized newborn danger signs. When we tried to calculate percentage median to categorize maternal/caretaker knowledge into adequate and inadequate, we noticed that about one-sixth (16.7%) of the mothers/caretakers could mention more than three symptoms and (83.3%) less than or equal to three symptoms among the newborn danger indicators identified by the World Health Organization (WHO) and the United Nations International Child Education Fund (UNICEF). HEWs, HPs, radio, and television provided information to 133 (41.8%), 107 (33.6%), 52 (16.4%), and 26 (8.2%) of the mothers, respectively. Regarding common newborn illness, vomiting, poor/unable to suck, high fever (>37.5), fast breathing (>60 minutes), difficult to breathe, altered consciousness, umbilical discharge/redness, and yellowish discoloration of the body were the most commonly cited WHO recognized newborn danger signs by questioning mothers, with 75 (23.6%), 58 (18.2%), 45 (14.2%), 43 (13.5%), 37 (11.6%), 25 (7.8%), 20 (6.3%), and 15 (4.7%), respectively. Respondents with adequate or inadequate knowledge of newborn illnesses or danger signs were 267 (63.4%) and 154 (36.6%), respectively (Table 4).

3.4. Mother's Healthcare-Seeking Behavior.

The proportion of healthcare-seeking behavior among newborns with danger signs in Anlemo district was 34.5% (95% CI: 28.7% to 40.5%). From those who faced newborn danger signs, 275 (86.5%) of them observed at least one of the NBDSs with their infant. Of these, 95 (34.6%) of the respondents seek healthcare services at a health facility, and 180 (65.4%) did not seek healthcare services at a health facility. Among those places of the medical care was sought, governmental health center, government hospitals, health posts, and private HFS were 51 (53.7%), 23 (24.2%), 12 (12.6%), and 9 (9.5%), respectively (Table 5).

3.5. Factors Associated with Healthcare-Seeking Behavior on Neonatal Illness.

When mothers were faced with neonatal danger signs, the multivariable logistic regression model identified three independent variables that were associated with their healthcare seeking behavior. Mothers who had a college degree or above were 6.34 times more likely than mothers who could not read or write to seek medical care (AOR = 6.34, 95% CI: 1.23–32.69). Mothers or healthcare seekers who did not travel a long distance (less than 5 kilometers) to acquire healthcare were 2.53 times more likely than mothers who traveled a long distance (AOR = 2.53, 95% CI: 1.05–6.08). Mothers who delivered at home were 0.34 times less likely to receive healthcare delivery service when compared to mothers who delivered in health institutions (AOR = 0.34, 95% CI: 0.12–0.96), which had a significant association with the dependent variables (Table 6).

TABLE 2: Sociodemographic variables of mothers in Anlemo district, southern Ethiopia, 2019.

Variables ($n = 421$)	Category	No (percent)
Age in years	20–24	83 (19.7)
	25–29	104 (24.7)
	30–34	118 (28.0)
	≥35	116 (27.6)
Religion	Protestant	203(48.2)
	Muslim	175 (41.6)
	Orthodox	36 (8.5)
	Others	7 (1.7)
Occupation of respondent (mother)	Housewives	275 (65.3)
	Laborer	94 (22.3)
	Merchant	34 (8.1)
	Others	18 (4.3)
Educational status mother	Unable to read & write	193 (45.8)
	Elementary	165 (39.2)
	Secondary	39 (9.3)
	College and above	24 (5.7)
Residence	Urban	65 (15.4)
	Rural	356 (84.6)
Total family size	≤5	247 (58.7)
	>5	174 (41.3)
Total number of children	≤3	162 (38.5)
	>3	259 (61.5)
Age of the baby	0–28 days	61 (14.5)
	>28 days	360 (86.5)
Sex of recent birth	Male	196 (46.6)
	Female	225 (53.4)
Average monthly income of households	≤12 dollars	202 (48.0)
	(12–34) dollars	181 (43.0)
	≥35 dollars	38 (9.0)

4. Discussion

Healthcare-seeking from a health facility for common newborn illnesses has a high potential to reduce neonatal mortality. There was evidence of a link between seeking healthcare and a reduction in neonatal mortality [22]. According to the findings of this study, 95 (34.5%) of the mothers who seek healthcare for their neonates, which is nearly in line with studies conducted in peri-urban Wardha Sewagram, India (37.5%), fourteen rural subdistricts of Bangladesh (29.4%), Uganda (30.0%), Wolkite Town, Gurage Zone, SNNPR, Ethiopia (32.0%), and Tenta district, northeast Ethiopia (41.3%) [16, 20, 23, 24]. However, it is higher than the similar study conducted in Uttar Pradesh, North India (23.0%), Ambo town (20.3%) [25] but much lower than the finding of a study conducted in rural Wardha of India (91.0%), Yenagoa Metropolis, Bayelsa State, Nigeria (56.0%), and Tiro Afeta district, southwest Ethiopia (83.0%) [15, 26–28].

These disparities could be attributed to the social environment (cultures, values, and beliefs) that encourages or discourages healthcare-seeking behavior in response to neonatal danger signs, geographical variation, socioeconomic differences, the type of study design used, sample size sufficiency, the fear of high cost of treatment at health facilities, the unavailability of qualified health providers, the timing of the study, educational levels, and health service

utilization (ANC, PNC follow-up and place of delivery), mother's decision-making at home may also influence mother's healthcare-seeking behavior if she is diagnosed with NBDS.

Mothers' knowledge of signs of newborn illnesses, which is one of the most important factors influencing mothers' care-seeking behavior, has been shown to be low in this study, as demonstrated by the operational definition 63.4% of mothers were aware of newborn illnesses [18]. This is nearly similar to the report of Awasthi et al. [26] who found low awareness of danger signs among mothers in India. However, it differs from the high level of awareness of newborn danger signs in Niger reported by Alex Hurt [28].

The study found that the mother's educational status, time to reach the nearest health facility, PNC follow-up, and place of delivery were the key factors influencing mothers' knowledge of newborn sickness. This finding is partly consistent with a study done in the Tiro Afeta district in southwest Ethiopia, which found that mothers' awareness of danger signs and health-seeking behavior in newborn sickness [15].

In a study conducted in fourteen rural districts of Bangladesh, mothers' education was significantly associated with seeking care from trained providers when compared to illiterate mothers [23]. In Wolkite Town, educated mothers were more likely to seek care for their sick newborn at a health facility [20]. In Tenta District,

TABLE 3: Healthcare service utilization of mothers in Anlemo district, southern Ethiopia, 2019.

Variables	Categories	No (percent)
Time to reach nearest HF ($n = 421$) (in minutes)	≤30	204 (48.5)
	>30	217 (51.5)
ANC follow-up ($n = 421$)	Yes	296 (70.3)
	No	125 (29.7)
ANC counseling receiving ($n = 296$)	Yes	296 (100)
	No	0 (0)
Type of ANC counseling ($n = 296$) (the topics clients counseled)	Nutrition	69 (23.3)
	Breast feeding	67 (22.5)
	Low birth weight	49 (16.6)
	Family planning	25 (8.5)
	Newborn danger signs	86 (29.1)
Place of delivery ($n = 296$)	Health institutions	169 (57.1)
	Home	127 (42.9)
PNC follow up ($n = 169$)	Yes	102 (60.4)
	No	67 (39.6)
Type of counseling during PNC ($n = 102$)	Breast feeding	42 (41.2)
	Nutrition	11 (10.8)
	Newborn danger signs	18 (17.6)
	Kangaroo mother care	9 (8.8)
	Personal hygiene	22 (21.6)

TABLE 4: Knowledge level of mothers regarding NBDS in Anlemo district, southern Ethiopia, 2019.

Variables	Categories	No (percent)
Did you hear newborn illness? ($n = 421$)	Yes	318 (75.5)
	No	103 (24.5)
How many of the newborn illness did you know? ($n = 318$)	≤3	265 (83.3)
	>3	53 (16.7)
Where did you get this information? ($n = 318$)	Health extension workers	133 (41.8)
	Health professionals	107 (33.6)
	Radio	52 (16.4)
	Television	26 (8.2)
Common newborn illness do you know ($n = 318$) (from WHO defined lists)	High fever	45 (14.2)
	Fast breathing	43 (13.5)
	Poor sucking	58 (18.2)
	Difficult to breath	37 (11.6)
	Vomiting	75 (23.6)
	Yellowish discoloration of the body	15 (4.7)
	Umbilical discharge/redness	20 (6.3)
	Altered consciousness	25 (7.8)
Mothers' perceived cause for newborn illness ($n = 318$)	Infection	117 (36.8)
	Exposed to heat	48 (15.1)
	Exposed to cold	30 (9.4)
	Poor sucking	123 (38.7)
Mother's knowledge of newborn illness	Yes	267 (63.4%)
	No	154 (36.6%)

Northeast Ethiopia, educated mothers are more likely than illiterate mothers to seek care in a health institution for their sick neonates [16].

The mothers' educational level may increase early recognition of newborn danger signs, making them more likely to seek care at a health facility. The place of delivery had a significant association with mothers' healthcare-seeking behavior regarding newborn illness during the neonatal period [28].

In Bangladesh, mothers who gave birth in healthcare facilities were significantly more likely than mothers who gave birth at home to seek care from trained providers [23]. The results of a study conducted in Tiro Afeta district revealed that the place of delivery had a significant association with the care-seeking behavior of mothers who had NBDS [15]. The results of a study conducted in the Wolkite Town of birth had a significant impact on maternal care-seeking practice for newborn danger signs [20].

TABLE 5: Mothers healthcare-seeking behavior in Anlemo district, southern Ethiopia, 2019.

Variables	Categories	No (percent)
Mothers who have faced newborn illness ($n = 318$)	Yes	275 (86.5)
	No	43 (13.5)
Healthcare-seeking behavior ($n = 275$)	Yes	95 (34.5)
	No	180 (65.5)
Place of medical healthcare-seeking ($n = 95$)	Health post	12 (12.6)
	Health center	51 (53.7)
	Gov't hospital	23 (24.2)
	Private health facility	9 (9.5)
Sought to nonmedical care ($n = 180$)	Traditional	98 (54.4)
	Home remedy	38 (21.1)
	Sought spiritual	24 (13.3)
	Nothing	12 (6.7)
	Others	8 (4.4)
Reason for not seeking care at HF ($n = 180$)	Herbal treatment best	79 (43.9)
	Long distance	23 (12.8)
	Negligent health workers	21 (11.7)
	Case not series	27 (15.0)
	Work over load	18 (10.0)
	Evil spirit case	12 (6.7)
Decision-making NBDS ($n = 296$)	Father alone	86 (29.0)
	Mother alone	73 (24.7)
	Both	137 (46.3)

Mothers with a college degree or above were 6.34 times more likely to seek medical care than mothers who could not read or write. The explanation for this could be that government-employed mothers are well-educated and seek healthcare more frequently, and they may use a different source of health-related information. Mothers who delivered at home were 0.34 times less likely to receive healthcare delivery services when compared to mothers who delivered in healthcare institutions. This finding is congruent with the studies conducted in Ambo Town [25]. The possible explanation was that increasing mothers' utilization of health services delivered at the institutional level hierarchy increases mothers' care seeking of sick neonates, leads to positive care seeking behaviors, increases mothers' trust in health facility services, and mothers had a higher likelihood of receiving health information directly from skilled health professionals and possibly gained a better understanding of the consequences of NBDS.

Despite Ethiopia's endeavors to empower the community to improve neonatal health services at the grassroots level, mothers' knowledge of newborn illness, which is a key entry point for improving neonatal health, was found to be low in this study, despite the high healthcare seeking behavior for newborn illness. It was especially low for some critical illnesses in newborns, such as jaundice. Thus, intervention modalities focusing on maternal counseling on the most common symptoms of illness have been identified by the WHO in the newborn, particularly during ANC/PNC follow-up as well as during institutional delivery, are very important in order to increase mothers' knowledge of illness recognition and thus improve mothers' care-seeking behavior.

One of the study's strengths is that participants were selected using the probability sampling method to assure the study's representativeness, and several approaches were utilized to preserve data quality. The limitations of this study are the same as those of a cross-sectional study. Furthermore, the use of a qualitative method was not used in this study. As a result, precise reasons for not seeking healthcare from diverse perspectives were not able to be demonstrated. Furthermore, recall bias cannot be ruled out for events that occurred after the data collection period; social desirability bias may also be a factor.

TABLE 6: Multivariable analysis of healthcare-seeking behavior of mothers on neonatal danger signs in Anlemo district, southern Ethiopia, 2019.

Variables		Healthcare-seeking behavior		COR (95% CI)	AOR (95% CI)	p value
		Sought nonmedical care (%)	Sought medical care (%)			
Educational status of respondent	Unable to read and write	93 (51.7)	37 (38.9)	1	1	1
	Elementary	62 (34.4)	42 (44.2)	1.70 (0.98, 2.94)	1.68 (0.64, 4.40)	0.288
	Secondary	19 (10.6)	7 (7.4)	0.93 (0.36, 2.38)	0.54 (0.09, 2.96)	0.476
	College and above	6 (3.3)	9 (9.5)	3.77 (1.25, 11.34)	6.34 (1.23, 32.69)	0.027**
Time to reach nearest HF	≤30	75 (41.7)	56 (58.9)	1	1	1
	>30	105 (58.3)	39 (41.1)	2.01 (1.21, 3.33)	2.53 (1.05, 6.08)	0.038**
PNC follow-up	Yes	116 (64.4)	82 (86.3)	1	1	1
	No	64 (35.6)	13 (13.7)	2.82 (1.26, 6.32)	1.29 (0.32, 5.26)	0.715
Place of delivery	Health institutions	58 (50.0)	57 (69.5)	1	1	1
	Home	58 (50.0)	25 (30.5)	0.44 (0.24, 0.79)	0.34 (0.12, 0.96)	0.042**

1, reference; **, significantly associated with the dependent variable.

5. Conclusion

The findings of this study revealed that, in the studied area, there was a low prevalence of mothers seeking health care for NBDS, and that mothers' educational level, time to reach the nearest health facility, and place of delivery were statistically significant associate's to mothers seeking healthcare for newborn danger signs.

It is recommended that mothers' education be improved, that employment be made more available to information, and that healthcare providers educate mothers on NBDS during their hospital visits.

Abbreviations

ANC: Antenatal care
CBNC: Community-based newborn care
CRC: Compassionated, respectful, and caring
EDHS: Ethiopian demographic and health survey
ENC: Essential newborn care
FHC: Family health card
HAD: Health development army
ICCM: Integrated community case management
IMNCI: Integrated management of newborn and childhood illnesses
HEP: Health extension program
HF: Health facility
HEW: Health extension worker
HIV: Human immune virus
HMIS: Health management information system
HSTP: Health sector transformation plan
LBW: Low birth weight
MDG: Millennium development goal
MCH: Maternal child health
MOH: Ministry of Health
NBDS: Newborn danger signs
NMR: Neonatal mortality rate
PNC: Postnatal care
PI: Principal investigator
PPBHCP: Perceived positive behavior healthcare providers
SBA: Skilled birth attendant
SNNPR: Southern Nation Nationalities People Region
SPSS: Statistical Package for Social Science
TBA: Traditional birth attendant
UNICEF: United Nations International Children Education Fund
WHO: World Health Organization.

Data Availability

The data supporting the current study are available within the article.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

Markos Selamu Jifar designed the study, analyzed the data, interpreted the results, and wrote the manuscript. Zeyene Abute Idris analyzed the data, interpreted the findings, and approved and suggested that the study should be published. Garumma Tolu Feyissa approved and recommended publication of the study. Aregash Mecha analyzed the data, interpreted the findings, and approved and recommended publication of the study. Legesse Tesfaye analyzed the data, interpreted the findings, and approved and recommended publication of the study. Zeyene Abute Idris, Garumma Tolu Feyissa, Legesse Tesfaye Elilo, and Aregash Mecha are co-authors.

Supplementary Materials

Data collection tools. (*Supplementary Materials*)

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