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Research Article

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Determinants of Undernutrition among Lactating Women in Shone Town, Ethiopia: A Mixed-Methods Study

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ABSTRACT

In Ethiopia, undernutrition among lactating women is a significant public health concern; however, there is a lack of specific data from areas such as Shone Town. A cross-sectional study was conducted from November 2023 to January 2024 to assess the prevalence of undernutrition, identify its determinants, and explore perceptions of body weight among lactating women in Shone Town, Ethiopia. We used a mixed-methods approach, combining a community-based with a phenomenological qualitative investigation. A multistage systematic sampling was used to recruit 495 lactating women who were less than 24 months postpartum. Anthropometry (BMI <18.5 kg/m² = undernutrition), dietary variety, and household food security were among the quantitative data. 42 participants in four focus groups explored their perspectives on body weight. Open Code 4.02 was used for thematic data analysis and multivariate logistic regression for determinant analysis. Prevalence of undernutrition was 32.5% (95% CI: 28.6–37.5%). High parity (≥3 births) (AOR = 0.26; 95% CI: 0.18-0.39; $p < 0.001$), husband's farming occupation (AOR = 0.05; 95% CI: 0.01-0.32; $p = 0.002$), and proximity to a healthcare center (≤3 km) (AOR = 0.61; 95% CI: 0.46–0.81; $p = 0.001$) were significant predictors. Qualitative themes revealed cultural taboos (68% avoided nutrient-dense foods due to infant harm fears), economic barriers (90.9% consumed ≤3 food groups; poverty limited access to animal-source food), and healthcare gaps (although 99.6% ANC attendance, nutrition education was insufficient). In conclusion, undernutrition in Shone Town reflects a combination of cultural, healthcare, and socioeconomic factors. Interventions must integrate economic empowerment, culturally sensitive nutrition education, and healthcare services.

Keywords: Cultural Taboos, Dietary Diversity, Food Insecurity, Lactating Women, Maternal Undernutrition, Shone.

Introduction

The term malnutrition includes both undernutrition and overnutrition and describes issues pertaining to nutrition. But in most places, undernutrition is the most common malnutrition type, caused by insufficient calories, protein, and micronutrients. Low-income nations have seen high rates of undernutrition [1].

An important public health issue in Ethiopia is undernutrition among nursing mothers, with one in four of these women clearly suffering from undernutrition [2]. According to different studies in Oromia, Amhara, Tigray, and Southern Nations, about one-fifth of lactating mothers were underweight [3,4,5]. This suggests that undernutrition was quite prevalent and that an unacceptable proportion of nursing moms are undernourished [3].

Globally, maternal undernutrition is still a public health problem, particularly in middle-income and low-income countries. 10–19% of reproductive-age women are underweight, with South Asia and sub-Saharan Africa having the highest rates [6]. Undernutrition is a major issue among nursing women in developing countries, particularly in Sub-Saharan Africa, which includes Ethiopia [1].

According to [3], 20% to 25% of women in developing countries, such as Ethiopia, are underweight. According to research, the following factors were found to be associated with maternal undernutrition in Ethiopia: low dietary diversity score, low educational attainment, small landholding size, poor ANC visits, inadequate household environment (such as water and toilet facilities), high burden of reproduction, and household food insecurity [3,4].

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In Ethiopia, despite the modest development in other health indices, undernutrition among nursing mothers remains a significant public health concern. Because breastfeeding increases dietary demands compared to pregnancy, women must consume around 500 more calories per day to maintain milk production and maternal health. Nursing moms produce 0.7 to 0.8 L/d of milk [8,9]. Inadequate intake of nutritional food impairs maternal health and infant growth [10, 11].

Data from the Ethiopia Demographic and Health Survey 2016 reveal that about 22% of women of their reproductive age were underweight, with some regions reporting even higher prevalence [12]. Limited dietary diversity, poverty, food insecurity, and barriers to healthcare all play a part in maternal undernutrition. 21–29% of lactating women are undernourished in southern and central Ethiopia [4,13]. These findings underscore significant regional disparities and highlight the need for locally tailored research and interventions.

According to [14] and [15], financial constraints and cultural beliefs often prevent nursing mothers from meeting their nutritional needs. In Ethiopia, misconceptions about the outcome of certain foods on mothers and infants cause the avoidance of nutrient-rich items during breastfeeding. Increased risk of postpartum undernutrition was mainly due to limited nutrition education and women's restricted decision-making practices [16]. No prior studies exist on healthcare access, cultural food taboos, and socio-economic factors of maternal undernutrition in Shone Town despite its high population. Due to the study area's distinct socio-economic, cultural food taboos and maternal healthcare access, a targeted study is necessary to inform effective nutrition and health interventions. Therefore, the objective of this study was to assess the prevalence of undernutrition among lactating women in Shone Town, identify determinants of undernutrition, and explore perceptions of body weight among these women. Addressing these sociocultural barriers and improving access to nutritious food are essential for achieving better maternal and child health.

Materials and Methods

Study Area Description

The study was conducted in Shone Town. Shone Town is located in the Hadiya Zone of the Central Ethiopia Region, 334 km away from Addis Ababa, at a latitude and longitude of 7.16°North and 37.97° East, with an elevation of 1972.00 meters masl [17]. Shone Town administration, characterized by mixed urban and peri-urban settings, serves as a significant urban center in the region, with a total population of 56,772 comprising 27,787(49%) males and 28,985(51%) females [18]. The town is predominantly inhabited by the Hadiya ethnic group and is known for its agricultural activities and diverse cultural practices. Health facilities in the town include one governmental hospital, one health center, nine medium- and lower-level clinics, and six health posts.

The town administration is divided into six kebele administrations.

Study Design and Period

A community-based study was conducted between November 2023 and January 2024, using explanatory sequential mixed methods. The quantitative component used a cross-sectional design to determine the prevalence and contributing factors of undernutrition in mothers who breastfeed. The qualitative component used a phenomenological technique for focus group discussions to investigate perceptions of body weight and participants lived experiences during breastfeeding

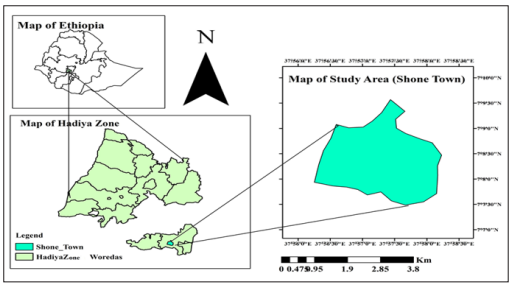

Figure 1: Map of study area (Shone Town of Hadiya Zone)

Study Population

The study targeted lactating women residing in Shone Town, Hadiya Zone of the Central Ethiopia Region. Inclusion criteria encompassed women aged 18 years and older, breastfeeding a child under 24 months, and residing in the town for at least six months. Women who were severely ill or had physical disabilities that impeded accurate anthropometric measurements were excluded.

Sample Size and Sampling Procedures

The sample size for the quantitative survey was determined using a single population proportion formula, assuming a 21.2% prevalence of undernutrition among lactating women [15], a 95% confidence level, a 5% margin of error, a 10% non-response rate, and a design effect of 1.5, using the formula $n = (Z\alpha/2)^2 \chi \frac{p(1-p)}{d^2}$, $= (1.96)^2 \times 0.212 \times (1 - 0.212) / (0.05)^2$. Adjusted for cluster variability, the final sample size was 495 women. For the qualitative study, participants were purposively selected to participate in four focus group discussions (FGDs). Ensuring diversity in age, parity, and education level ensured the thematic saturation for phenomenological studies.

A systematic random sampling was used for the quantitative survey, while purposive sampling ensured diverse representation in the qualitative focus groups. Two kebeles (Arancha and Licha) were selected by multistage sampling, eligible households were listed, and systematic random sampling with proportional allocation was applied to select lactating women. In households with more than one eligible woman, one participant was chosen by a lottery system.

Data Collection

Quantitative data were collected using a structured interviewer questionnaire, adapted from validated instruments, prepared in English, and translated into Amharic. The questionnaire covered socio-demographic characteristics, household food security, maternal healthcare utilization, and dietary diversity.

Anthropometric measurements followed WHO guidelines. The height of participants was measured to the nearest 0.1 cm using a portable stadiometer. Weight was measured to the nearest 0.1 kg using a calibrated SECA digital scale, with participants wearing light clothing and no shoes. Body Mass Index (BMI)

was calculated as weight (kg) divided by height (m^2), and undernutrition was defined as BMI < 18.5 kg/m^2 [19].

Household food insecurity was assessed using the WDDS (Women's Dietary Diversity Score), followed by FAO 2021 guidelines (9 food groups); HFIAS (Household Food Insecurity Access Scale) used a standard 9-item scale [20]. Both were pretested (Cronbach's α >0.7). Based on a 24-hour recall of food group consumption, classified as low (≤3 food groups), medium (4–5 food groups), or high (≥6 food groups) [21]. One health officer and three trained nurses facilitated data collection. To ensure cultural relevance and necessary modifications, a pretest was conducted among 25 women in a neighboring Korga Town.

Qualitative data were collected through four focus group discussions, each comprising 10–12 participants. A semi-structured discussion guide explored perceptions related to cultural beliefs, body weight, and food intake during lactation. Discussions were audio-recorded with consent, and supplementary field notes were taken.

Study variables: Undernutrition among lactating women was outcome variable, while socio-demographic & Economic factors (maternal age, education, marital status, family size, ethnicity, household income, and land ownership), dietary intake and food access factors (household food insecurity, dietary diversity, number of meals intake and extra meals), Maternal health care factors (birth interval, current family planning, ANC visit, nutrition information), and cultural factors (misconception, and traditions, negative attitude, and lack of knowledge), and environment factors were considered as independent variables.

Data Management and Analysis

Quantitative data were entered into EpiData version 3.1 and analyzed using SPSS version 25. Descriptive statistics summarized socio-demographic and health-related variables. The final logistic regression model was tested for multicollinearity by using VIF < 2 for all predictors, and the Hosmer-Lemeshow model fit test showed p=0.12, indicating good model fit. Bivariate logistic regression was performed to examine associations between independent variables and undernutrition; variables with p-values <0.2 were included in the multivariable logistic regression analysis. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) and p-values < 0.05 were considered statistically significant. Qualitative data: Audio recordings were transcribed verbatim and translated into the English language. Thematic analysis was conducted using Open Code version 4.02 software, following the seven steps of phenomenological data analysis. Transcripts were read repeatedly to achieve immersion, significant statements were extracted, meanings were formulated, and themes were developed. Credibility was ensured through peer debriefing and member checking.

Results

Characteristics of Study Participants

In this study, 495 lactating women were enrolled (response rate of 99.19%). The mean age was 29.63 (SD + 6.4) years. The majority, 412 (83.2%), of the respondents belonged to the Hadiya ethnic group, and 346 (69.9%) were Protestant. 228 (46.1%) had completed secondary school education, and 183 (37%) had college or higher-level education, whereas 84 (16.7%) had primary or no formal schooling. Regarding maternal occupation, 451 (91%) were housewives; the remaining 4.6%, 2%, and 2.4% worked in commerce, government, and other occupations, respectively (fig. 2).

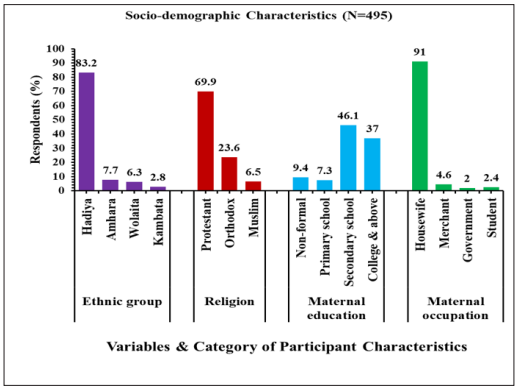

Figure 2: Socio-demographic characteristics (N=495)

Food insecurity in households was common; 99.6% of respondents said they limited their variety of foods because of a lack of supplies, and almost all respondents said they were concerned about running out of food. Due to a lack of options, almost half (46.3%) were unable to get the food that they desired to eat, and 28.1% ate items they didn't want to. 12.6% occasionally missed meals, while a sizable percentage (23.8%) ate smaller meals than needed. There were also reports of shortages: 2.2% said that some of us went to bed hungry at least once, and 4.8% said there were occasions when there was no food in the entire household (Table 1).

Table 1: Household food insecurity among Lactating Women in Shone Town (N=495)

Variable	Category	
	Yes (%)	No (%)
Have enough food	493 (99.6%)	2 (0.4%)
Not able to eat	229 (46.3%)	266 (53.1%)
Limited variety of food	495 (100%)	-
Didn't want to eat any food type	188 (38%)	308 (62.2%)
Eat a small meal	118(23.8%)	377(76.2%)
Limited meal frequency	63(12.6%)	432(86.6%)
No food in the house	24(4.8%)	471(94.4%)
Sleep at night hungry	4(2.2%)	484(97.8%)
Without food whole day	9(1.8%)	486(98.2)

Dietary Diversity and Food Security

Women's dietary diversity was generally low. According to the Women's Dietary Diversity Score (WDDS), 90.9% of participants consumed ≤3 Food groups in the previous 24 hours, while only 6.3% and 2.8% (high) consumed 4–5 or ≥6 groups, respectively. 3% of women experienced diarrhea in the two weeks before the survey (Figure 3). In the 24-hour recall of specific foods, 401 (81%) of women commonly consumed starchy staples. Most women (63.8%) reported eating three meals per day, and 31.9% reported consuming an additional meal or snack during lactation. All women, 494 (98.2%), consumed other vegetables and fruits, whereas intake of protein-rich foods

and animal sources was much lower: 275 (55.6%) consumed dairy, 12.9% eggs, 5.9% legumes/nuts, and 3.4% meat or fish. Less than half, 238 (48.1%), ate vitamin A-rich, locally available green leafy vegetables. These results indicate a diet dominated by cereals and vegetables with limited diversity in protein and micronutrient sources (Table 2).

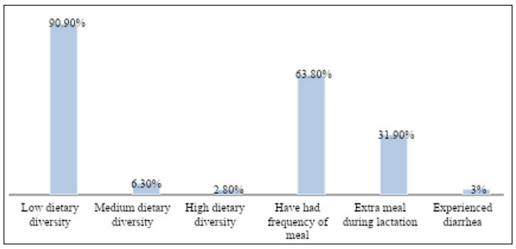

Figure 3: Dietary diversity food group of the study, Lactating Women in Shone Town (N=495)

Table 2: Dietary Diversity Based on 24-Hour Recall among Lactating Women (N=495)

Food Group	Consumed (Yes)	Percent (%)	Consumed (No)	Percent (%)
Starchy staples	401	81.0%	94	19.0%
Legumes and nuts	29	5.9%	466	94.1%
Dairy products	275	55.6%	220	44.4%
Meat	1	0.2%	494	99.8%
Eggs	64	12.9%	431	87.1%
Flesh foods (meat/fish)	17	3.4%	478	96.6%
Vitamin A-rich dark leafy greens	238	48.1%	257	51.9%
Other vitamin A-rich vegetables	486	98.2%	9	1.8%
Other vegetables and fruits	429	86.7%	66	13.3%

Maternal Healthcare Factors of Undernutrition

The average parity (number of births) was 3.4 (SD 0.95). Antenatal care (ANC) utilization was nearly universal 99.6% of women attending ANC during their last pregnancy. Among those women, most (73.7%) had two ANC visits. All women delivered their most recent child in a health facility, and family planning use was 100% (predominantly implants (76%) and injectables (21.4%)). Postnatal care (PNC) coverage was high: 85.3% of mothers attended PNC, and of these, 54.7% had two visits (38.4% had one visit, and 6.9% had three visits). The mean distance to the nearest health facility was 3.5 km (Table 3).

Table 3: Maternal healthcare factors of undernutrition (N=495)

Variable	Category	Frequency	Percent (%)
Abortion History	Yes	10	2.0%
	No	485	98.0%
ANC follow-up	Yes	493	99.6%
	No	2	0.4%
Number of ANC visits	One visit	125	25.3%
	Two visits	365	73.7%
	Three or more	3	1.0%
Family planning method used	Injectable	106	21.4%
	Implant	376	76.0%
	Breastfeeding	13	2.6%
Attended postnatal care (PNC)	Yes	422	85.3%
	No	73	14.7%
Number of PNC visits	One visit	190	38.4%
	Two visits	271	54.7%
	Three & more	34	6.9%

ANC: Antenatal Care, PNC: Postnatal Care, FP: Family Planning

Environmental Factor

Most households (88.4%) had access to a latrine, with flush toilets being the most common type (68.1% of those with latrines). Hand washing with water and soap after toilet use was practiced by 70.5% of women (9.9% used water only). Solid waste disposal systems were present in 69.9% of compounds, and 90.1% had a system for liquid waste disposal. The principal source of drinking water was a private tap for 60.2% of households; the remaining 39.8% used public taps (Table 4).

Table 4: Environmental factors related to undernutrition among study participants (N=495)

Variable	Category	Frequency	Percent (%)
The household has a latrine	Yes	440	88.4%
	No	55	11.6%
Type of latrine used	Traditional pit	56	11.3%
	Pit with slab	102	20.6%
	Flush toilet	337	68.1%
Handwashing after toilet	Water only	49	9.9%
	Water with soap	349	70.5%
	Water with ash	96	19.4%
Solid waste disposal is available	Yes	346	69.9%
	No	149	30.1%
Liquid waste disposal is available	Yes	446	90.1%
	No	46	9.9%
Main source of drinking water	Private tap	298	60.2%
	Public tap	197	39.8%
	Three & more	34	6.9%

Prevalence of Undernutrition

Overall, 32.7% (95% CI: 28.6–37.5) of lactating women were underweight (BMI < 18.5 kg/m2), and the remaining 67.3% had normal BMI (18.5–24.9 kg/m2).

Determinants of Undernutrition Among Lactating Women in Shone Town

Multivariate logistic regression identified three independent factors significantly associated with maternal undernutrition. Women with farming husbands had 95% lower odds of undernutrition (AOR=0.05; 95% CI: 0.01–0.32; p=0.002), women with several Births ≥3 were also significantly more likely to be undernourished (AOR = 0.262, 95% CI: 0.175–0.392; p < 0.001). Women living ≤3 Km distances from a health facility were more likely associated with undernutrition (AOR = 0.608, 95% CI: 0.458–0.807; p < 0.001). Associations remained significant after adjustment for other variables (Table 5).

Table 5: Multivariate logistic regression of factors associated with undernutrition (N=495)

Variable	Category	COR (95% CI)	AOR (95% CI)	p-value
Maternal Education	Non-formal	0.36 [0.16-0.82]	1.70 [0.58-4.95]	0.330
	Primary	0.31 [0.12-0.84]	0.80 [0.25-2.56]	0.701
	Secondary	1.11 [0.74-1.66]	1.92 [1.08-3.40]	0.026
	College and above	1 (ref)	1 (ref)	—
Husband's Education	Non-formal	0.36 [0.16-0.82]	0.37 [0.10-1.29]	0.116
	Primary	0.31 [0.12-0.84]	1.07 [0.40-2.66]	0.888
	Secondary	0.86 [0.59-1.26]	1.86 [0.91-3.80]	0.089
	College and above	1 (ref)	1 (ref)	—
Husband's farming Occupation	farming vs. Govt.	242.11 [334-412]	0.05 [0.01-0.32]	0.002*
Number of Births (≥3)		0.33 [0.25-0.43]	0.26 [0.18-0.39]	<0.001*
Distance to health facility (≤3 km)		0.68 [0.58-0.80]	0.61 [0.46-0.81]	0.001*
Extra Meal During Lactation	Yes vs. No	2.02 [1.31-3.12]	1.14 [0.57-2.28]	0.709

* Indicates variables significant at p-value <0.05, on AOR (95%), Reference category: Farming occupation

Perceptions of Body Weight During Lactation

Thematic analysis of focus group discussions (FGDs) revealed lack of awareness, cultural food taboos, and poverty a major theme influencing undernutrition and body weight perception.

Theme 1: Knowledge Gaps and Lack of Awareness

Participants frequently expressed limited knowledge regarding healthy dietary practices during lactation. Many women believed that consuming certain nutrient-rich foods, such as honey, fatty meats, and vegetables, could harm their infant or cause complications during breastfeeding. As one participant explained:

Theme 2: Poverty and Economic Constraints

Participants highlighted economic limitations as major barriers to achieving a diversified, nutritious diet. Limited household income and rising food prices restricted the ability to purchase foods, particularly animal-source products. Hence, poverty, aligned with the quantitative finding (90.9%), reported low dietary diversity.

Discussion

The overall prevalence of undernutrition in Shone Town is 32.5% (95% CI: 28.6–37.5%) and exceeds national findings of 22% [2] due to limited health infrastructure and cultural food restrictions, and aligns with findings of 32.8% in the Afar Region [22] and 26.9% in rural Oromia [41]. Conversely, the prevalence was higher than the study reports from Offa (15.8%), Borena (17.7%), and Wombera (25.4%) [23], 22.6% in rural Yilmana Densa [24], 19.5% Adama [7], 17.7% in Moyale District [25], 17.4% in Arbaminch Zuria [26], and 9% in Indonesia [27], underscoring the importance of socioeconomic position, food security, and the level of nutrition interventions.

But the result was lower compared to findings from previous studies, 40.6% in Jimma [28] and 41.7% in Bible [29]. The variation in findings may be due to the difference in nutrition or seasonal food supply, occupation, maternal health services, livelihood system, the period during which this research was carried out, and differences in sample sizes compared to other studies.

Socioeconomic variables significantly influenced women's nutritional status, particularly the husband's work. Consistent with other research demonstrating that varied household income is protective against malnutrition, women whose husbands worked in non-farming industries had significantly reduced risks of undernutrition [25,30]. Economic limitations increase the likelihood of maternal undernutrition by limiting women's access to a variety of nutrient-dense meals [31].

Reduced odds of undernutrition were linked to higher parity. This result is consistent with research showing that more maternal nutritional expertise and access to family resources might be associated with multiple births that are spaced correctly [22]. But short inter-pregnancy intervals might cause maternal depletion syndrome; therefore, insufficient birth spacing is still a worry.

Proximity to health services strongly affected nutritional outcomes. Mothers residing within three kilometers of a health institution were less likely to be undernourished, possibly due to greater access to prenatal and postnatal care services and nutrition counseling [33, 33]. In rural Ethiopia, physical distance

continues to be a significant obstacle to the use of maternal health services [34].

Qualitative results also emphasized how important knowledge and attitudes are in determining dietary patterns. These results are in line with prior research conducted in Ethiopia and other countries with limited resources [34,35]. Many of the participants followed cultural dietary taboos that reduced their intake of foods high in nutrients and showed little understanding of the nutritional requirements during breastfeeding.

Similar to other studies in Ethiopia [10,20], financial constraints significantly impacted food choices like meat, eggs, and dairy products, and seasonal food shortages, leading to inadequate dietary diversity and undernutrition.

The implications for public health are significant. Undernutrition in the mother during breastfeeding affects the quality and quantity of breast milk produced, which affects the development, immunity, and survival of the newborn [37]. Additionally, it feeds the cycle of malnutrition that runs through generations, resulting in low birth weight and stunting in children [31]. Stronger health education during prenatal care, nutrition-sensitive agricultural products, economic empowerment measures, and social protection programs are all advised to reduce maternal undernutrition [30,35].

In this study, factors such as husband's occupation, distance to healthcare facility, and parity showed a statistically significant link to undernutrition in lactating mothers, which was supported by the study findings in India [38], in rural Ambo [39], and national studies in Ethiopia [40] and Tanzania [41]. This may be because women from low-income families generally worked jobs like daily laborers, had limited access to health care services, and struggled to meet their nutritional needs.

The study has limitations, such as its findings may not fully reflect the experiences of all lactating mothers of the broader population, dietary data could be influenced by seasonal fluctuations in food availability, meaning nutritional insights are tied to the specific period of the year the study was conducted, and self-reported data for certain variables may be subject to recall inaccuracies. Nevertheless, the study highlights key factors that policymakers and health practitioners should prioritize when developing strategies to address underweight challenges among lactating mothers. Despite these constraints, these findings directly inform Ethiopia's National Nutrition Program (NNP 2023–2030), which prioritizes maternal nutrition in agro-pastoral regions.

In conclusion, poverty, lack of access to healthcare, food insecurity, and cultural attitudes all contribute to the high prevalence of undernutrition among lactating women in Shone Town. It is necessary to implement comprehensive mitigations to protect maternal and infant health in comparable situations with limited healthcare services and resources.

Conclusion and Recommendations

Conclusion

According to this study, over one-third of the lactating women in Shone Town, Ethiopia, suffer from undernutrition, which continues to be a public health problem. Important influencers were socioeconomic factors, including maternal parity, husband's employment, and access to healthcare. Women were less likely to be undernourished if their husbands worked in non-farming industries, they were wealthier, and they lived nearer medical services. The results of the qualitative study confirmed that dietary patterns during breastfeeding were significantly impacted by economic hardship, food insecurity, cultural misunderstandings about food shortage, and consumption. Persistent maternal undernutrition has serious consequences, including raising newborn mortality and morbidity, compromising breastfeeding results, and negatively affecting maternal health. These results demonstrate the critical need for a coordinated, multi-sectoral strategy to tackle maternal undernutrition.

Recommendations

Based on the study findings, the following recommendations are proposed:

- Integrate myth-busting modules into ANC visits using culturally resonant messaging.
- Mobile healthcare units' intervention to reduce distance barriers should be implemented.
- Support income-generation programs through microcredit schemes and agriculture initiatives to improve dietary diversity.
- Future studies to assess intervention impacts and explore the broader dimensions of maternal nutrition, including micronutrient status.

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Funding Information

No funding was obtained for this study.

Conflict of Interest

The authors declare that there is no competing interest in this work.

Data Availability

The datasets used during the study are available from the corresponding author upon reasonable request.

Ethics Clearance and Participation Consent

Ethical clearance was obtained from the Institutional Review Board of Wolaita Sodo University (Ref: WSU/IRB/6058/204). Permission was secured from the Shone Town health office. Participants were given an explanation of the study's objective and asked to sign a written informed consent form to indicate their willingness to participate. Respondents were informed that they could ask any questions they wanted regarding the study and that they could decline or withdraw their participation at any time. The identities of the research participants were not listed on the questionnaire and were not disclosed to third parties to maintain confidentiality.

Declarations and Author Contributions

Authors contributed equally/considerably to the work reported as a Master's Thesis, whether it was in the conception, design of the study, operation, data collection, analysis, or interpretation. Finally, all authors approved this manuscript for publication, selected the journal for the submission, and agreed to take responsibility for every part of the work.

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