INTENTION TO USE THE LACTATIONAL AMENORRHEA METHOD FOR FAMILY PLANNING AMONG POSTPARTUM WOMEN IN ETHIOPIA: A MULTICENTER STUDY

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ABSTRACT

BACKGROUND: Although the Lactational Amenorrhea Method (LAM) is one of the safest family planning methods, there is limited evidence regarding intention of women to use it and its associated factors in many settings, including Ethiopia. This study was conducted to assess postpartum women's intention to use LAM and the factors associated with it in Ethiopia.

METHODS: A multi-center hospital-based cross-sectional study was conducted on postpartum women who gave birth in six referral hospitals in Ethiopia. Data were collected through face-to-face interview at discharge. Data were analyzed using Stata 17, with descriptive statistics applied as appropriate. The proportion of women intending to use LAM was presented as a percentage, while multivariable logistic regression was applied to identify predictors of this intention. The results were reported using adjusted odds ratios, along with 95% confidence intervals (CIs), and statistical significance was declared at a p-value < 0.05.

RESULTS: Among the 3,319 women approached, 3,148 (94.8%) responded. Among the postpartum women interviewed, 41.8% intended to use LAM. Most were 21-30 years (72%), urban (92%), & had vaginal deliveries (78%). Intention to use LAM was associated with urban residence (AOR= 2.38; 95% CI: 1.29–4.41), hearing about the importance of LAM (AOR= 1.97; CI: 1.28–3.02), and a history of LAM utilization (AOR= 1.65; 95% CI: 1.13, 2.40).

CONCLUSION: The intention to use the LAM for family planning remains low in Ethiopia. Key factors associated with this intention include place of residence, knowledge about LAM, and prior experience with the method. To increase both the intention to use and the actual utilization of LAM, targeted counseling within family planning programs is essential.

KEYWORDS: Lactation Amenorrhea Method, Contraception, Breastfeeding, intention, Ethiopia

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INTRODUCTION

Globally, contraceptive use plays a critical role in improving maternal and child health; in 2022 alone, it prevented more than 141 million unintended pregnancies, 29 million unsafe abortions, and nearly 150,000 maternal deaths[1]. Despite these gains, unmet postpartum family planning remains a major public health challenge worldwide, with more than half of postpartum women lacking contraception despite a desire to delay or avoid subsequent pregnancies and according to World Health Organization, in the year 2021 about 164 million reproductive age women have an unmet need for contraception[2,3]. The burden is disproportionately higher in Africa, particularly in sub-Saharan Africa, where up to 80% of postpartum women experience unmet need for contraception[4,5]. Evidence from a scoping review conducted in low- and middle-income countries further shows that unmet need for family planning among reproductive-age women ranges from 20% to 58%[6]. In Ethiopia, despite notable expansion of family planning services, unmet postpartum family planning remains substantial; an umbrella review reported that postpartum family planning utilization is only 36.4%, contributing to persistently high risks of adverse maternal and neonatal outcomes[7].

With the continued high number of unmet need for contraception in low income countries, particularly in Ethiopia, there are still high burden of unintended pregnancies, with their associated morbidities and mortalities, for which postpartum period is an ideal time to start family planning[8–10]. As such, postpartum counseling and supporting women to start family planning are routine hospital discharge components to address high unmet demands[11–13]. Since most immediate postpartum women are breast-feeding, and seek child spacing, it will be good to counsel the women about postpartum family planning methods, including the LAM[14]. LAM is a highly effective type of contraception where physiology is used for child spacing, with a failure rate of less than 2% within six months of delivery[15–17]

Understanding a woman's contraceptive intention, such as for the LAM, is essential for predicting and promoting future use. This focus justified by the Theory of Planned Behavior, which identifies intention as a key cognitive precursor to action[18,19]. The theory highlights motivational factors such as attitudes, social pressure, and perceived control that influence a person's decision-making process before taking action. Measuring intention and its determinants enables targeted counseling to influence underlying attitudes, norms, and perceived control[19]. In Ethiopia, the intention to use contraception varies significantly, ranging from 84.3% in Axum to 38% in Woliata, with a national average of 44.4% and notable regional clustering[20–22]. These pronounced sub-national disparities, set against a sub-Saharan African average of 45.8%, underscore the critical need to investigate the factors shaping intention in order to design effective, location-specific family planning interventions[23,24]. While studying intention is important and various studies have examined women's intention to use contraception, we could not find a study specifically assessing women's intention to use LAM[10,21,25,26].

Different studies have identified several predictors that affect women's intention to use contraception, including postpartum resumption of sexual activity, obtaining husband approval, educational status, age, employment, and knowledge about contraception[20,22,23,27]. Since LAM is one of the most effective contraception methods, factors influencing the intention to use other types of contraception may also affect the intention to use LAM. However, no specific study has been conducted on women's intention to utilize LAM[28,29].

Although LAM is being cited as one of the effective and safest family methods and Ethiopia is believed to have one of the highest exclusive breast feeding practices, study on women's intention to use LAM and factors associated with this is rarely documented in Ethiopia[30]. Therefore, this study aimed to assess the intention to use LAM and identify factors associated with it among postpartum women in Ethiopia.

Methods

Study design and setting

A multi-center, hospital-based cross-sectional study was conducted among postpartum women who gave birth in six referral hospitals across Ethiopia. This study was part of a larger cohort study on the effectiveness of LAM in Ethiopia[17,31]. The research involved hospitals from diverse geographical regions across eastern, western, southern, northern, and central Ethiopia. The participating hospitals included: Hiwot Fana Specialized University Hospital (Harar), Karamara Hospital (Jigjiga), Saint Paul Millennium Medical College (Addis Ababa), Hawasa University Referral Hospital (Hawassa), Gondar University Hospital (Gondar), and Jimma Medical Centre (Jimma). The study was conducted from March 1, 2017, to December 31, 2018.

Population and sampling

Study population: The study population were all women who gave birth within seven days prior to the data collection in the selected hospitals and their catchment health centers.

Sample size and sampling procedure: The sample size for the study was calculated with the following assumptions: 95%, Z = 1.96, and a 2% margin of error was selected to improve the precision and reliability of the estimates, given the public health importance of the outcome and the need for accurate prevalence and association measures, proportion of women who correctly used LAM (26%)[16], 20% non-response, and a design effect of 1.5 (n=3319).

During the study period, we randomly selected five regional states (Amhara, Oromia, SNNPR, Harari, and Somali) and one city administration (Addis Ababa) from a total of nine national regional states and two city administrations. From each selected region and city administration, we purposively chose one referral hospital based on its annual delivery rates: Gondar University Hospital from Amhara, Jimma University Hospital from Oromia, Hawasa Referral Hospital from SNNPR, Hiwot Fana Hospital from Harari, Karamara Hospital from Somali, and SPMMCH from Addis Ababa. Additionally, we selected the five nearest health centers to each of the chosen hospitals. The calculated samples were proportionally allocated to the selected health facilities, and within each facility, simple random sampling was used to select postpartum women for inclusion in the study.

Data collection tools and procedures

A standard structured questionnaire, adapted from the 2016 Ethiopian Demographic and Health Survey, was used to collect information through interviews with participants at discharge. The tool was initially written in English and then translated into three local languages (Amharic, Afan Oromo, and Af-Somali) by two health professionals fluent in the respective languages. The accuracy of the translations was verified by back-translating the documents into English. From each hospital, three midwives (18 midwives total from six hospitals) fluent in the local languages were selected and trained on the purpose of the research, the data collection tools, and how to input data using ODK Collect. Data were gathered using ODK Collect on smart tablets. A pretest was conducted with 5% of the sample population at a hospital not included in the study prior to the actual data collection. The adequacy of the checklist was evaluated, and any ambiguous questions were revised. Additionally, daily checks were performed by the respective site supervisors to ensure accuracy and consistency.

Variables and measurements

Dependent variable: Intention to use LAM in the first six months postpartum.

Independent variables: Sociodemographic factors (age, residency, educational status, husband's educational status, income); obstetric factors (gravidity, parity, place of delivery, mode of delivery); and information on contraception (FP counseling, awareness of contraception, prior use of LAM).

Operational definition:

Intention to use LAM: Women were classified as intended users of LAM if they answered "yes" to the

question, "Do you intend to use LAM for the first six months postpartum?"

Data analysis

All collected data were cleaned by a statistician in MS Excel and then exported to Stata 17 for analysis. Descriptive statistics, including frequency and proportion, were used to summarize categorical variables, while the mean and standard deviation were used to summarize continuous covariates. Before finalizing the model, multicollinearity was assessed using variance inflation factor (VIF) and tolerance values, with no evidence of problematic collinearity among predictors. Model fit was evaluated using the Hosmer–Lemeshow test and other fit statistics, indicating an adequate fit to the data. Confounding was assessed by comparing crude and adjusted odds ratios, with variables that caused meaningful changes in estimates retained in the final model. A variable with a p-value of < 0.25 in bivariate analysis was entered into the multivariable model. Additionally, factors associated with the intention to use LAM were described using the adjusted odds ratio (AOR) along with its 95% confidence interval. Statistical significance was set at $p < 0.05$ in the multiple logistic regression.

Ethical considerations

Ethical approval for this study was secured from the Institutional Health Research Ethics Review Committee of the University of Gondar (Ref No: O/V/P/RCS/05/3073/2017), whose lead approval covered all study sites, with written agreement obtained from each participating institution. All participants were informed of the study's purpose and provided voluntary written informed consent. To ensure confidentiality, interviews were conducted in a private consultation room at the time of discharge. Data were collected using ODK Collect on password-protected tablets, with only participant study IDs recorded, ensuring no personally identifiable information was stored.

Patient Public Involvement

No patient or public was involved in the conception or design of this study.

Results

Socio demographic and Reproductive characteristics Among the 3,319 women approached, 3,148 (94.8%) were included in the study. The majority of the participants were aged 21–30 years, urban residents (%), and had given birth vaginally (%). Although most of the women had heard about LAM (%), they did not utilize it Table 1 and 2.

Table: 1 Sociodemographic characteristic of postpartum women in Ethiopia (n=3148).

Variables	Frequency	Percent
Age		
15- 20	518	16.45
21-25	1,164	36.98
26-30	1,092	34.69
31-35	258	8.20
36-40	116	3.68
Residence		
Rural	249	7.91
Urban	2,899	92.09
Maternal Education		
No formal education	794	25.22
Read and write	126	4.00
Primary	662	21.03
Secondary	860	27.32
College and above	706	22.43
Husband occupation		
Farmer	322	10.46
Government employee	1,134	36.84
Private	443	14.39
Merchant	455	14.78
Other	724	23.52

Table 2: Reproductive and obstetric characteristics of postpartum women in Ethiopia (n=3148).

Variables	Frequency	Percent
Place of delivery		
Health center	72	2.29
Hospital	3,076	97.71
Mode of delivery		
Cesarean section	690	21.92
Vaginal	2,458	78.08
Received Family Planning counseling during ANC		
No	522	28.62
Yes	1,302	71.38
Heard of LAM		
No	936	32.55
Yes	1,940	67.45
Ever used LAM		
No	1,285	67.49
Yes	619	32.51

LAM=lactation amenorrhea method; ANC=antenatal care,

Intention of LAM use

Among the participants, 1,317 women (41.8%; 95% CI: 40.12-43.56) expressed an intention to use LAM for postpartum family planning within the first six months after giving birth. In the adjusted multivariable logistic regression model, three key factors remained significantly associated with this intention: the woman's place of residence, her prior knowledge of LAM, and her history of ever using LAM.

Women residing in urban areas had 2.38 times higher odds of the outcome compared to those living in rural areas (AOR = 2.38; 95% CI: 1.29–4.41). Additionally, women who had heard about LAM had nearly double the odds of the outcome compared to those who had not (AOR = 1.97; 95% CI: 1.28–3.02). Furthermore, mothers who had ever used LAM were significantly more likely to achieve the outcome than those who had never used it (AOR = 1.65; 95% CI: 1.13–2.40)(Table 3).

Table 3: Factors associated with intention to use LAM in Ethiopia (n=3148).

Variables	P- value	COR (95% CI)	P- value	AOR (95% CI)
Maternal education				
No formal education		1		1
Read and write	0.050	1.47 (1.00, 2.18)	0.147	2.06 (0.77, 5.52)
Primary	0.000	0.51 (0.41, 0.63)	0.878	1.03 (0.65, 1.64)
Secondary	0.000	0.43 (0.35, 0.52)	0.880	0.96(0.59, 1.56)
College and above	0.000	0.44 (0.36, 0.55)	0.120	0.66 (0.40, 1.11)
Husband's occupation				
Farmer		1		1
Government employee	0.801	1.03 (0.80, 1.32)	0.897	1.16 (0.60, 2.27)
Non-government organization	0.008	0.67 (0.50, 0.90)	0.211	1.59 (0.76, 3.30)
Merchant	0.433	0.89 (0.66, 1.18)	0.387	1.33 (0.69, 2.59)
Other	0.733	1.04 (0.80, 1.36)	0.537	1.22 (0.64, 2.31)
Residence				
Rural		1		1
Urban	0.061	1.34 (0.98, 1.84)	0.027	2.38 (1.29, 4.41)
Mode of delivery				
Caesarean section		1		1
Vaginal	0.031	2.03 (1.02, 1.43)	0.175	1.08 (0.74, 1.53)
Family planning counseling during ANC				
No	1		1	
Yes	0.001	0.71 (0.58, 0.87)	0.072	1.29 (0.87, 1.90)
Heard of LAM				
No	1		1	
Yes	0.000	3.19 (2.68, 3.80)	0.000	1.97 (1.28, 3.02)
Ever used LAM				
No	1		1	
Yes	0.000	3.33(2.70, 4.11)	0.000	1.65 (1.13, 2.40)

LAM, lactation amenorrhea method; ANC, antenatal care

DISCUSSION

This study assessed the intention to use LAM among postpartum women in Ethiopia. We found that 41.8% of participants intended to use LAM, with urban residence, prior knowledge of LAM, and a history of LAM use identified as key associated factors.

The proportion of women intending to use LAM in this study is comparable to various national and international studies assessing women's intentions to use contraception. For instance, a study conducted in Adigrat found that 48.4% of women intended to use long-acting contraception[21]. Another study in Ethiopia indicated that, based on the theory of planned behavior, women's intention to use contraception was 46.4%[18]. Additionally, a systematic review in Sub-Saharan Africa found that the intention to use postpartum family planning was 62.2%[26], while the global pooled prevalence of women's intention to use family planning was 42.8%[32].Although the prior studies examined contraceptive intention in general, LAM constitutes a unique subset that may attract women for specific reasons not applicable to other modern methods. These include its immediate availability, alignment with cultural and religious norms, documented health benefits for mother and child, and its inherent support for optimal breastfeeding[33–37].

The finding that women living in urban areas intended to use LAM more than rural women may seem counterintuitive, given that rural areas often have higher breastfeeding rates. However, this intention is influenced by a complex interplay of knowledge, access, socioeconomics, and reproductive contexts. This may be related to access to health information and counseling, higher education, and the need for a planned temporary contraceptive method within a modern family planning framework. It is important to note the gap between intention and correct practice, as urban knowledge does not always translate to perfect adherence, while rural practices may be effective even without formal knowledge[37–39].

As anticipated, women who are knowledgeable about and have previously used LAM are more likely to intend to continue using it. Since LAM has no side effects and is more readily available than hormonal or other modern contraceptives, these women are more inclined to keep using it. Additionally, a study conducted in Addis Ababa, found that contraceptive use during the most recent pregnancy influences the current utilization of any type of family planning, supporting the conclusions of this study. Furthermore, another study indicates that the use of family planning after upcoming deliveries may depend on past family planning practices[40,41].

Strength and limitation of the study

Our study has several strengths. Firstly, it was a multi-center study conducted in randomly selected settings throughout Ethiopia, accounting for diverse socio-cultural contexts. Secondly, the sample size is substantial, and lastly, it encompasses women who delivered in both hospitals and health centers, enhancing the generalizability of the findings to the broader population of Ethiopian women. However, the study also has several limitations. First, the overrepresentation of urban women (90% of participants) may limit the applicability of our results to rural settings. Second, the timing of data collection (immediately postpartum) means that reported intentions could change as women recover. Third, the cross-sectional nature of the study limits inferences about causality. Finally, potential recall bias may affect the recollection of factors influencing contraceptive intention, as this could be influenced by the recent childbirth experience.

Conclusion and Recommendation

The intention to use the LAM for family planning remains low in Ethiopia. Counseling about family planning, including LAM, is important for increasing its intention to utilization, especially for those with limited access to and who do not wish to use other modern contraceptives Additionally, incorporating structured LAM counseling into discharge procedures could improve adoption. This

study's findings on factors influencing postpartum women's intention to use the LAM suggest several program implications. To move from intention to correct use, a multi-level strategy targeting the health system, providers, and the community is needed.

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Abbreviations:

LAM:	Lactational Amenorrhea Method
CI:	Confidence Interval
AOR	Adjusted Odd Ratio
SPMMCH:	Saint Paul Millennium Medical College Hospital
SNNPR:	Southern Nations, Nationalities, and Peoples' Region
ODK:	Open Data Kit
ANC:	Antenatal Care

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