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## The Magnitude of Pre-lacteal Feeding Practice and its Influencing Factors Among Mothers with Children Under the Age of Two Years in Afar Region of Ethiopia: A Community based Quantitative and Qualitative Study

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#### **Research Article**

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1	The magnitude of pre-lacteal feeding practice and its influencing
2	factors among mothers with children under the age of two years in
3	Afar region of Ethiopia: A community based quantitative and
4	qualitative study.
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#### Abstract

**Background:** Pre-lacteal feeding is a barrier to implement optimal breastfeeding practices and caused new-born disease. Pre-lacteal feeding is primarily practiced in developing countries, where cultural and social structures are based on descent and relationships. The aim of study was to determine the magnitude of pre-lacteal feeding practice and its influencing factors among mothers with children under the age of 2-years in Afar region of Ethiopia.

Method: A community based cross sectional study supplemented by qualitative study was employed. In the quantitative study, 235 study participants were included, whereas seventeen study subjects participated in the qualitative study. Bivariate and multivariate logistic regression was used to determine factors associated with prelacteal feeding practice. The qualitative data was analyzed using thematic approach.

Result: The magnitude of pre-lacteal feeding was 36.6%. Being a housewife 37 (AOR=4.1, 95% CI: 1.4-12.2) and having male indexed child (AOR=4.9, 95% CI: 1.8-38 13.5) were more likely to practice pre-lacteal feeding than those of trade and female, 39 respectively. However, pre-lacteal feeding practice decreased in those mothers with 40 41 three and above ante natal care visits (AOR=0.31, 95% CI: 0.1-0.9), delivered at health institutes (AOR=0.1, 95% CI: 0.02-0.3), starting breastfeeding within one hour 42 (AOR=0.04, at 95% CI: 0.01-0.1) and getting breast feeding counseling (AOR=0.21, 43 at 95%CI: 0.06-0.7). Milk, plain water, sugar solution, honey, butter, dates ('temir'), a 44 leaf, and condo pepper were the most common pre-lacteal foods reported by study 45 46 participants. Cultural beliefs and the assumption of cleaning new-born throat and bowel were the most common reason to practice pre-lacteal feeding. 47

48	Conclusion: The magnitude of pre-lacteal feeding was high due to socio-cultural
49	and maternal health service utilization factors. Water, milk products, sweet foods and
50	some of plant types were the most common pre-lacteal foods.
51	Key words: Pre-lacteal feeding, factors, mother, children
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#### Introduction

Breast-feeding delay was frequently a cause of pre-lacteal feeding. Cultural taboos 67 and beliefs influenced the majority of mothers' weaning (1). The practice of giving 68 certain types of food to babies before commencing breast milk is common in both 69 urban and rural areas. Some of the most frequently reported pre-lacteal meals are 70 tamarind juice, honey, jaggery, sugar and glucose water, animal milk, and 71 72 commercial powdered milk (2). From 2010 to 2018, the pooled prevalence of prelacteal feeding in eleven East African countries was 12%, with the greatest rate 73 (39%) in the Comoros and the lowest in Malawi (3%). Pre-lacteal feeding was 74 associated with wealth index, antenatal care (ANC) visit, health institutional delivery 75 and mode of delivery (3). In a meta-analysis study, the pooled prevalence of pre-76 lacteal feeding was found to be 25.29% in Ethiopia. Antenatal care, infant feeding 77 counseling, timely breastfeeding initiation and urban residence were associated with 78 79 a lower risk of pre-lacteal feeding, but home birth was associated with a greater risk 80 (4). In Sodo district of southern Ethiopia, the prevalence of pre-lacteal feeding was 20.6%. Plain water (7.7%) was the most common pre-lacteal feeding and the main 81 reason was lack of breast milk (6.5%). Lack of breastfeeding advice and the 82 avoidance of colostrum were statistically significant with pre-lacteal feeding practice 83 (5). Pre-lacteal feeding was practiced by 12.6% of women in southern Ethiopia. Lack 84 of mother education, colostrum avoidance, home delivery, the absence of 85 information regarding the risk of pre-lacteal feeding and unawareness about breast 86 feeding practices were associated with pre-lacteal feeding (6). Pre-lacteal feeding 87 was found to be 46.4% in south-west Ethiopia. Breastfeeding after one hour of 88 delivery, giving birth at home, failing to recognize the hazards of pre-lacteal feeding, 89 and believing in the benefits of pre-lacteal feeding were identified as key risk factors 90

in pre-lacteal feeding practices (7). The prevalence of pre-lacteal feeding was 10.1% 91 in the Axum town, North Ethiopian. Mothers with no previous children, birth spacing 92 of less than two years, not giving colostrum, less than four anti-natal care visits, 93 cesarean section and perceiving the benefits of pre-lacteal feeding were associated 94 with pre-lacteal feeding (8). In a study conducted in Eastern Tigray region of 95 Ethiopia, 24.7% of women practiced pre-lacteal feeding. Pre-lacteal feeding had 96 associated to parity, late breastfeeding initiation and colostrum avoidance (9). Pre-97 lacteal feeding decreased from 29% in 2005 to 8% in 2016. The practice of pre-98 99 lacteal feeding was significantly influenced by distance from the health institution, wealth level, occupation, antenatal care visits and desired last child. Lower rates of 100 pre-lacteal feeding were seen in Benishangul, Tigray, most of Amhara, the western 101 102 part of Gambela and the eastern parts of the southern nation nationality people region. The Somalia and Afar regions had greater rates of pre-lacteal feeding (10). A 103 meta-analysis was conducted in Ethiopia to investigate the relationship between 104 home delivery and pre-lacteal feeding. Pre-lacteal feeding accounted for a total of 105 26.95% (95% CI: 6.1% -75.8%). The highest prevalence was in the Afar area. The 106 pooled odds of pre-lacteal feeding was increased by 5.16 times when comparing 107 women who gave birth at home to those who gave in health institutions (95% CI: 3.7-108 109 7.2) (11). In February 2013, a cross-sectional study was conducted in public health 110 institution in the Harare district in Eastern Ethiopia. About 45.4% mothers gave prelacteal fluid to their babies. The most common pre-lacteal diets were sugar water 111 and milk, which accounts for 43.5% and 25.1%, respectively. Home delivery, failure 112 to attend antenatal care (ANC), late breastfeeding initiation and friend influence were 113 statistically predictors of pre-lacteal feeding (12). In 2016, Zone four districts of Afar 114 region in Ethiopia, a community-based cross-sectional study was conducted. About 115

42.9% of mothers gave their children pre-lacteal feeding. Raw butter (54.2%) and 116 animal milk (28.5%) were the most frequent pre-lacteal feeding. Pre-lacteal feeding 117 was significantly associated with housewife, having a husband with no formal 118 education, starting breastfeeding after one hour of birth, having a higher household 119 income and a lack of information about good breastfeeding practice (13). A cross-120 sectional study was conducted in the town of Samara-Logia in 2017. Ninety percent 121 of mothers responded that breastfeeding is beneficial to their infants. However, 122 45.3% of women thought it was useful to provide feeds other than breast milk. About 123 124 45% of the women started breastfeeding within an hour after birth. Within three days after delivery, more than half of the newborns (62.5%) had received pre-lacteal 125 feeding (14). A community-based cross-sectional study was conducted in Dubti 126 district, Afar region. About 93% of mothers began breast feeding their babies within 127 an hour after birth. Pre-lacteal feeding and avoided colostrum were practiced by 128 16.8% and 15.6% of mothers, respectively (15). 129

130 A clear understanding the magnitude of pre-lacteal feeding practice and associated factors is essential to create an appropriate intervention in a pastoral community 131 where the social and cultural conditions were conducive to such practice. The 132 current study explores favorite socio-cultural characteristics and maternal health 133 service utilization factors that were associated with pre-lacteal feeding practice since 134 there is limited study in the Afar region of Ethiopia. Exploring the key factors of pre-135 lacteal feeding practice can be achieved by qualitative and quantitative study. The 136 finding could be useful in establishing intervention programs and promoting early 137 breastfeeding initiation as a strategy to enhance mother and new-born health at the 138 community, regional, and national levels, as well as in developing nations. 139

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#### **Methods**

#### 142 Study area

This study was conducted in Algante village and Dasa village which were found 143 around Dubti town in Afar region of Ethiopia, where the majority of the population 144 145 lives a pastoralist lifestyle. These two districts were chosen purposively because most of the people live permanently in this area due to the existence of the Awash 146 River, which is used for irrigation, grazing and drinking of animals. Dubti town is 147 found in Dubti woreda and located 586 kilometers from Addis Ababa, North-East 148 Ethiopia. The total households in Algante and Dasa villages were 275 and 241, 149 respectively. The Afar region has the lowest latitude in Africa and a hot dry climate 150 condition that forces pastoralist community to move around constantly in search of 151 grazing land and water. 152

Culture: Majority of population in Afar region follows Muslim religious. The social 153 systems of the Afar are based on descent and relationships. The Afar has a 154 patrilineal descent system that assigns a person to a certain clan (mela). 155 Polygamous marriage is practiced in accordance with Islamic rule. Cross-cousin 156 marriages (in the region called as Absuma) are compulsory. The ability and 157 willingness of a wife for continue delivering in her parents' home after marriage may 158 be depending on her husband's financial and social support. Afar peoples have a 159 proclivity towards having as many children as possible. Men are the heads of their 160 respective families in Afar households. Men are often seen as authoritative figures 161 162 and hold the greater share of property and child custody rights. Despite the fact that domestic decision-making is frequently dependent on subsequent talks with women, 163 men have the final word. Although livestock can be owned separately, they are 164

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considered household assets. Children have their own herds of animals. An infant is 165 given female goats or a camel after birth to "look the luck." This happens during 166 initiation of ceremonies like circumcision or umbilical cord tied. The child is 167 considered lucky when the animal reproduces and survives in the hazard 168 environment. Being first baby was an advantage of receiving more animals. Female 169 children are usually given fewer animals than male. In Afar society, women have less 170 social status than men. Furthermore, daughters do not inherit property equally with 171 sons when the head of the household dies (16). In the Afar community, female 172 173 genital mutilation is a common practiced. Women, men, religious leaders and traditional birth attendants are a key role in the continued practice of female genital 174 mutilation (FGM) (17). 175

#### 176 Study design and sample size determination

A community-based cross-sectional study with qualitative study was used to investigate pre-lacteal feeding practice and associated factors. The research conducted from July 18 to July 23, 2021. The sample size for the quantitative study was estimated using 16.8% prevalence of pre-lacteal feeding in Dubti district (15) and a 95% confidence level with 5% precision. Thus, the sample size was 215. By adding 10% none response rate, the final sample size was 237.

#### 183 Inclusion and exclusion criteria of study population.

Biological mothers with children under the age of two years in the specified villages were included in the study. Non-biological mothers, women who had not lived in the study area for six months, and mothers who were unable to talk or hear were also omitted/excluded. Traditional birth attendants were interviewed as individual key

informants for the qualitative study since they were the main agents in the practice ofpre-lacteal feeding and had more information about it.

#### 190 Variables and operational definitions

The independent variables were selected after a thorough review of the literature. The dependent variable was pre-lacteal feeding practice, which was recorded as a binary result (yes/no).

Pre-lacteal feeding: Giving any solid or liquid foods other than breast milk during thefirst three days after delivery.

#### 196 Sampling method and procedures

Quantitative data: Systematic sampling technique was used to select the required 197 study subjects. The sampling interval (K) was determined by dividing the total 198 number of households in the two villages by the total sample size, which is 199 approximately two. Equal sample size was allocated for each village. To decide 200 which direction (north, south, east, and west) to begin data collection, we used a 201 lottery method. Following that, the first household was chosen by lottery method from 202 the first two households, and then every second household was selected until the 203 required sample size was attained. 204

Qualitative data: The participants were selected from mothers with children under the age of two years and key informants. Key informants were selected from traditional birth attendants using a purposive sample technique. Key informants were recruited with the help of community elders and community health extension workers. The process of selection was continued till the information was redundant. The interview

participants for the qualitative study were not the same as those who were sampledfor the quantitative data participants.

#### 212 Data collection instruments, methods and procedures

First the qualitative data was collected by In-depth interviews using open-ended 213 guiding question which was developed based on the study objective. To collect 214 quantitative data, closed-ended structured interview questionnaires that were 215 constructed from literatures were used. Five data collectors were trained to collect 216 quantitative data, and four data collectors were recruited and trained to collect 217 qualitative data. For both qualitative and quantitative data collection, all of the data 218 collectors were BSc degree in public health officer. During qualitative data collection, 219 the two data collectors (one note taker) were allocated to each village at the same 220 time. The purpose of study was explained for each study participant before data 221 collection started. Those who agreed to take part in the study were then interviewed 222 face-to-face in a guiet location at their home in order to better understand each other 223 224 and ensure confidentiality. Information was collected on women's demographic, socio-cultural and obstetric characteristics as well as pre-lacteal feeding practices. 225 The guideline used to conduct in-depth interviews was shown (Table 1). 226

Table 1: Shows the main theme included in the in-depth interviewing guideline.

Participants	Theme
Mothers	Types of pre-lacteal foods given to the
	new-born and the reason to practice
	them.
Traditional birth attendants	Types of pre-lacteal foods given to the

new-born and the reason to practice these foods

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#### Data analysis

The data was entered into Epidata version 3.1 and then exported to SPSS software 230 version 23. The study variables were described using descriptive statistics. Bivariate 231 analysis was used to investigate if there was an association between various 232 233 independent variables and pre-lacteal feeding practice. Variables with a P-value of less than 0.05 in the bivariate analysis were considered eligible for multivariable 234 analysis, and thus put into a multivariable logistic regression model to account any 235 confounding factors. The odds ratio with a 95% confidence interval was reported in 236 the result. A p-value of less than 0.05 was declared statistically significant. For 237 qualitative data, the field notes were verbatim transcribed. The transcribed contents 238 were manually read several times, then coded and grouped into categories. Finally, 239 theme was developed. The results of the thematic analysis are presented in the form 240 241 of narrative with supporting quotes. At the end, the qualitative study's findings were triangulated with the quantitative findings. 242

#### 243 Data Quality assurance

Before the actual data collection, 5% of the sample size was pre-tested outside the study area and certain questions were amended after pre-testing. Data collectors were chosen based on their ability to speak the local language (native speaker of Afar language) and previous experience with data collection. Questionnaires were prepared in English and then translated to the local language (Afar). In addition, supervisors and the primary investigators double-checked each questionnaire on a

daily basis to ensure there were no errors. Cleaning of missing values was done in
SPSS using frequency. The field notes were transcribing verbatim into English by a
third person who was native to Afar language and had translation experience.
Finally, the investigators double-checked the transcribed data.

#### **Ethical clearance**

The Institutional Review Board of Samara University College of Health Science gave ethical clearance. The selected villages received a letter of cooperation from the administration of Dubty woreda health office. Informed consent was obtained from each study participant after explanation of the study's aim and from the legal guardians of patients with no formal education. All methods were performed in accordance with the relevant guidelines and regulations. The right of study subjects to refuse or to participate in the study at any time was respected. Any personal identifiers were eliminated from questionnaire to preserve confidentiality. No one was harmed as a result of taking part in this research. 

#### **Results**

# Socio-demographic characteristic of mothers in Dubti woreda, North East Ethiopia

A total of 235 study subjects were recruited, with a response rate of 99.2%. About 274 28.1% of mothers were in the age group of 26-30 years. The mean age of children 275 was 1± 5.1 month with a range of 1-19 months. Seventy-five percent of the women 276 were married. Housewives accounted for 64.3% of women. The majority of study 277 subjects were Muslim (69%). Both the mothers and fathers had nearly similar 278 educational status. Most of study participants had a family of five or more members 279 (61.7%). Thirty-two percent of study participants had average monthly income of less 280 than 2501 birr, while around a similar percentage (32.3%) of participants had 281 average monthly incomes of more than 4500 birr (Table 2). 282

283	Table 2: Socio-demographic characteristic of mothers in Dubti woreda, North East
284	Ethiopia
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Variable	Category	Number (%)
	=<20	44 (18.7)
	21-25	34 (14.5)
Mothers Age (in year)	26-30	66 (28.1)
	31-35	57 (24.3)
	=>36	34 (14.5)
the mean age of	1±5.1 month (range:1-19 months)	
children		
Marital status	married	177 (75.3)
	unmarried	58 (24.7)

Occupation	Housewife	151 (64.3)
	Trade	84 (35.7)
Religious	Orthodox	73 (31.1)
	Muslim	162 (69)
Mother education	No formal education	118 (50.2)
	Formal education	117 (49.8)
Husband education	No formal education	119 (52.2)
	Formal education	109 (47.8)
Family size	Below five	90 (38.3)
	Five and above	145 (61.7)
	2500 and below	74 (31.5)
Family income	2501-3500	51 (21.7)
(Ethiopian birr)	3501-4500	34 (14.5)
	4501 and above	76 (32.3)

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#### 287 Health service utilization and maternal characteristics of study participants

In this study, 41.7% of the study subjects had a birth interval of more than two years.
From the total of respondents, 28.5% had first child birth order. More than half of the
participants (56.6%) had male indexed child. Nearly three-quarters of mothers
(72.8%) got three or more antenatal care visits. Almost half of mothers (50.6%) gave
birth at home. Fifty-four percent of mothers initiated breastfeeding within one hour,
while 28.9% started after one day. Breastfeeding counseling was received by half of
the study participants (49.8%) (Table 3).

Table 3: shows study participants' health service utilization and maternal
characteristics in Dubti woreda, North East Ethiopia.

Variable	Category	No (%)
Birth interval	2-years and below	70 (29.8)
	Above 2-years	98 (41.7)
Birth order of indexed child	First child	67 (28.5)
	Subsequent child	168 (71.5)
Gender of indexed child	Male	133 (56.6)
	Female	102 (43.4)
Frequency of antenatal care	Three and above	171 (72.8)
	Below three	64 (27.2)
Place of birth	Health institution	116 (49.4)
	Home	119 (50.6)
Breastfeeding initiation time	Within one hour	127 (54)
	Between one hour-one day	40 (17)
	After one day	68 (28.9)
Breastfeeding counseling	Yes	117 (49.8)
	No	118 (50.2)

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The magnitude of pre-lacteal feeding and the reasons for practicing these foods in Dubti woreda, North East Ethiopia.

The magnitude of pre-lacteal foods practice by those mothers was 36.6%. Milk (33.7%) and plain water (24.4%) were the most commonly pre-lacteal foods, followed by sugar solution and butter. The most common reason to practice these

- pre-lacteal foods were cultural belief (54.7%) and the desire to clean the new born's
  throat and bowel (20.9%) (Table 4).
- **Table 4**: shows the magnitude of pre-lacteal foods and the reason to practice these
- 306 foods in Dubti woreda, North East Ethiopia

Pre-lacteal foods and reason t	Number	
		(%)
Giving pre-lacteal foods	Yes	86 (36.6)
	No	149 (63.4)
Types of pre-lacteal	Plain water	21 (24.4)
foods given to the new born	Sugar solution	18 (20.9)
	Milk	29 (33.7)
	Butter	18 (20.9)
Reason to feed these	Breast milk insufficient	11(12.8)
pre-lacteal foods	To clean new born throat and bowel	18 (20.9)
	Cultural belief	47 (54.7)
	To calm the baby	10 (11.6)

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Factors associated with pre-lacteal feeding practice in Dubti woreda, North
 East Ethiopia.

The binary logistic regression analysis revealed that those in the variables of occupations, religion, mother's education, birth order of indexed child, gender of indexed child, number of antenatal care visits, place of birth, breastfeeding initiation time and breastfeeding counseling were significantly associated with pre-lacteal feeding practice. When adjusting confounding factors, being a housewife (AOR=4.1,

95% CI: 1.4-12.2) and having male indexed child (AOR=4.9, 95% CI: 1.8-13.5) were 315 more likely to practice pre-lacteal feeding than those of trade and female, 316 respectively. However, pre-lacteal feeding practice was reduced by 69% in those 317 318 mothers who had three and more antenatal care visits when compared to those mothers with less than three ante natal care visits (AOR=0.31, 95% CI: 0.1-0.9). 319 Mothers who give birth at health institutes had 90% lower practicing pre-lacteal 320 feeding than those of home delivery (AOR=0.1, 95%CI: 0.02-0.3). Mothers who 321 initiated breastfeeding within one hour had 94% lower pre-lacteal feeding practice 322 323 than those who started breastfeeding after one day (AOR=0.04, at 95% CI: 0.01-0.1). Those who received breast feeding counseling were 0.21 times more likely to 324 practice pre-lacteal feeding than those who did not (AOR=0.21, at 95%CI: 0.06-0.7) 325 (Table S1). 326

327 For qualitative data, a mother was selected purposively until redundant information was reached. A total of 17 participants were chosen based on this, with four of them 328 serving as key informants. Ten and seven participants were selected from Algante 329 and Dasa village, respectively. In each village, two key informants took part. Two of 330 the four key informants were trained traditional birth attendants, whereas the other 331 two were untrained traditional birth attendants. An in-depth interview was conducted 332 with each of them. Participants were in the age range of 19-45 years-old. The 333 Muslim religious was followed by 82.4% (14/17) of participants, while the orthodox 334 religion was followed by the remaining participants. About 88.2 % (15/17) of study 335 participants were housewives, while 11.8% were trades. Participants with no formal 336 education were accounted for 82.4% and the rest of 17.6% had formal education. All 337 of the mothers who had children under the age of two years gave birth at home. The 338 key question we asked study participants concerning pre-lacteal foods was what you 339

fed the new-born baby after delivery before starting breastfeeding. The pre-lacteal
foods found among study participants were milk product, some plant types, sweet
foods and water (Table 5).

**Table 5**: shows the theme, categories and codes of qualitative study result.

Theme	Categories	Codes
Pre-lacteal foods given	Water	Spiritual water, plain water
to the new-born.	Sweet foods	Sugar solution, honey
	Milk product	Milk, butter
	Plant type	Dates (temir), condo pepper, leaf

The following study participants explained the above pre-lacteal feeding practice.

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A 34-year-old mother expressed her practical observation on pre-lacteal feeding was that "after birth, testing (the community called 'ono oru') was offered for my baby before supplying breast milk." when we asked what ono oru was given, she replied that "the new born must be given spiritual water (locally called 'zemzem water') which came from Jidda", (an in-depth interview with mother).

According to a 30-year-old women explanation, "plain water, with sugar if available, is used to clean the new-born's throat as well as serve as food. During my delivery, my breast did not secrete milk soon after birth. As a result, I gave sugar water for my baby as a food and to clean his throat", (in-depth interview with mother). A 38-years-old woman described that "mostly dates (locally called temir) and spiritual water (locally named as zemzem water) were offered for the new born. How do you give the new-born a date (temir)? She said that "first, dates (locally known as 'temir') was added in the water, and then I gave this dates (temir) water for the baby born within a short period because our religious ordered. This was passed down from elders to youths in our community" (in-depth interview with KII).

<sup>361</sup> "After my baby was born, my mother gave for my baby camel milk (locally called <sup>362</sup> 'han') before breast milk. Camel milk was usually given to babies since it was <sup>363</sup> accessible and was thought to protect them from disease. Despite the fact that I did <sup>364</sup> not feed honey to my infant; I saw also a number of mothers giving honey to their <sup>365</sup> baby", a 25-year-old woman expressed, (in-depth interview with mother).

A 36-year-old mother explained, "I am a traditional birth attendant, and I gave milk, butter (locally known as 'sub ah'), or sugar water to the new born after delivery in our society. Butter is used to soften the baby's throat so that it can properly take breast milk the next time, whereas milk and sugar water are supplied as a food when breast milk is insufficient at the time of delivery. Currently, I am discontinuing this practice since training was given on the disadvantage of administering these food items prior to breastfeeding" (in-depth interview with KII).

A 37-year-old woman said that "Allah allowed to give spiritual water (locally called 'zemzem water') to the new born for keeping him healthy before giving breast milk, and my infant was also given spiritual water after delivery", (in-depth interview with mother).

A 35 years old mother reflected her practical observation after delivery was that "my child was given sugar water before breast-feeding. I have known that the majority of

the mothers in our community were giving their children a small amount of either sugar water or butter because our religious ordered us to offer tests (locally called 'onu oru') for the newborn's post-delivery. Even though there was not sugar water available, just plain water was provided" (in-depth interview with mother).

A 33-year-old mother said that "my child was given dates (locally known as 'temir') water. She also pointed out that a leaf was given for the new born after birth to prevent fear and to be brave". What kind of leaf is it? We asked. She responded that "I did not know the leaf. Traditional elders recognized this, but they couldn't tell what kind of leaf it was", (in-depth interview with mother).

According to a 40-year-old mother, "my child was given spiritual water (locally called 'zemzem water') that came from Jidda. I've also heard from friends and others that a leaf given to a new baby helps him to be talkative, gentle, and hard during his adulthood time, and to take on the position of an elderly relative in the household. This leaf is secret; any one cannot know this leaf except the one already recognized. However, I did not give for my child this leaf", (in-depth interview with mother).

A 42-year-old woman assured regarding a hidden leaf, "A leaf was given for the babies that allow them to be community influential and to substitute his descend related hero place during adulthood period." Could you tell us what kind of leaf is it? No, I didn't tell. Community elders only recognize the leave, and exclusively give it to their families, relatives and close friends" (an in-depth interview with mother).

A 34-years mother described that "I have four children, and all of them were given dates (locally known as 'temir') water after delivery. Dates (locally known as temir) are considered important in our culture to prevent the child from several diseases.

402 However, health education was now provided on the importance of exclusive 403 breastfeeding. So, we did not give it", (in-depth interview with mother).

A 19-year-old woman added that "since my breast did not secrete milk shortly after birth, my child was given goat milk (locally called han). I know that most of my neighbors and relatives feed cow or goat milk their babies when their breasts don't produce milk", (in-depth interview with mother).

A 37-years old woman expressed her practice in the community was that "testing 408 (locally known as onu oru) could be given for the new born as soon as delivery. This 409 was previously a common practice in our community. The testing foods could be 410 anything in the house, such as spiritual water, goat milk (locally known as hah), 411 butter, or a sugar solution. As a result, I had provided similar things to my baby and 412 others in the previous year. However, we no longer do so since health professionals 413 have provided health education about the harmfulness of eating these foods before 414 415 breast milk", (in-depth interview with KII).

A 25-year-old mother explained that "during delivery, the new born's throat was thought to be clogged with feces, fluids, or mucus. To ensure that the breast milk was adequately taken, plain water was provided to soften and clean the new born's throat prior to breastfeeding", (in-depth interview with mother).

420 *32* year-old women also pointed out that "condo pepper (locally called kondo 421 berbere) was given for my infant in the nose to be harsh and hero", (in-depth 422 interview with mother).

423 Another 45-year-old woman asked about condo pepper and other foods 424 supplementation for new-born, and she said that "In the past, we used to give so

425 many things to new-born in our community like condo pepper, leaf, and other foods.
426 However, the society does not have interest in giving these things because the
427 government and health professionals educated the society that giving these food
428 items can cause disease. Therefore, the practices of taking these foods were now
429 decreased. But, food items such as spiritual water (the local name is zemzem water),
430 dates (locally called temir) and milk are still frequently consumed after delivery" (in-

A 33-years old mother explained that "when I gave birth to my child, I had honey in my house, so I gave it to him. Honey is the preferred pre-lacteal meal and a better preventive mechanism against disease if it is present during delivery. But, honey was scarce in our neighborhood. As a result, milk and sugar water are often used as prelacteal foods in our neighborhood" (in-depth interview with mother).

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#### Discussion

The purpose of the study was to determine the magnitude of pre-lacteal feeding 446 practice and its influencing factors among women with children under the age of 2-447 years in sub-districts of Dubti woreda, Afar region of Ethiopia. This study found that 448 the important of different social-cultural and maternal health service utilization factors 449 that are associated with pre-lacteal feeding practice, as well as types of pre-lacteal 450 451 foods. In this study, the magnitude of pre-lacteal feeding was 36.6%. This result is higher than that of a study in East Africa (3) and meta-analysis studies in Ethiopia (4, 452 11). Moreover, the present finding is higher than the previous studies in southern (5, 453 6) and northern part of Ethiopia (8, 9, 15), as well as it supports a spatial and 454 multilevel study in Ethiopia reported that the Afar region has the greatest rate of pre-455 lacteal feeding (10). The different between the current study and the previous studies 456 could be attributed to regional and ethnic differences in traditional practices. The 457 458 other variation may be health coverage disparities and a lack of effective health 459 education between study settings. However, the magnitude of current finding is lower than that of study in south-west Ethiopia (7), Harare district in Eastern Ethiopia (12) 460 and studies in Afar region (13,14). The variation could be study period, and study 461 462 participants were near Samara, the Afar region's main city, where they might have access to maternal and child clinics, as well as health education or information via 463 television and newspapers. Housewives were more likely to practice pre-lacteal 464 feeding than those of trades. The finding is consistent with a study conducted in Afar 465 region (13) and a meta-analysis study in Ethiopia (10). Mothers of male-indexed 466 children were also more likely to practice pre-lacteal feeding than mothers of female-467 indexed children. The reason could be that male children are given more attention in 468 Afar society than female children (16), implying that gender inequality has an impact 469

470 on pre-lacteal feeding practices. As a result, health education should be provided on the equality of males with girls and the disadvantage of pre-lacteal feeding practice. 471 In the current study, pre-lacteal feeding practice was reduced by 69% in those 472 473 mothers who had three and more antenatal care visits when compared to those mothers with less than three antenatal care visits. This evidence supports the 474 previous studies (3, 4, 8, 10, 12). The reduction of pre-lacteal feeding could be that 475 mothers have been given breastfeeding advice during antenatal care visits. Mothers 476 who give birth at health institutes were less practicing pre-lacteal feeding than those 477 478 of home delivery. This finding is in line with the previous studies (3, 4, 6, 7, 10-12). The possible reason for this reduction of pre-lacteal feeding practice could be that 479 the delivery was attended by health professionals who advised that breastfeeding 480 481 should be started as soon as after birth. Those who received breast feeding counseling were 79% less likely to practice pre-lacteal feeding than those who did 482 not. This is consistent with previous studies (4-8, 13). The decrease in pre-lacteal 483 feeding may be attributed to better understanding of the benefits and harmfulness of 484 pre-lacteal feeding practice during breastfeeding counseling. About 54% of mothers 485 initiated breastfeeding within one hour. This result is lower than a study conducted in 486 Afar region (15), but higher a previous study in this similar area (14). In this study, 487 those who started breastfeeding within an hour had lower pre-lacteal feeding 488 489 practice than those who started after one day. This evidence is similar to the previous studies (1, 4, 7, 9, 12, 13). This indicated that delayed breastfeeding 490 caused pre-lacteal feeding practiced, which supports the finding of previous study in 491 Sindh (1). Educational status of mothers and fathers had no statistically significant 492 association with pre-lacteal feeding practice. This finding is against with the previous 493 studies in the Southern (6) and North East region (13) of Ethiopia. The absence of 494

difference in practicing pre-lacteal feeding between educated and uneducated 495 participants could be owing to the influence of elders to undertake pre-lacteal feeding 496 and giving high emphasis on cultural norms and beliefs in the community. The most 497 498 common pre-lacteal foods mentioned by study participants were milk and plain water, followed by sugar solution and butter, respectively. These pre-lacteal foods 499 were similar to the previous reported pre-lacteal foods that were studied in other 500 areas (2, 5, 12, 13). Milk is commonly given as a pre-lacteal food because of the 501 pastoral community in the study area. In the qualitative study, study participants 502 503 reported further new information on pre-lacteal foods such as honey, dates (temir), a secret leaf, and condo pepper. Cultural views, the assumption cleaning new-born's 504 throat and bowel, as well as breast milk insufficient were the most common reasons 505 506 for using pre-lacteal foods. This finding is the same as that of the prior study in Sindh (1). The possible justification for continuing to practice pre-lacteal foods in the study 507 area may be Afar people's socio-cultural structures are based on descent and 508 relationship (16). 509

This study's findings have a significant impact on the promotion of optimal breastfeeding practices and achieving sustainable development goal of decreasing child mortality in Ethiopia. The other strength of the current study is the inclusion of a qualitative study, which is used for triangulation and to gain additional information not found in the quantitative study. However, the information received from mothers could be subjected to recall bias, which was a limitation of this study.

516 **Conclusion:** In this study, pre-lacteal feeding practice is high. Those who have male 517 indexed children and housewife were more likely to practice pre-lacteal feeding than 518 those who have female indexed children and trades, respectively. However, mothers 519 who received three or more antenatal visits, delivery at a health institutes,

520 breastfeeding initiation within one hour and getting breastfeeding counseling had 521 less pre-lacteal feeding practice. Pre-lacteal foods found in this study were milk 522 products, water, sweet foods, and some of plant types. The most common reasons 523 for practicing these food items were cultural beliefs and a desire to clean the new 524 born's throat and bowel.

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List of abbreviation: KII: key informant interview, SPSS: social science statistical
 package, AOR: adjusted odd ratio, MPH: master of public health.

528 Authors' declaration

**Ethical approval and consent to participate:** Ethical clearance was obtained from a research and ethics review committee of health science college, Samara University. All methods were performed in accordance with the relevant guidelines and regulations. Informed consent was obtained from each study participant after explanation of the study's aim and from the legal guardians of patients with no formal education. No one was harmed as a result of participating in this study. By eliminating any identifier from questionnaires, confidentiality was respected.

536 **Consent for publication:** Not applicable

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- supplementary materials (Table S1).
- 539 **Competing interest:** There is no any competing interest.
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Reference 560 1. Memon Y, Sheikh S, Memon A, Memon N. Feeding beliefs and practices of 561 mothers/caregivers for their infants. J Liaguat Uni Med Health Sci. 2006;5(1):8-13. 562 2. Shariff A, Farsana C. Breast feeding practices. Beliefs and taboos in 563 Karnataka. Journal of Social Work. 1990;51:143-8. 564 3. Birhan TY, Birhan NA, Alene M. Pooled Prevalence and Determinants of 565 Prelacteal Feeding Practice in Eastern Africa Evidence from Demographic and 566 Health Survey Data: A Multilevel Study. Risk management and healthcare policy. 567 2021;14:1085. 568 Temesgen H, Negesse A, Woyraw W, Getaneh T, Yigizaw M. Prelacteal 4. 569 feeding and associated factors in Ethiopia: systematic review and meta-analysis. 570 International breastfeeding journal. 2018;13(1):1-12. 571 Amele EA, wondimeneh Demissie B, Desta KW, Woldemariam EB. Prelacteal 5. 572 feeding practice and its associated factors among mothers of children age less than 573 24 months old in Southern Ethiopia. Italian journal of pediatrics. 2019;45(1):1-8. 574 Sorrie MB, Amaje E, Gebremeskel F. Pre-lacteal feeding practices and 6. 575 associated factors among mothers of children aged less than 12 months in Jinka 576 Town, South Ethiopia, 2018/19. PloS one. 2020;15(10):e0240583. 577 Adem A, Assefa N, Deresa M, Yuya M, Ayana GM, Negash B, et al. 7. 578 Prelacteal Feeding Practices and Its Associated Factors among Mother of Children 579 Less Than 2 Years of Age in Kersa District, Eastern Ethiopia. Global Pediatric 580 Health. 2021;8:2333794X211018321. 581 Tekaly G, Kassa M, Belete T, Tasew H, Mariye T, Teshale T. Pre-lacteal 8. 582 feeding practice and associated factors among mothers having children less than 583

two years of age in Aksum town, Tigray, Ethiopia, 2017: a cross-sectional study.
BMC pediatrics. 2018;18(1):1-10.

Gebremeskel SG, Gebru TT, Kassahun SS, Gebrehiwot BG. Magnitude of
 Prelacteal feeding and its associated factors among mothers having children less
 than one year of age: a community-based cross-sectional study in rural eastern
 zone, Tigray, Ethiopia. Advances in Public Health. 2020;2020.

Teshale AB, Worku MG, Tesema GA. Spatial distribution and determinants of
the change in pre-lacteal feeding practice over time in Ethiopia: A spatial and
multivariate decomposition analysis. PloS one. 2021;16(1):e0244574.

Takele WW, Tariku A, Wagnew F, Ekubagewargies DT, Getinet W, Derseh L,
et al. Magnitude of prelacteal feeding practice and its association with place of birth
in Ethiopia: a systematic review and meta-analysis, 2017. Archives of Public Health.
2018;76(1):1-11.

597 12. Bekele Y, Mengistie B, Mesfine F. Prelacteal feeding practice and associated
598 factors among mothers attending immunization clinic in Harari region public health
599 facilities, Eastern Ethiopia. Open Journal of Preventive Medicine. 2014;2014.

Liben ML, Wuneh AG, Zepro NB, Mulugeta A. Factors associated with
prelacteal feeding in Afar regional state, northeastern Ethiopia: a cross sectional
study. International Journal of Research-Granthaalayah. 2017;5(7):116-27.

Hussien J, Assefa S, Liben ML. Breastfeeding performance in Afar regional
state, northeastern Ethiopia: a cross sectional study. BMC pediatrics. 2018;18(1):18.

Liben ML, Gemechu YB, Adugnew M, Asrade A, Adamie B, Gebremedin E, et
al. Factors associated with exclusive breastfeeding practices among mothers in dubti

town, afar regional state, Northeast Ethiopia: a community based cross-sectional
study. International breastfeeding journal. 2016;11(1):1-6.

16. Reda KT. Social organization and cultural institutions of the Afar of Northern
Ethiopia. International Journal of Sociology and Anthropology. 2011;3(11):423-9.

17. Andarge MY. The Difficulties of Ending Female Genital Mutilation (FGM):

Case of Afar Pastoralist Communities in Ethiopia. Retrieved fromwww ohchr
org/Documents/Issues/Women/WRGS/FGM/NGOs/ActionFor. 2014.

### Supplementary Files

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