

Exclusive Breastfeeding Continuation and Associated Factors Among Employed Women in North Ethiopia: A Cross-sectional Study

Kahsu Gebrekidan (✉ kahsu75@gmail.com)

Mekelle University College of Health Sciences <https://orcid.org/0000-0002-0933-1805>

Helen Hall

Monash University - Peninsula Campus

Virginia Plummer

Federation University Australia Faculty of Health

Ensieh Fooladi

Monash University School of Nursing and Midwifery

Research

Keywords: Employed women, Exclusive breastfeeding, Workplace, Ethiopia

Posted Date: October 19th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-92674/v1>

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Version of Record: A version of this preprint was published at PLOS ONE on July 29th, 2021. See the published version at <https://doi.org/10.1371/journal.pone.0252445>.

Abstract

Background

Exclusive Breastfeeding (EBF) can prevent up to 13% of under-five mortality in developing countries. In Sub-Saharan Africa the rate of EBF at six months remains very low at 36%. Different types of factors such as maternal, family-related and work-related factors are responsible for the low rate of EBF among employed women. This study aimed to assess the prevalence of EBF continuation and associated factors among employed women in North Ethiopia.

Methods

A community-based, cross-sectional study was conducted in two towns of Tigray region, North Ethiopia. Employed women who had children between 6 months and 2 years were surveyed using multistage, convenient sampling. Women filled a paper-based validated questionnaire adopted from Breastfeeding and Employment Study toolkit. The questions were grouped into four parts of sociodemographic characteristics, maternal characteristics, family support and work-related factors. Factors associated with EBF continuation as a binary outcome (yes/no) were determined using multivariate logistic regression.

Results

Four-hundred and forty-nine women participated in this study with a mean (SD) age 30.4 (4.2) years. Two hundred and fifty-four (56.4%) participants exclusively breastfed their children for six months or more. The main reason for discontinuation of EBF was the requirement of women to return to paid employment (31.5%). Four-hundred and forty (98.2%) participants believed that breastfeeding has benefits either to the infant or to the mother. Three hundred and seventy-one (82.8%) of the participants received support from their family at home to assist with EBF most commonly from their husbands and mothers. Having family support (adjusted odds ratio [AOR]= 2.1, 95% CI 1.2-3.6; P = 0.005), having frequent breaks at work (AOR= 2.6, 95% CI, 1.4-4.8; P = 0.002) and the possibility of buying or borrowing required equipment for expressing breast milk (AOR= 1.7, 95% CI, 1.0-3.0; P = 0.033) were statistically associated with increasing chance of EBF.

Conclusion

Although returning to work was reported by the study participants as the main reason for discontinuation of EBF, families and managers' support have significant roles in EBF continuation which in the absence of six-month maternal leave for employed women in Ethiopia would be of benefit to mothers and their child.

Introduction

In 1990 the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) adopted a declaration on protection, promotion and support of breastfeeding focused on the importance of EBF for

at least six months (1). Appropriate EBF practice can prevent up to 13% of under-five mortality in developing countries (2). In light of this, UNICEF and WHO have set a target to increase the rate of EBF to 50% by 2025 (3, 4). However, the rate of EBF for six months is suboptimal in many parts of the world (5). In Sub-Saharan Africa only 36% mothers exclusively breastfeed their infants until six months (6). In Ethiopia, the rate of EBF among employed women remains suboptimal. In studies conducted in Gondar town (7) and Fafan zone(2), Ethiopia with the focus on employed and non-employed women, the rate of EBF among employed women was 21% and 24.8%, respectively. Another cross-sectional study conducted in Dukem, central Ethiopia in 2015 showed that only 24.3% employed mothers exclusively breastfed their infants until six months (8).

Different factors are responsible for the low rate of EBF among employed and non-employed women. Good knowledge and positive attitude of mothers about the benefits of EBF plays important role for the continuation EBF until six months (9, 10). A study in Jordan showed support and encouragement from husband and extended family members were associated with increased rate of EBF for six months (11), whereas mother's return to paid employment negatively impacted the duration of EBF (7, 12, 13). Employed women need to return to work before six months because paid employment is a necessity, not an option for many of them (14). Studies conducted among employed women shows different work-related factors that affect the continuation EBF either positively or negatively (3, 12, 13). Availability of physical facilities and supportive work environment such as flexibility of work and having supportive managers encourage women to continue EBF (3, 15).

Kebede T. et al reported several factors that triggered EBF discontinuation including having a short duration of maternity leave, full time employment, working in private organizations, lack of flexible working hours unable to express breast milk, lack of break to express breast milk and workplace being far away from the child (8). This study provides some useful insights into some of the barriers to EBF for employed women in Ethiopia; however, the findings may not be generalisable to other areas of Ethiopia, as a very diverse country with different ethnicities and cultural expectations. Hence, the results of a study conducted in central Ethiopia, for example, may not be generalizable to people who live in the Northern part of the country. Moreover, the maternal leave in Ethiopia has been increased from three months to four months in 2019. The current study aimed to assess EBF continuation and associated factors among employed women in North Ethiopia, since the introduction of increased maternal leave. Knowledge of mothers about the benefits of EBF and practice of EBF were also assessed.

Methods

This study was part of a larger mixed-methods study looking at determinants of EBF among employed women after they returned to work. This paper reports on the survey results of the study. Findings of this study are reported based on the Strengthening the Reporting of Observational Studies in Epidemiology Guidelines (16).

Study design and setting

This community-based, cross-sectional study was conducted in two towns in Tigray region, North Ethiopia between December 2018 and January 2019.

Participants

The study participants were full-time employed women who had children aged between 6 months and 2 years. Women working in contract, casual, part time and own business were excluded as they might have more flexible schedules.

Sampling method

Multistage sampling was used to reach the study participants. First, two zones from the seven zones in Tigray region were selected using convenient sampling method. The biggest town was then selected from each zone because these towns are administrative and business centres of the zone in which many employed women live. All kebeles (lowest administrative division) in each town were included in the study. The total number of participants was allocated to each town equally. Finally, purposive sampling was used to recruit women from each kebele (Figure 1).

Twenty health extension workers from both towns visited women in their home. Potential participants were invited to the study and given the explanatory statement. Those who agreed to take part in the study were provided with a hard copy, self-administered questionnaire. They were told that the questionnaire would be collected two weeks later. The first author supervised the overall data collection process.

Measurement of variables

We used a survey tool adapted from Breastfeeding and Employment Study (BEST) toolkit, developed by the University of Wisconsin (17). The tool was modified to capture local factors deemed to be important. In total, 11 maternal characteristics and six family support related questions were added. The questionnaire comprises a total of 66 questions, 36 of them were four-point (strongly agree, agree, disagree and strongly disagree) Likert scale questions. The questionnaire was prepared in English, then translated to local language (Tigrigna). Once participants had completed the questionnaire it was back translated to English for data processing and analysis. Prior to distribution, the questionnaire was piloted in five employed mothers to ensure its wording and understandability by local Tigran mothers; no amendment was necessary.

The women were asked for how long they exclusively breastfed their last child. There were five alternatives to respond this outcome variable (Not at all, 3 months or less, 4 to 6 months, 6 months and more than 6 months). The independent variables grouped were into four 1) demographic characteristics age of infants and mothers, marital status, type of work, educational status, monthly salary of mothers, number of children, place of birth and type of birth; 2) EBF practice and knowledge about the benefits of EBF and breast milk expression; 3) family support that focused on the support mothers obtained at home from their husband and extended family members; and 4) work-related factors. Organisational, managers

support, co-workers support as well as time and physical environment related questions were addressed under the work-related factors.

Study size

The sample size was calculated using G*power using the following parameters: a power of 0.80, true proportion of the population of employed women (21%) based on a previous study conducted in Gondar, Ethiopia (7), a level of significance of 0.05 and a medium effect size of 0.5 and sample size was 507.

Statistical analysis

We summarized continuous and categorical variables using means (\pm standard deviations, SDs) and frequencies (percentages), respectively. The outcome variable (duration of EBF) was recoded as either yes (breastfed for 6 months or more) or no (Not at all, 3 months or less, 4 to 6 months breastfed) for the question "did you EBF your infant for six months". The four-category response (strongly agree, agree, disagree and strongly disagree) were collapsed into two categories (strongly agree/agree and strongly disagree/disagree).

Logistic regression analysis was used to assess the relationship between the dependant and independent variables at 95% confidence interval. Variables with P-value <0.1 on the univariate logistic regression was included in the multivariate logistic regression. Variables with p-value 0.05 or less were considered statistically significant. SPSS software version 26 was used for the analyses.

Results

Of the 510 questionnaires distributed, 449 (88.0%) were completed with equal number of completed questionnaires returned from each town. Nine out of 449 questionnaires were incomplete for the work-related section, and one out of nine questionnaires was incomplete for all sections except for demographic characteristics. Incomplete questionnaires were included in the descriptive statistics, but not in the logistic regression analysis.

Demographic characteristics of participants

The mean (SD) age of the study participants was 30.4 (4.2) years. Three-hundred and seventy-nine (84.4%) participants were married and 337 (75.1%) had completed education at diploma level or above. Three hundred and twenty-four (72.2%) respondents had either two or more live children, and 140 (31.2%) had monthly income of 107 USD or more. Four-hundred and forty-one (98.2%) mothers gave birth to their last child in a health facility and 303 (67.5%) had a spontaneous vaginal birth (Table 1).

Table 1: Demographic characteristics of study participants (n=449)

Question/variable	n (%)
Age (years), mean (SD)	30.4 (4.2)
Age of youngest child (months), mean (SD)	12.1 (4.6)
Marital status	379 (84.4)
Partnered	70 (15.6)
Unpartnered (single, divorced, widowed)	
Educational Status	112 (24.9)
Secondary school or less	337 (75.1)
Diploma and above	
Type of work	207 (46.1)
Professional/skill	186 (41.4)
Administrative	56 (12.5)
Others	
Monthly salary (USD)	112 (25.2)
Less than 46	97 (21.6)
46– 76	100 (22.3)
77 – 107	140 (31.2)
More than 107	
Number of live children per participant	125 (27.8)
One	324 (72.2)
Two or more	
Place of last birth	8 (1.8)
Home	124 (27.6)
Health center*	317 (70.6)
Hospital	
Mode of birth	303 (67.5)
Spontaneous vaginal birth	48 (10.7)
Instrumental assisted vaginal birth	98 (21.8)
Caesarean section	

**Health centres are primary health care units that provide preventive and curative services with inpatient capacity of five beds.*

Values are n (%) unless otherwise specified.

Breastfeeding practices and knowledge

Four-hundred and forty-eight participants responded to the section of questionnaire investigating breast feeding practices and knowledge. Of these women, 393 (87.7%) commenced breastfeeding within one hour of birth and 254 (56.6%) mothers EBF their children for six months or more. For 141 (31.5%) mothers who did not EBF, their primary reason for the introduction additional food/fluids was the requirement to return to paid employment within six months of birth.

Four-hundred and forty (98.2%) participants believed that EBF has benefits. The common reasons participants identified as a motivation for continuing EBF included nutritional benefits (58.0%), disease prevention (66.3%) and growth and development of infants (63.8). Contraceptive effect was another benefit of EBF mentioned by 350 (78.1%) of the study participants. A total of 293 (65.4%) of respondents reported that they had information about expressed breast milk feeding. Health extension workers and professionals were the main sources of information about expressing breast milk for 156 (34.8%) and 158 (35.3%) of mothers, respectively (Table 2).

Table 2: Breastfeeding practices and knowledge of study participants (n=448)

Question/variable	n (%)
Starting breastfeeding within one hour after birth	
Yes	393 (87.7)
No	55 (12.3)
Duration of EBF	
Belief that breast milk alone was not enough	
Didn't have enough milk	38 (8.5)
Started paid employment	26 (5.8)
Influence from family	141 (31.5)
Other	3 (0.7)
	2 (0.5)
Belief that EBF is beneficial	
Yes	440 (98.2)
No	8 (1.8)
Mothers' perceptions of benefits EBF for the infant**	
Nutritional benefits	260 (58.0)
It reduces some diseases	297 (66.3)
Growth and development	286 (63.8)
Bonding between mother & infant	183 (40.8)
Mothers' perceptions of benefits EBF for herself/women**	
Contraceptive use	350 (78.1)
Control bleeding after birth	115 (25.7)
Decrease risk of breast/cervical cancer	112 (25.0)
Economic benefits	162 (36.2)
Awareness on how to express breast milk	
Yes	293 (65.4)
No	155 (34.6)
Source of information about expressed breast milk feeding**	
Health extension workers	156 (34.8)
Health professionals	158 (35.3)

Mass media (Radio, TV etc.)	77 (17.2)
Social Media	30 (6.7)
Other sources*	5 (1.1)
Mother has feed her baby using expressed breastmilk	
Yes	109 (24.3)
No	339 (75.7)
Reason for expressed breastmilk feeding	
Returned to paid employment before 6 months	74 (16.5)
Unable to breastfeed after birth	23 (5.1)
Other	12 (2.7)

* other sources = individual woman's knowledge as a health professional, family

**possible to give more than one answer

Family support ofEBF

From the total study participants who responded this part (448), 371 (82.8%) reported that they received support from their family at home to continue EBF. The family members most commonly involved in supporting women to EBF were their husbands, their mothers and mothers-in-law as stated by 254 (56.7%), 172 (38.4%) and 61 (13.6%) participants, respectively. The participants also reported that 266 (59.4%) of husbands actively encouraged EBF. The common types of support women obtained at home were baby care 224 (50.0 %) and staying with baby at home while they were at work 248 (55.4%). When mothers did not have support from their husband or members of their family, some would leave their infants with domestic workers at home 149 (33.3%) or take them to work 122 (27.2%) (Table 3).

Table 3: Family support ofEBF among study participants (n=448)

Question/variable	n (%)
Family support to continue EBF following return to paid employment	371 (82.8)
Yes	77 (17.2)
No	
Members of family who provided support at home	254 (56.7)
Husband	172 (38.4)
Mother	61 (13.6)
Mother-in-law	26 (5.8)
Domestic worker	33 (7.4)
Other*	
How do you rate the support you obtained from your husband?	59 (13.2)
Unsupportive	266 (59.4)
Actively supportive	93 (20.8)
Supportive on request	30 (6.7)
Not applicable (no husband)	
Type of support at home**	58 (12.9)
No support	224 (50.0)
Baby care	248 (55.4)
Staying with baby at home	150 (33.5)
Household activities	5 (1.1)
Other	
If no support at home, how you manage your child with work?	149 (33.3)
Child minded at home by domestic worker	24 (5.4)
Day care (outside home)	122 (27.2)
Child taken to mother's work	4 (0.9)
Other	

**others: neighbours, extended family members ** possible to give more than one answer*

Work-related factors affecting EBF

Four-hundred and forty participants identified a number of workplace factors that affected the continuation of EBF including receiving supports from organizations, managers and co-workers, as well as availability of time and physical environment.

Organizational support

In responding to the organizational support related questions, 277 (63.0%) participants agreed/strongly agreed that they had enough maternal leave before going back to work. Three-hundred and fourteen (70.7%) participants disagreed/strongly disagreed that they had policies about breastfeeding in their workplace. One hundred and ninety-six (44.5%) participants strongly disagreed and further 191 (43.4%) disagreed that they had access to an area at work specifically designated for breastfeeding. From the participant mothers, 313 (71.1%) of them reported that their employment would not be at risk if they breastfeed in their workplace. A total of 306 (69.6%) of participants disagreed/strongly disagreed that their opportunities for job advancement would be limited if they breastfeed at work (Table 4).

Table 4: work related factors affecting EBF (n=440)

Variables	n (%)
Organizational support	
I would have enough (paid or unpaid) maternity leave to get breastfeeding started before going back to work.	163 (37.0)
Strongly disagree/Disagree	277 (63.0)
Strongly agree/Agree	
My company has written policies for employees that BF or expressing breast milk.	314 (71.4)
Strongly disagree/Disagree	126 (28.6)
Strongly agree/Agree	
I would feel comfortable asking for space to breastfeed/express breast milk at work	357 (81.1)
Strongly disagree/Disagree	83 (18.9)
Strongly agree/Agree	
I'm certain there is a place I could go to breastfeed or express breast milk at work.	387 (88.0)
Strongly disagree/Disagree	53 (12.0)
Strongly agree/Agree	
There is someone at work that would help me plan for BF or expressing breast milk	351 (79.8)
Strongly disagree/Disagree	89 (20.2)
Strongly agree/Agree	
My job could be at risk (e.g. lose my job) if I breastfed or express breast milk at work	316 (71.8)
Strongly agree/Agree	124 (28.2)
Strongly disagree/Disagree	
My opportunities for job advancement would be limited if I breastfed/express breast milk at work	306 (69.5)
Strongly agree/Agree	134 (30.5)
Strongly disagree/Disagree	
Managers support	
My manager would support me breastfeeding or expressing breast milk at work	320 (72.7)
Strongly disagree/Disagree	120 (27.3)
Strongly agree/Agree	
My manager would think I couldn't finish all my work if I ask break for breastfeeding	293 (66.6)
Strongly disagree/Disagree	

Strongly agree/Agree	147 (33.4)
I would feel comfortable speaking with my manager about breastfeeding	282 (64.1)
Strongly disagree/Disagree	158 (35.9)
Strongly agree/Agree	199 (45.2)
My manager would make sure my job is replaced if I need break for breastfeeding or expressing breast milk	241 (54.8)
Strongly disagree/Disagree	241 (54.8)
Strongly agree/Agree	319 (72.5)
My manager would change my work schedule to let me time for breastfeeding or expressing breast milk	121 (27.5)
Strongly disagree/Disagree	121 (27.5)
Strongly agree/Agree	316 (71.8)
My manager would help me deal with my workload to breastfeed/express breast milk	124 (28.2)
Strongly disagree/Disagree	124 (28.2)
Strongly agree/Agree	
Co-workers support	
I would feel comfortable speaking with my co-workers about breastfeeding	243 (55.2)
Strongly disagree/Disagree	197 (44.8)
Strongly agree/Agree	188 (42.7)
My co-workers would change their break times so that I could breastfeed/express breast milk	252 (57.3)
Strongly disagree/Disagree	252 (57.3)
Strongly agree/Agree	196 (44.5)
My co-workers would replace my job duties if I needed time for breastfeeding or expressing breast milk.	244 (55.5)
Strongly disagree/Disagree	244 (55.5)
Strongly agree/Agree	
Time related variables and Physical environment	
My breaks are frequent enough for BF or expressing breast milk.	358 (81.4)
Strongly disagree/Disagree	82 (18.6)
Strongly agree/Agree	82 (18.6)

I could adjust my break schedule in order to breastfeed or express breast milk.	314 (71.4)
Strongly disagree/Disagree	
Strongly agree/Agree	126 (28.6)
I could buy or borrow the equipment I would need for expressing breast milk.	356 (80.9)
No	
Yes	84 (19.1)
My company would supply the equipment I need for expressing breast milk at work	417 (94.8)
No	
Yes	23 (5.1)
There is a company-designated place for women to breastfeed or express milk	
No	440 (100)
Yes	0 (0)

Managers support

Three hundred and twenty-three (73.4%) women disagreed/strongly disagreed that they had support from their managers to breastfeed at work. From the study participants, 293 (66.6%) mothers disagreed/strongly disagreed with the statement 'my manager would think I couldn't finish my work if I needed break for breastfeeding'. Two hundred and eighty-two (64.1%) mothers reported that they did not feel comfortable speaking about breastfeeding with managers. When talking about flexibility of the managers in supporting breastfeeding mothers, 241 (54.8%) participants reported that their managers want to make sure another person is available to undertake the work when the mothers needed time for breastfeeding. Ninety-one (20.7%) agreed and a further 30 (6.7%) strongly agreed, that their managers allowed them to change their work schedule for breastfeeding. However, 316 (71.8%) participants disclosed that their managers did not help them to manage their workload (Table 4).

Co-workers support

From the participant mothers, 243 (55.3%) of them did not feel comfortable when speaking with co-workers about breastfeeding. However, 243 (55.3%) agreed/strongly agreed that their co-workers helped them by changing their break time to allow time for breastfeeding or expressing breast milk. Similarly, 244 (55.4%) participants Agreed/strongly agreed that their co-workers undertook their job to allow them time to breastfeed or express breast milk (Table 4).

Time and physical environment

From the study participants, 80 (18.1%) agreed/strongly agreed that they had frequent enough breaks for breastfeeding or expressing breast milk. A total of 126 (28.6%) of participants agreed/strongly agreed that they could adjust their schedule to get time for breastfeeding. Whereas, when talking about accessibility of equipment for breast milk expression, only 84 (19.1%) reported that they could buy or borrow the equipment for expressing breast milk. All (100%) of the participants reported that none of the companies they work had designated place for women to breastfeed or express milk during the work day (Table 4).

EBF and associated factors among employed women

Two-hundred and fifty-four (56.6%) participants reported that they exclusively breastfed their infants until six months. The main reason for 46.4% of the study participants who did not adhere to EBF was returning to work before 6 months.

Of the variables used in the univariate logistic regression, only six variables had a p value of <0.1 and were used in the multivariate logistic regression (Table 5). Mothers who had family support were two times more likely to continue EBF, compared to those who did not have family support (AOR= 2.1, 95% CI 1.2-3.6; P = 0.005). Similarly, mothers who agreed/strongly agreed of having frequent enough breaks were 2.6 times more likely to EBF than those disagreed/strongly disagreed (AOR= 2.6, 95% CI, 1.4-4.8; P=0.002). When the mothers could buy or borrow equipment they need for expressing breast milk, they were 1.6 times more likely to continue EBE compared to those who could not (AOR= 1.7, 95% CI, 1.0-3.0; P = 0.033) (Table 5).

Table 5: Logistic regression for work-related predictors of EBF among employed women (n=440)

Variables	n	Crude OR (95% CI); p values	Adjusted OR (95% CI); p values
Age of mother (years)	265	Ref.	NI
18-29	175	1.2 (0.8-1.9); 0.263	
30 or more			
Marital status	373	Ref.	NI
Partnered	67	1.2 (0.7-2.1); 0.439	
Unpartnered (single, divorced, widowed)			
Educational Status	103	Ref.	NI
Secondary or less	337	1.3 (0.7-2.2); 0.304	
Diploma or more			
Monthly salary, (USD)	200	Ref.	NI
76 or less	240	0.8 (0.5-1.3); 0.518	
Greater than 76			
Number of children	125	Ref.	NI
One	315	0.7 (0.4-1.1); 0.166	
Two or more			
Awareness about breast milk expression	151	Ref.	Ref
No	289	0.6 (0.4-0.9); 0.047	1.1 (0.7-1.7); 0.469
Yes			
Family support to continue EBF following return to paid employment	77	Ref.	Ref
No	363	0.4 (0.2-0.7); 0.00	2.1 (1.2-3.6); 0.005
Yes			
I'm certain there is a place I could go to breastfeed or express breast milk at work	387	Ref.	Ref
Strongly disagree/Disagree	53	2.0 (0.9-4.8); 0.081	0.7 (0.4-1.5); 0.455
Strongly agree/Agree			
I would feel comfortable asking for accommodations for breastfeeding or express breast milk at work.	357	Ref.	Ref.
Strongly disagree/Disagree	83	1.7 (0.8-3.5); 0.099	0.6 (0.3-1.2); 0.182

Strongly agree/Agree			
My manager would change my work schedule to allow me time for BF	320	Ref.	Ref.
Strongly disagree/Disagree	120	2.0 (0.9-4.4); 0.062	0.7 (0.4-1.2); 0.282
Strongly agree/Agree			
My breaks are frequent enough for breastfeeding or expressing breast milk.	358	Ref.	Ref.
Strongly disagree/Disagree	82	0.3 (0.1-0.8); 0.018	2.6 (1.4-4.8); 0.002
Strongly agree/Agree			
I could buy or borrow the equipment I would need for expressing breast milk.	356	Ref.	Ref.
No	84	0.4 (0.2-0.9); 0.022	1.7 (1.0-3.0); 0.033
Yes			

NI, Not included

Discussion

In this study more than half of employed women reported EBF and a majority of them were aware of the benefits of EBF to infants and the mothers and reported family support. While more than half of the participants agreed/strongly agreed that their co-workers helped them to change their work schedule, around three fourth of the participants disagreed/strongly disagreed that they had support from their managers. All the participants reported that there is no designated place for women to breastfeed or express milk in their workplace. Over half of the study participants reported EBF at six months. Factors associated with EBF were having family support, having frequent breaks at work and the possibility of buying or borrowing equipment for expressing breast milk.

The prevalence of EBF in our study (56.4%) was higher as compared to other studies conducted in other areas of Ethiopia including Gondar in 2015 (20.9%), Dukem in 2015 (24.3%) and Fafan in 2016 (24.8%) (2, 7, 8). The reason for the increase in EBF might be a consequence of recent improvements in maternal leave in Ethiopia. Besides, women can use their annual leave after they finish their four months maternal leave which assists employed women to extend the duration of EBF at least by one month. Our prevalence of EBF was also higher compared to other reported prevalence in other areas of Africa such as Ghana (10.3%) and Egypt (14.1%) (18, 19). The difference might be due to the difference in leave entitlements, or local cultural practices and social expectations.

Awareness of mothers about the benefits of EBF is crucial for the continuation of EBF. In this study 98.2% participants believe that EBF has benefits. Similar finding was obtained in a study conducted in Fafan, Somali region of Ethiopia in which all the participants were aware of the benefits of EBF (2). Studies

conducted in Ghana and South Jordan also found that 99% and 99.3% mothers were aware of the benefits of EBF, respectively (18, 20). However, in studies conducted in Gondar, Ethiopia and Nigeria, 80% and 77.5% participants acknowledged the benefits of EBF, respectively (7, 21). These figures suggested that employed women has good awareness about the benefits of EBF which could motivate them to continue EBF until six months even after they returned to work (7).

In this study, having family support was positively associated with continuation of EBF. The common supports mothers obtained at home include baby care, staying with baby at home while she was at work, helping with cooking and other household activities. Similar finding was found in a study conducted among working women in Indonesia (22). The authors of an Indonesian study found that mothers who had family support were two times more likely than those who did not have the support to EBF (22). However, a study conducted in Gondar, Ethiopia showed that mothers who had no family support were more likely to EBF as compared to those who had family support (7). This was an unexpected finding not supported by the literature. Women who have support at home could spend more time with their infants which helped the children get adequate breastmilk. Therefore, having family support encouraged women to continue EBF after they returned to paid employment.

Participants who had break time in between work were more likely to continue EBF. In this study mothers who agreed/strongly agreed they had frequent enough break were more likely to continue EBF as compared to those disagreed/strongly disagreed. Similarly, in the study conducted in Dukem, central Ethiopia (8), mothers who had no break time in between work were more likely to discontinue EBF as compared to those who had break. This would be because having breaks in between work might encourage women to continue EBF after they returned to work (23). When employed women have break time in between work, either they could go home to breastfeed their infants when their home is nearby or ask someone to bring their infants to work.

Participants who could buy or borrow equipment they need for expressing breast milk, were more likely to continue EBE as compared to those who could not afford. This means, if mothers have access to equipment to express their breast milk, they can EBF longer. However, there is no existing literature to compare with this finding. Therefore, this could be the new finding of this study.

This study has limitations. Firstly, self-administered questionnaire was used to collect the data which make it difficult for the women to ask for clarification for any question. Secondly, employed women with children up to 2 years were included in the study which could lead to recall bias of the exact duration of EBF. Thirdly, the study participants were government employees. Therefore, the findings would not represent to women employed in private organizations. Further research with the focus on private employed women is recommended. Lastly, we used a convenient sampling in Northern Ethiopia and the findings might not be generalizable to all employed women in Ethiopia.

Conclusions

Compared to previous studies in Ethiopia, our findings show a reassuring increased percentage of EBF among employed women which might be due to a recent increase in maternity leave in Ethiopia. Almost all participants were aware of the benefits of breastfeeding. Returning to work before six months was mentioned as a common reason for many employed women to discontinue EBF. Mothers who could afford to buy equipment for breast milk expression were more likely to continue EBF. Maternal leave for six months is the best solution for women to adhere to EBF. In the absence of six-month maternal leave, families and managers' role is of importance in continuing EBF.

Abbreviations

AOR: Adjusted Odds Ratio; BEST: Breastfeeding and Employment Study; EBF: Exclusive Breastfeeding; UNICEF: United Nations Children's Fund; WHO: World Health Organization

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from Monash University Human Research Ethics Committee (ethics approval number: 13794) and Mekelle University Research Ethics Approval Committee (ethics approval number: ERC 1490/2018). Participation was voluntary and informed consent was obtained from each study participant prior to distribution of the questionnaire. To ensure their privacy, no personal identifiers of participants was used.

Consent for publication: not applicable

Availability of data and materials: The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no conflicts of interest.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions: KG, HH, VP and EF have made substantial contributions to the conception, design, analysis, and interpretation of the study. All authors read and approved the final manuscript.

Acknowledgements:

The authors would like to acknowledge the participant mothers for sharing their experiences by responding the questionnaire.

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Figures

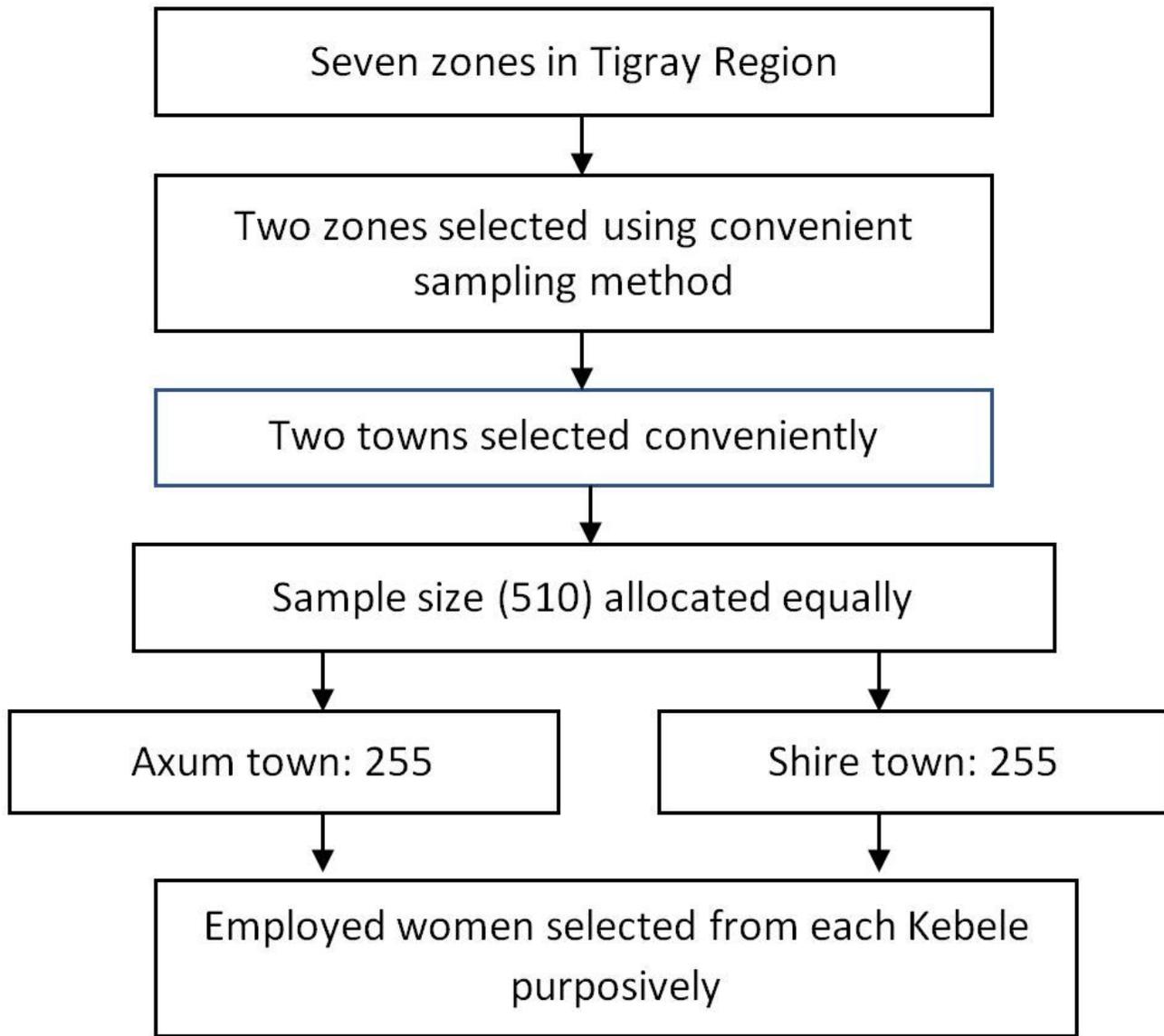


Figure 1

Sampling method of the study