

Exclusive breastfeeding and maternal employment in Ethiopia: A comparative cross- sectional study

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Abstract: *Back-ground:* Promotion of exclusive breastfeeding is the single most cost-effective intervention to reduce infant mortality in developing countries. Exclusive breastfeeding for the first six months has greater benefit than formula feeding for the prevention of mother to child transmission of HIV. In Ethiopia, the prevalence of exclusive breast feeding among infants less than 6 months is 49%, with limited information on associated factors of exclusive breast feeding. Understanding the associated factors that influence exclusive breastfeeding is crucial to promote the practice in Ethiopia. *Objective:* To compare exclusive breastfeeding and its associated factors among employed and unemployed mothers in Injibara Town, Awi Zone, North west Ethiopia. *Method:* A community-based comparative cross-sectional study was conducted from March 24-April 14, 2013. A total of 524 mothers of children age ≤ 1 year were included in the study. A structured, pretested and self-administered questionnaire was used to collect data. Descriptive statistics were performed to compare exclusive breastfeeding among employed and unemployed mothers. Multiple logistic regression analysis was conducted to identify independent predictors of exclusive breastfeeding. *Results:* The prevalence of exclusive breastfeeding was 44% and 65% among employed and unemployed mothers respectively. Employed mothers were 32% times less likely to breast feed exclusively than the unemployed mothers (OR= 0.32). Place of birth (OR=4.4), belief of breast milk sufficiency (OR= 3.6), religious fathers support of exclusive breastfeeding (OR=2.7) and maternal age of 18-23 (OR=9.4) were independently predictors of exclusive breastfeeding among employed mothers. Whereas, husbands' support of exclusive breastfeeding (OR=1.9), knowledge on duration of exclusive breastfeeding (OR=2.8), timely initiation of breastfeeding (OR=2.9), Awareness of exclusive breastfeeding (OR=2.2) and delivery attendance (OR=2.2) were independently predictors of exclusive breastfeeding among unemployed mothers. *Conclusions:* A large proportion of infants are not exclusively breastfed. Exclusive breastfeeding status of unemployed mothers was significantly better than that of employed mothers. Therefore, the government should promote exclusive breastfeeding by creating breastfeeding friendly working environment.

Keywords: Exclusive Breast Feeding, Maternal Employment, Injibara Town

1. Introduction

Promotion of exclusive breastfeeding is the single most cost-effective intervention to reduce infant mortality in developing countries [1-5]. Non-exclusive breastfeeding has long-term impact, including poor school performance, reduced productivity, and impaired intellectual and social development. It can also increase the risk of dying due to diarrhea and pneumonia among 0-5 month old infants by more than two-fold [2,3].

Diarrhea and pneumonia are more common and more

severe in children who are artificially fed, and are responsible for many of these deaths [6]. Many newborns are neither breastfed during their first hours of life with colostrums nor exclusively breastfed during their first six months; instead, they are given liquids and complementary food at an early age. Only one in three Ethiopian children age 4-5 months is exclusively breastfed. These practices may expose them to infectious diseases, and therefore have a negative impact on their growth and development [7].

Evidence shows that 65% of under-five mortality is caused by malnutrition; more than two-thirds of those are associated with improper breastfeeding practices during infancy. Exclusive breastfeeding for the first six months has greater benefit for the prevention of mother to child transmission of HIV [7]. Worldwide, only 35% of infants are exclusively breastfed during their first four months of life [2, 3, and 5].

There has been an information gap regarding magnitude and determinant of exclusive breastfeeding among employed and unemployed mothers until now. This study explored magnitude and determinant of exclusive breastfeeding among employed and unemployed mothers in Injibara Town, Awi Zone, North West Ethiopia, 2013.

2. Methods and Materials

2.1. Study Area and Period

The study was conducted from March 24-April 14, 2013 in Injibara Town, Awi Zone Northwest Ethiopia. Awi Zone is one of the 11 Zones in the Amhara Region of Ethiopia. The administrative center of Awi zone is Injibara. Injibara is located at 122 km from Bahir Dar and 436 km from the capital of Addis Ababa. According to 2007 Ethiopian housing and population census, the total population size of the three kebeles were 26,073.

2.2. Study Design

A community- based comparative cross- sectional study design was employed.

2.3. Source Population

All employed and unemployed mothers of children age ≤ 1 year.

2.4. Study Population

All employed and unemployed mothers of children age ≤ 1 year.

2.5. Sample Size

Census was conducted to Assess magnitude and determinant of exclusive breastfeeding among employed and unemployed mothers of children age ≤ 1 year. The total numbers of employed and unemployed mothers of children age ≤ 1 year were 524 (243 employed and 281 unemployed) who were already registered in Health extension workers' document.

2.6. Measurements

The data were collected using a validated questionnaire adapted from the Ethiopian Health and Demographic Survey (EDHS), WHO and LINKAGE project which were designed to assess infant and young child feeding practices in developing countries including Ethiopia [8, 9 and 10]. The questionnaire includes socio-demographic characteristics (14

items), predisposing factors (13 items) enabling factors (4 items) and reinforcing factors (8 items) exclusive breast feeding (2 items).

2.7. Data Collection Techniques

Five 12th grade complete data collectors and three supervisors (public health professionals) were recruited. Two days training was given for data collectors and supervisors on the purpose of the study, questionnaire, data collection methods, process of assigning study participants, and ethical concerns during data collection.

2.8. Data Quality

The questionnaire was translated to Amharic and back translated to English to check consistency. Pre-testing was conducted in 5% of the sample size in similar areas (Dangila Town) before the actual data collection. A total of two days intensive training was given for all supervisors and data collectors. Double entry verification was done to minimize error.

2.9. Data Analysis

Data were checked for completeness and consistency each day after collection. And then entered into Epi data version 3.1 and exported to SPSS 16.0. First, descriptive statistics were computed for the study variables. Next simple logistic regression was performed for each independent variable with the outcome of interest at $p < 0.05$ to consider statistically significant variables. Finally, multiple logistic regression analysis was conducted to determine independent predictors of exclusive breastfeeding.

2.10. Ethical Consideration

Ethical permission was obtained from the ethics committee of the College of Public Health and Medical Science, Jimma University. After obtaining ethical approval, written permission was obtained from Awi Zone health department and Injibara Town administration Health Office, and verbal informed consent was obtained from each study subject.

3. Result

3.1. Socio-Demographic Characteristics

Of the total 524 mothers, 473 of them were participated in the study with a response rate of 90.3%. Regarding employment status, 217(45.8%) were employed and 256(54.1%) were unemployed. Concerning the educational status, 205(94.5%) of employed and 98(38.3%) of unemployed mothers were secondary and above respectively. Regarding to marital status, majority of the mothers, 212 (97.7%) of employed and 232 (90.6%) of unemployed were married (Table-1).

Table 1. Socio-demographic characteristics of employed and unemployed mothers in Injibara Town, March, 2013.

Variables	Maternal employment	
	Employed(N=217)	Unemployed(N=256)
Maternal age		
18-23	42(19.4)	103(40.2)
24-29	119(54.8)	103(40.25)
>=30	56(25.8)	50(19.5)
Place of resident		
Urban	217(100)	227(88.7)
Semi-urban	-	29(11.3)
Marital status		
Married	212(97.7)	232(90.6)
Single	1(0.5)	7(2.7)
Divorced	-	8(3.1)
Widowed	1(0.5)	1(0.4)
Separated	3(1.4)	8(3.1)
Ethnicity		
Amhara	114(52.5)	129(50.4)
Agaw	100(46.1)	127(49.6)
Others	3(1.4)	-
Maternal Education		
No education	-	94(36.7)
Primary	12(5.5)	64(25)
Secondary and higher	205(94.5)	98(38.3)
Husbands Education		
No education	-	66(25.8)
Primary	9(4.1)	87(34)
Secondary and higher	208(95.9)	103(40.2)
Child Sex		
Male	111(51.2)	127(49.6)
Female	106(48.8)	129(50.4)
monthly income of the HH		
<500	2(0.9)	106(41.4)
501-1000	9(4.1)	52(20.4)
1001-1500	15(6.9)	40(15.6)
1501-2000	38(17.5)	29(11.3)
>2000	153(70.5)	29(11.3)

Abbreviation: HH, Household

3.2. Predisposing Factors

Majority 208(95.95%) of employed and 229(89.5%) of unemployed mothers had knowledge about breast milk is the best food for infants <6 months respectively. Most of the respondents, 209 (96.3 %) of employed and 233(91%) of unemployed mothers had knowledge about Exclusive Breast Feeding respectively. Almost all mothers, 215(99.1%) of employed and 237 (92.6%) of unemployed mothers had knowledge about recommended duration of Exclusive Breast Feeding respectively. Few of the mothers, 3(1.5%) of employed and 23(9%) of unemployed had an opinion of infants should breast feed exclusively for <6 months respectively.

Table 2. Predisposing factors of employed and unemployed mothers in Injibara town, March, 2013

Variables	Maternal employment	
	Employed(N=217)	Unemployed(N=256)
Best food for infants <6 months		
Breast milk	208(95.9)	229(89.5)
Formula milk	6(2.8)	6(2.3)
Porridge	1(0.5)	3(1.2)
Do not know	2(0.9)	18(7)
Advantage of EBF to a mother		
prevents disease	62(28.6)	55(21.5)
prevents pregnancy	37(17.1)	33(12.9)
saves money	2(0.9)	-
bonds mother and child	76(35.0)	59(23.0)
do not know	31(14.3)	107(41.8)
others	9(4.1)	2(0.8)
Breast milk prevents disease (Child)		
Yes	215(99.1)	209(81.6)
No	-	17(6.6)
Do not know	2(0.9)	30(11.7)
In your opinion for how long should a child should feed breast milk only		
>= 6 months	214(98.6)	233(91.0)
<6 months	3(1.4)	23(9.0)
The meaning of EBF		
Feed only breast milk	209(96.3)	233(91.0)
Feed only cow's milk	2(0.9)	-
Feed only formula milk	1(0.5)	1(0.4)
Feed breast milk porridge	3(1.4)	9(3.5)
porridge	2(0.9)	13(5.1)
Role of husband in EBF Advice on EBF	57(26.3)	47(18.4)
Give economic support	154(71.0)	162(63.3)
Has no role	4(1.8)	28(10.9)
Do not know	2(0.9)	18(7.0)
Recommended duration of EBF		
Birth-6 months	215(99.1)	237(92.6)
Birth-4 months	2(0.9)	19(7.4)
Breast milk is better than infant formula		
Yes	215(99.1)	210(82.0)
No	1(0.5)	28(10.9)
Do not know	1(0.5)	18(7.0)
Breast milk sufficiency for the first 6 months		
Yes	160(73.7)	163(63.7)
No	57(26.3)	93(36.3)
Do you think that to start breast feed straight after delivery?		
Yes	205(94.5)	236(92.2)
No	11(5.1)	20(7.8)
Do you think that women should not breast feed public places?		
Yes	34(15.7)	40(15.6)
No	181(83.4)	187(73.0)
Do not know	2(0.9)	29(11.3)
Religious fathers encourage EBF		
Yes	101(46.4)	149(80.6)
No	116(53.2)	107(57.9)

Abbreviation: EBF, exclusive breastfeeding

Overall, Majority of the respondents 194 (89.4%) employed and 137(53.5%) unemployed were knowledgeable about Exclusive Breast Feeding respectively. Two hundred ten (96.8%) employed and 182(71.1%) unemployed mothers had favorable attitude towards Exclusive Breast Feeding respectively. And 152(70%) employed and 179(69.9%) unemployed had the positive belief towards Exclusive Breast Feeding respectively (Table-2).

3.3. Enabling Factors

Majority, 188(86.6 %) of employed and 242 (94.5. %) of unemployed mothers visited the health facility during their pregnancy. 141(75%) of employed and 97(40%) of unemployed mothers visited the health facility 4 times during their pregnancy respectively. Regarding to health information, 154(81%) of employed and 166(69%) of unemployed mothers were informed about Exclusive Breast Feeding respectively.

3.4. Reinforcing Factors

Table 3. Reinforcing factors of employed and unemployed mothers in Injibara Town, March, 2013.

Variables	Maternal employment	
	Employed(N=217)	Unemployed(N=256)
Place of delivery		
home	32(14.7)	78(30.5)
health facility	185(85.3)	178(69.6)
Birth attendance		
Health professionals	191(88.0)	168(65.6)
Non-health professional	26(12)	88(34.3%)
Mode of delivery		
Vaginal delivery	190(87.6)	250(97.7)
Caesarian section	27(12.4)	6(2.3)
Timely initiation of BF(within one hour)		
Yes	205(94.5)	236(92.2)
No	11(5.1)	20(7.8)
Mass media encourage EBF		
Yes	210(96.8)	154(60.2)
No	7(3.2)	102(39.8)
Family support of EBF		
Yes	197(90.8)	180(70.3)
No	20(9.2)	76(29.7)
Husband support of EBF		
Yes	201(92.6)	187(73.0)
No	16(7.4)	69(27.0)

Abbreviation: EBF, exclusive breastfeeding

Above fourteen percent of employed and thirty percent of unemployed mothers delivered at home. From total study participants, 26(12%) of employed and 88(34.3%) of unemployed mothers were delivered by non-health professionals. From total study participants, 205(94.5%) of employed and 236 (92.2%) of unemployed mothers breast feed their children within one hour. Majority, 210(96.8%) of employed and more than half 154(60.2%) of unemployed

mothers had an access of mass media. Majority, 210(92, 6%) of employed and 187(73%) of unemployed mothers were supported by their husbands about Exclusive Breast Feeding (Table-3).

3.5. Prevalence of Exclusive Breast Feeding

The study revealed that the prevalence of exclusive breastfeeding practice was Forty four percent and 65% among employed and unemployed mothers respectively.

3.6. Comparison of Exclusive Breast Feeding among Employed and Unemployed Mothers

Maternal employment status, health information about exclusive breast feeding, husbands' support on exclusive breast feeding, Perception about exclusive breast feeding and timely initiation of BF were significantly associated with exclusive breast feeding among employed and unemployed mothers. Employed mothers were 32% times less likely to breast feed exclusively than unemployed mothers (OR=0.32 P< 0.001).

3.7. Independent Predictors of Exclusive Breast Feeding for Unemployed Mothers

Table 4. Multivariate analysis of exclusive breast feeding among unemployed mothers in Injibara Town, March, 2013

Variable	Exclusive Breast Feeding Status		COR	AOR
	Non-Exclusive N1 (%)	Exclusive N2 (%)		
family support EBF				
Yes	55(61.8)	125(74.9)	1	1
No	34(38.2)	42(25.1)	1.8**	0.8
Husband support EBF				
Yes	55(61.8)	132(79)	1	1
No	34(38.2)	35(21)	2.3**	1.9**
Recommended duration of EBF				
Yes	77(86.5)	160(95.8)	1	1
No	12(13.5)	7(4.2)	3.6**	2.8**
Sufficiency of breast milk in the first 6 months				
Yes	49(55.1)	114(68.3)	1	1
No	40(44.9)	53(31.7)	1.8**	1.7
Timely initiation of BF				
Yes	77(86.5)	159(95.2)	1	1
No	12(13.5)	8(4.8)	3.1**	2.9**
Mass media				
Yes	45(50.6)	109(65.3)	1	1
No	44(49.4)	58(4.7)	1.8**	1.4
Health information. on EBF at ANC				
Yes	65(73)	146(87.4)	1	1
No	24(27)	21(12.6)	2.6**	2.2**
Delivery attendance				
Health professional	62(69.7)	142(85)	1	1
Non-health professional	27(30.3)	25(15)	2.5**	3.0**

Note: **Indicates significant at $P < 0.05$. Abbreviation: EBF, exclusive breastfeeding, COR, Crude odd ration and AOR, adjusted odds ratio.

Mothers who were not supported by their husbands were 1.9 times more likely to not breast feed exclusively than

those who were supported (OR=1.9). Mothers who had no Knowledge about the recommended duration of EBF were 2.8 times more likely to not breast feed exclusively than those who had Knowledge (OR = 2.8). Mothers who didn't practiced timely initiation of BF were 2.9 times more likely to not breast feed exclusively than who practiced (OR = 2.9). Mothers who did not get health information about exclusive breastfeeding were 2.2 times more likely to not breast feed exclusively than those who got (OR =2.2). Those mothers who were delivered by non- health professionals were 3.0 times more likely to not breast feed exclusively than those who were delivered by health professionals (OR = 3.0)(Table-4)

3.8. Independent Predictors of Exclusive Breast Feeding for Employed Mothers

Place of birth, religious fathers encourage of exclusive breastfeeding and maternal ages of 18-23 were independent predictors of exclusive breast feeding of employed mothers. Mothers who delivered at health facility were 4.4 times more likely to breast feed exclusively than those who delivered at home (OR = 4.4). Mothers who were encouraged by religious fathers about EBF were 2.7 times more likely to breast feed exclusively than those who were not encouraged (OR=2.7). Mothers whose ages of 18-23 were 9 times more likely to breast feed exclusively than those whose ages were thirty and above (OR = 9.4) (table 5).

Table 5. Multivariate analysis of exclusive breast feeding among employed mothers in Injibara Town, March, 2013

Variable	Exclusive Breast Feeding Status		COR	AOR
	Not Exclusive	Exclusive		
	N1 (%)	N2 (%)		
ANC follow up				
Yes	98(81)	90(93.8)	1	1
No	23(19)	6(6.2)	3.5**	4.2
Place of delivery				
Home	43(35.5)	18(18.8)	1	1
Health facility	78(64.5)	78(81.2)	2.4**	4.4**
Family support on EBF				
Yes	105(86.8)	92(95.8)	1	1
No	16(13.2)	4(4.2)	3.3**	0.2
Husband support on EBF				
Yes	108(89.3)	93(96.9)	1	1
No	13(10.7)	3(3.1)	3.7**	2.7
Advantage on EBF				
Yes	89(73.6)	88(91.7)	1	1
No	32(26.4)	8(8.3)	4.0**	1.7
Religious fathers encourage on EBF				
Yes	52(65)	32(66.7)	3.7**	2.7**
No	16(13.2)	16(33.3)	1	1
Maternal age				
18-23	16(13.2)	26(27.1)	2.3	9.4**
24-29	72(59.5)	47(49)	0.9	0.9
>=30	33(27.3)	23(24)	1	1

Note: **Indicates significant at $P < 0.05$. Abbreviation: EBF, exclusive breastfeeding, COR, Crude odd ration and AOR, adjusted odds ratio.

4. Discussion

This study aimed to determine the prevalence of exclusive breastfeeding and associated factors among employed and unemployed mothers. The study revealed that the prevalence of exclusive breastfeeding practice was 44% and 65% among employed and unemployed mothers respectively. This finding is higher among employed and lower among unemployed mothers compared to the study conducted in Ethiopia [11]. The possible difference might be different Study population.

Employed mothers were 32% times less likely to exclusively breastfeed than unemployed mothers. This finding is in agreement with the study conducted in Guatemala City; which speaks out that women who were not work outside the home were 32% times as likely to exclusively breastfeed as were women who worked outside the home [12]. Due to variations in maternal time, the majority of employed mothers started feeding their children with liquids and foods supplementations earlier before the age of weaning when compared to their unemployed counterparts, hence early termination of breastfeeding was observed more in employed mothers than in unemployed mothers. Thus, employed mothers were obliged to leave their children with somebody else who care for their children.

Extensive body research suggests that if adequate alternative childcare is available, there are no negative impacts of mother's employment on the child. However, in the much more economically and environmentally stressed situation in which many Ethiopian women live, this conclusion may not hold. Therefore, due to all these facts, children of employed mothers were at the disadvantage with regard to childcare and feeding practices. Thus, these improper feeding practices increase the chance of child's malnutrition compared to children of unemployed mothers that benefited from mothers who stays at home. Hence, the overall net effects of maternal employment (economic gain) and the costs of reduced time of the mother in childcare cancel out each other and drew the relationship to the null value. This was consistent with other study by Barry M. Popkin [13].

Unemployment of the mothers is a predictor of exclusive breastfeeding. This finding similar to the study conducted in Sudan, Malaysia and by Taveras, Chudsama [14-17]. The possible reason might be less maternity leave (three months in our context), which makes employed mothers have less opportunity to stay at home, compromising exclusive breastfeeding and facilities for breastfeeding at work places are not available in our case. This situation would discourage employed mothers from exclusively breast feed as compared to unemployed mothers.

Employed mothers whose age's b/n 18-23 were 9 times more likely to breast feed than those above thirty years old. This result is consistent with the study conducted in Syrian and Jordanian which depicts that, women aged 25 or less was more likely to practice exclusive breastfeeding compared with those whose' ages were older than 25 years[18-21]. The

possible reason might be breastfeeding promotion through media, currently inclusion of breastfeeding benefits in school curriculum and younger mothers are more sensitive for breast feeding. Initiation of breastfeeding within one hour of delivery and ANC visits were positively associated with exclusive breastfeeding among employed and unemployed mothers. This finding is in line with the study conducted in Geneva [2, 22].

5. Conclusion

The prevalence of exclusive breastfeeding practice was low in both among employed and unemployed mothers. This study has indicated a significant difference among employed and unemployed mothers with regard to exclusive breastfeeding. Employed mothers are less likely to exclusively breastfeed than unemployed mothers. Husbands' support on exclusive breastfeeding, knowledge of recommended duration of exclusive breastfeeding, Timely initiation of breast feeding, Delivery attendance and Health information about exclusive breastfeeding are Independent predictors of Exclusive breast feeding of unemployed mothers. Every stakeholder should promote exclusive breastfeeding through creating breastfeeding friendly working environment for working mothers. Planners should consider the significantly associated factors among employed and unemployed mothers while designing an intervention exclusive breastfeeding.

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Disclosure

The authors declare that they have no conflicts of interest in this work.

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