Rate of Exclusive Breastfeeding Among Postpartum Mothers at Hoima Regional Referral Hospital's Postnatal Clinic

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ABSTRACT

Despite active promotion, Uganda reports that 36% of children under 6 months are not exclusively breastfed, impacting infant health. This study focuses on 428 interviews within the Kampala district's informal sector, aiming to understand exclusive breastfeeding practices among mothers with infants aged 0-5 months. Results indicated a 41.1% prevalence of exclusive breastfeeding. Factors linked to this practice included attending antenatal care at least four times, intending to breastfeed exclusively for six months or more, adopting proper breastfeeding techniques, and the age of the infant. Notably, working in lower positions was associated with a lower likelihood of exclusive breastfeeding. Recommendations emphasize the importance of antenatal care in educating mothers about exclusive breastfeeding's advantages, enabling informed decisions. Additionally, enforcing maternity leave benefits outlined in Uganda's Employment Act within the informal sector can support women in practicing exclusive breastfeeding.

Keywords: Exclusive breastfeeding, Children below 6 months, Antenatal care, Maternity leave.

INTRODUCTION

Exclusive breastfeeding (EBF) is defined as giving breast milk to the infant, without any additional food or drink, not even water in the first 6 months of life, except vitamins. mineral supplements or medicines [1]. Breastfeeding is one of the oldest practices recommended by all religions and it is the universally endorsed solution in the prevention of early malnutrition. Breastfeeding is a natural process of infant feeding involving two main methods; exclusive and partial with the latter being the trendiest [2, 3]. Full breastfeeding is breastfeeding either exclusive predominant. or Partial breastfeeding includes other feeding methods in addition to breastfeeding regardless of content. [4, 5]. The United Nations developed the Millennium Development Goals with goal 4 (MDG-4) aimed to reduce the under-5 mortality rates by two-thirds between 1990 and 2015 and when the MDGs were recently

evaluated exclusive breastfeeding for six months was considered one of the most effective interventions to achieve MDG-4 [6]. To achieve the above goal WHO developed a Global Strategy for Infant and Young Child Feeding recommends planning and monitoring of the Baby-Friendly Hospital Initiative and expanded it beyond the maternity care setting. Step number five of the "Ten steps to successful breastfeeding" is "Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants" [7]. Breastfeeding is important for the growth and development of newborn babies by providing vital nutrients. World Health Organization (WHO) recommends that breastfeeding should be initiated within the first hours of life and exclusive breastfeeding is enough, without any additional foods or drinks up to six months [8]. The WHO guidelines assert that breast milk is the natural first food for

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babies; it provides all the energy and nutrients that the infant needs for the first six months of life and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year and up to one-third during the second year of life. WHO recommends colostrum, the yellowish sticky breast milk produced at the end of pregnancy as the perfect food for the newborn; this can be earlv through tapped initiation of breastfeeding [9]. In view of the benefits of breastfeeding, starting breastfeeding in the first hour of delivery, exclusive breastfeeding (EBF) for the first 6 months of life, and continued breastfeeding together with suitable complementary foods for up to 2 years or beyond is recommended as the best infant feeding plan for optimal growth, development, and health [10]. Exclusive breastfeeding offers short-term and long-term health benefits both to the mother and the infant. It also provides economic benefits by reducing both the direct and indirect costs related to healthcare and infant feeding [11]. Breast milk is the best food for the infant for the first 6 months of life and it should be initiated within 1 hour of birth, even before the expulsion of the placenta [12]. Optimal breastfeeding practices play a key in improving the health and role development of children under 5 years [13]. Human breast milk is the ideal food for human infants. It offers nutrients that are essential for normal growth and proper development and is central to establishing the foundation for a long healthy life [14]. The antibodies contained in breast milk. which mothers transfer to their infants, act as the first line of defense against some childhood killer diseases. This mother-tochild transfer of antibodies is considered passive immunization. Breastfeeding is also of immense benefit to the mother. When exclusively done, it could be a natural method of delaying pregnancy. This is called the lactational amenorrhea method (LAM); a form of contraception that

well, breast cancer and ovarian cancer risk prospects are reduced among mothers who give exclusive breast milk [5, 16, 17]. Furthermore. breast milk contains essential fatty acids needed for the infant's growing brain, eyes, and blood vessels and these are not available in other types of milk [18]. Although studies show that EBF has the potential to reduce under-five mortalities by 11.6%, the prevalence of EBF is still below the WHO recommendation of 90% worldwide [9]. Globally, only 38% of infants are exclusively breastfed. The prevalence varied from country to country. In Canada, 10.4% of mothers exclusively breastfed while in the Republic of Congo. 2.8% did so. The prevalence of EBF was generally higher in developing countries than in developed ones, 49% in Timor, Asia, and 35.4% in Korea [19]. The overall prevalence in sub-Saharan countries was 36.0% with the highest being in Rwanda, Malawi, Burundi, Ghana, and Zambia and the lowest in Guinea, Nigeria, Cote d Ivoire, Sierra Leone, and Gabon [13]. In East Africa, the EBF rates are quite impressive with Rwanda (84.9%), Burundi (69.3%), Kenya (61.4%), and Tanzania (50%) all having more than half of the infants 0-5 months old exclusively breastfed [20]. Only six in 10 Ugandan children below the age of six months are exclusively breastfed. It is no wonder then that the under-five and infant mortality rates stand at 128 and 79 per 1,000 live births respectively, which is very high by developing world standards [9]. This rate is associated with a number of factors such as educational level, occupation, cesarean delivery higher educational level, and many others [21]. Although information about EBF is scanty in Uganda the few reports postulate that the situation is not that good. The objective of this study was to establish the prevalence, patterns, and factors affecting exclusive breastfeeding among mothers attending the postnatal clinic at Hoima Regional Referral Hospital.

has wide cultural acceptability [15]. As

METHODOLOGY

Study Design

The study was a cross-sectional descriptive study employing quantitative data collection methods. This helped to analyze the problem in question since it

involved the use of numbers and situations

to explain the occurrence of the problem.

Area of Study

The study was carried out at Hoima Regional Referral Hospital which is

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approximately 110 kilometers (68 mi), by road, northwest of Mubende Regional Referral Hospital (Google Maps, 2020). This is approximately 198 kilometers (123 mi), by road, northwest of Mulago National Referral Hospital, in Kampala, Uganda's capital city Google Maps, 2020). The coordinates of Hoima Regional Referral Hospital are 01°25'41.0"N. 31°21'16.0"E (Latitude:1.428051; Longitude:31.354451) (Google Maps. 2020). Hoima Hospital is a public hospital, funded by the Uganda Ministry of Health, and general care in the hospital is free. It is one of the thirteen Regional Referral Hospitals in Uganda. The hospital is one of the fifteen internship hospitals in Uganda where graduates of Ugandan medical schools can serve one year of internship qualified under the supervision of specialists and consultants. The bed capacity of Hoima Hospital was reported to be 280 in 2013. Established in 1935, the facility initially functioned as a district hospital. In 1994, it was upgraded to Regional Referral status for the Bunyoro sub-region. It also serves patients from the nearby Eastern Democratic Republic of the Congo (Uganda MOH [22]).

Study Population

Mothers attending the postnatal clinic at HRRH who have children between the ages of 0-6 months.

Inclusion Criteria

- Patients consenting to participate in the study.
- Mothers attending the postnatal clinic at HRRH who have children between the ages of 0-6 months.

Exclusion Criteria

- Voluntary withdrawal from the study.
- Patients who did not have consented to participate in the study.

Sample Size Determination

The sample size was calculated using the probability sampling formula below:

Was by (Fischer et al. [23]) i.e.

$N = Z^2 pq/d^2$

Where;

n = sample size, when the population size is greater than 10,000.

z = Standard normal deviation, i.e. 1.96, set at 95% confidence level.

p = proportion of pregnant women with poor nutritional status

q = 1- p= expected non-prevalence (percentage of pregnant women with good nutritional status)

d = Desired degree of accuracy

If the value of p = 49% or 0.49

 $n = z^2 p (1 - p) / d^2$

 $= 1.96^2 \times 0.49(1 - 0.51) / 0.05^2$

 $= 3.8416 \times 0.49 \times 0.51 / 0.0025$

= 384

Sampling Procedures

A consecutive sampling technique was used to sample the study participants whereby a patient coming in and meeting the inclusion criteria was enrolled into the study.

Data Collection Methods and Management

Primary data was obtained using a structured questionnaire administered in English and Runyoro languages. The investigator introduced himself to the prospective participants and read to individual participants the consent form, the title and the purpose of the study as well as the rights of the participants throughout the study. Mothers in the postnatal ward who consented to participate in the study were given questionnaires to fill out on their own so that they could answer the questions privately and therefore feel secure in terms of confidentiality. The investigator recorded all the questionnaire serial numbers. This was done to ensure data quality as the data was entered in the coding box.

Data Analysis

Analyzed data was presented in tables and figures showing frequencies and proportions.

for Univariate analysis was done continuous variables to report measures of central tendency like mean, median, and mode and measures of dispersion like the range, and interguartile range and standard of variance like measures deviation for various independent variables. For categorical variables, data presentation through wellwas summarized "2 by 2" tables that show frequencies (percentages) and totals. Data

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was analyzed using STATA version 11. Analysis of data was by simple linear and logistic regression as well as multiple linear and logistic analyses for continuous and categorical variables respectively. Pearson chi-square χ^2 or Mantel hazel, logistic regression analyses were applied to determine associations. The level of significance was preset at 5%. Odds Ratios (ORs) with their respective 95% confidence intervals were used to assess for statistical associations and p-values of less than 0.05 were considered statistically significant.

Quality Control

To ensure quality work, the inclusion and exclusion criteria were strictly adhered to and data forms were double-checked for completeness by the principal investigator.

Ethical Considerations

The permission to conduct this study was sought from the Hospital director HRRH, the Research Ethics Committee, and the Department of Obstetrics and Gynecology. The study was granted an ethical clearance certificate. Participants to be enrolled were requested to sign consent after a thorough explanation of the purpose of the study, the risks involved and the use of data to be collected. Numbers instead of names were used in all the questionnaires and laboratory forms.

RESULTS					
Table 1: Socio-demogr	aphic and household (FRF N (%) n=164	characteristics of stud NO FRF N (%) n=220	<u>y participants (N=384)</u> Total N (%): N=384		
Sex of the child		110 LDI 11 (/0), II-220	10tul It ()0); It=501		
Male	73 (44 8)	116 (52 7)	189 (49 3)		
Female	91 (55 2)	104 (47 3)	195 (50 7)		
Age of infant in	51 (55.2)	101 (11.5)	155 (50.1)		
months					
0-1	47 (28 4)	7 (3 3)	54 (14 0)		
2-3	55 (33.3)	44 (20.0)	99 (25.7)		
4-5	62 (38.3)	169 (76.7)	231 (60.3)		
Age of mother in	/		- ()		
vears					
15-19	13 (8.2)	17 (7.8)	30 (7.9)		
20-24	48 (29.5)	71 (32.2)	119 (31.1)		
25-29	56 (34.4)	64 (29.0)	120 (31.3)		
30-34	27 (15.8)	40 (18.3)	67 (17.3)		
>35	20 (12.0)	28 (12.7)	48 (12.4)		
Education level					
None	6 (3.8)	10 (4.5)	16 (4.2)		
Primary	56 (34.4)	75 (33.8)	131 (34.1)		
Secondary	81 (49.2)	111 (50.6)	192 (50.0)		
Tertiary	21 (12.6)	24 (11.0)	45 (11.7)		
Occupation					
Market vendors	33 (20.2)	46 (20.8)	79 (20.6)		
Shop attendants	45 (27.3)	68 (31.0)	113 (29.4)		
Saloons	25 (15.3)	22 (9.8)	47 (12.2)		
Restaurants/ bars	45 (27.3)	64 (29.4)	109 (28.5)		
Agriculture	16 (9.8)	20 (9.0)	36 (9.4)		
Marital status					
Married	133 (80.9)	163 (74.3)	296 (77.1)		
Single/ divorced/ widowed	31 (19.1)	57 (25.7)	88 (22.9)		
Position at work					
Owner	75 (45.4)	75 (34.3)	150 (39.0)		
Managerial	33 (20.2)	21 (9.4)	54 (14.0)		
Other	56 (34.4)	124 (56.3)	180 (46.0)		

Leave time after delivery			
Got	144 (88.0)	189 (86.1)	333 (86.9)
Did not get any	20 (12.0)	31 (13.9)	51 (13.1)
Duration of leave			
<3months	91 (55.0)	102 (46.7)	193 (50.2)
≥3months	73 (45.0)	118 (53.3)	191 (49.8)
Time spent at work each day			
<8hours	47 (28.6)	62 (28.2)	109 (28.3)
8hours	6 (3.8)	13 (5.7)	19 (4.9)
>8hours	111 (67.6)	145 (66.1)	286 (74.6)
Takes child to work			
Yes	82 (49.7)	110 (50.2)	192 (50.0)
Sometimes	64 (39.3)	52 (23.7)	116 (30.2)
No	18 (11.0)	58 (26.1)	76 (19.5)
Breastfeeding Facilities at work			
None	130 (79.2)	187 (85.2)	317 (82.7)
A private corner/room for baby	28 (16.9)	25 (11.5)	53 (13.7)
Area to store expressed breast milk	6 (3.9)	8 (3.3)	14 (3.6)
Intention to exclusively breastfeed			
<6months	45 (26.8)	116 (52.7)	161 (41.9)
6months	88 (53.6)	83 (37.1)	171 (44.5)
>6months	26 (16.4)	15 (7.3)	41 (10.6)
Had no plans in mind	5 (3.3)	6 (2.9)	11 (3.0)
Breastfeeding			
practices at			
delivery			
Poor	26 (15.8)	168 (76.7)	194 (50.5)
Proper	138 (84.2)	52 (23.3)	190 (49.5)

The infants involved in the study comprised 189/384 (49.3%) males and 195/384 (50.7%) females. The infants had a mean age of 3.5 ± 1.56 months. Majority

(296, 77.1%) of the mothers are married and had attained secondary education (237/384; 61.7%).

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Most of the mothers 245 (63.8%) were multiparous whereas 139 (36.2%) were primiparous. The majority of the mothers gave birth from Health institutions 276 (72.0%) whereas only 108 (28.0%) gave birth from home and most of the mothers

delivered vaginally 348 (90.7) while only 36 (9.3%) were delivered by Caesarean section. Among the respondents, 149 (38.7%) of women reported that their most recent pregnancy was unwanted.

Age in months	Number of infants (N)	Proportion of breastfed	children exclusively
		Number (n)	Percentage (%)
0	14	12	85.7
1	32	28	87.2
2	46	32	70.0
3	49	21	42.0
4	84	27	32.0
5	159	39	24.6
TOTAL	384	159	41.4

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On analysis of the prevalence of EBF by the infants' age, EBF increased slightly from 12/14; (85.7%) at zero months to 28/32; (87.2%) at one month and then rapidly

dropped to its lowest 39/159; (24.6%) among five months old children. At the time of the study, none of the respondents fed their child expressed breast milk.



Figure 1: Prevalence of exclusive breastfeeding

The	prevalence	of	exclusive	breastfeeding	was	159	/384;	(41)	.4%).
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VARIABLE	UPR	CI	APR	CI
Sex of the child				
Male	1			
Female	1.20	0.96-1.49		
Age of infant in				
months				
0-1	1		1	
2-3	0.64	0.53-0.78***	0.78	0.65-0.94*
4-5	0.31	0.25-0.39***	0.48	0.39-0.60***
Education level				
None	1			
Primary	1.12	0.60-2.04		
Secondary	1.08	0.59-1.97		
Tertiary	1.18	0.62-2.27		
Position at work				
Owner	1		1	
Managerial	1.24	0.96-1.60	0.90	0.73-1.11
Other	0.63	0.48-0.81***	0.68	0.55-0.83***
Takes child to				
WOFK	1		1	
ies Comotine og				
Sometimes	0.50		0.71	0.51-1.0
	1.30	1.05-1.62**	1.05	0.88-1.25
ANC VISITS	1		1	
<4		1 1 2 1 0 0 4 4		1 01 1 514
>4	1.46	1.13-1.88^^	1.24	1.01-1.51^
Breastieeding				
irequency	1		1	
<8 times	1	1.00.1.70**	1	
>8 times	1.38	1.08-1.76**	4.12	2.88-5.90***

Fable 3: Determinants of	exclusive breastfeeding	g among mothers (N=384)

Nagudi							
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Intention	to						
exclusively							
breastfeed							
<6months		1		1			
6months		1.89	1.43-2.48***	1.26	1.01-1.57*		
>6months		2.27	1.64-3.14***	1.38	1.06-1.76*		
Had no plans mind	in	1.68	0.89-3.16	1.18	0.68-2.00		

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*** =P<0.001
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UPPR = unadjusted Prevalence ratio, APR = Adjusted Prevalence ratio, CI = Confidence interval ANC = antenatal care. The adjusted prevalence ratios (APR) in Table 4 indicate that after controlling for intention to exclusively breastfeed, position at work, taking the child to work, number of times in antenatal care (ANC), and breastfeeding practices at delivery, the prevalence of EBF was 22% less among children 2-3 months (APR = 0.78; 95% CI: 0.65-0.94) and 52% less among children 4-5 months (APR = 0.48; 95% CI: 0.39-0.60) compared to children 0-1 month. Compared to women who intended to exclusively breastfeed for less than six months, the prevalence of EBF was 26% (APR = 1.26; 95% CI: 1.01-1.57) higher for women who intended to exclusively breastfeed for at least 6 months and 38% (APR = 1.38; 95% CI: 1.06-1.76) higher for those who intended to exclusively breastfeed for longer after controlling for age of infant, position at work, taking child to work, number of times in ANC and breastfeeding practices at delivery. However, there was no difference in exclusive breastfeeding between those who had made no plans and the ones who had planned to exclusively breastfeed for less than 6 months (APR = 1.18; 95% CI: 0.68-2.00). After controlling

The prevalence of exclusive breastfeeding in this study was 41.1%. It declined from 85.7% among children aged zero months to 24.6% among children five months old. The factors associated with EBF in this study were the age of the infant, position of the mother's job at work, intention to exclusively breastfeed, attending ANC at least 4 times, and proper breastfeeding

for intention to exclusively breastfeed, age of the infant, taking child to work, number times in ANC and breastfeeding of practices at delivery, the prevalence of EBF among women who worked in lower calibers (cleaners, assistants, waitresses, sales) was 32% less compared to that among women who owned the business (APR = 0.68; 95% CI: 0.55-0.83). However, EBF among women who worked in a managerial position was not different from those who owned businesses (APR = 0.9: 95% CI: 0.73-1.11). While attending ANC was not a significant predictor of EBF, the prevalence of EBF was 24% higher among women who went for ANC at least 4 times compared to those who went less after controlling for the infant's age, intention to exclusively breastfeed, position at work, taking the child to work and breastfeeding practices at delivery (APR = 1.24; 95% CI: 1.01–1.51). The prevalence of EBF was also higher among women who scored higher in the overall breastfeeding practices at delivery compared to those with a low score after controlling for the age of the infant, intention to exclusively breastfeed, position at work, taking the child to work and number of times at ANC (APR = 4.12; 95% CI: 2.88-5.90).

DISCUSSION

practices at delivery. At 41.1%, the prevalence of EBF among children ≤5 months in this study is below the national prevalence of 66% and the 90% recommended by WHO demonstrating a wide gap between the desired and actual practice [25]. This is likely due to the extended time mothers had to stav away from their children for long hours while at

^{* =} P < 0.05

^{** =} P<0.01

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work. In contrast to this finding, a survey conducted in the Kawempe division found a higher (56.3%) prevalence of EBF, close to the national prevalence [25]. Similar to our findings, a study conducted among women working in pastoralism in Ghana found EBF prevalence of 58% which was lower than 64%. their national prevalence of Consistent with these findings, another study conducted in Ethiopia found the prevalence of EBF at 48%, which was also lower than 52% at the national level [26]. This found study that exclusive breastfeeding reduced with increasing infant age. This may largely be due to the fact that mothers did not get adequate maternity leave as most got less than 3 months if any. In addition, the workplaces did not have a conducive environment to support mothers maintaining EBF as most mothers either had no leave or did not get sufficient leave time, could not carry their children to work, and spent over 8 hours separated from their children. This finding is comparable to what is reported in the Uganda Demographic Health Survey (UDHS) where EBF dropped by half from 83% among infants 0-1 months to 43% among children 4-5 months [22]. The steep drop registered in EBF with increasing infant age registered in this study is also recorded in the study done in the Kawempe division where EBF dropped by 74% between the two age groups [25]. Similarly, a study in Tanzania found that women in the informal sector returned to work soon after delivery in order to access the income needed to fulfill their responsibility of feeding their families, denying them a chance to practice EBF [27]. Furthermore, studies in Uganda and Eastern Africa showed the same trend, particularly in the informal sector where it was mainly attributed to lack of leave time. However, in these studies, women also stated other factors including insufficient breast milk, children demanding food, children rejecting the breast, and fear of transmitting HIV to their children [28]. Breastfeeding is one of the common routes of transmission of HIV from mother to child [29-31]. Even though this period is insufficient to allow for the 6 months of EBF, most mothers reported receiving no maternal leave or receiving less than the

recommended 3 months. They could also not take their babies to work forcing them to introduce other feeds. The position of the woman at her workplace determined whether she breastfed exclusively or not. Those who were owners/managers were more likely to exclusively breastfeed probably because they had more authority and were able to take breastfeeding breaks compared to those they employed. This is consistent with a survey conducted in the USA which found that mothers in managerial positions practiced longer exclusive breastfeeding compared to those in routine positions [32]. A systematic review of studies conducted in low and middle-income countries found that maternal employment compared to nonemployment was not associated with EBF, apart from Asia where the women in informal employment were found to have higher odds of EBF largely because infants in this region accompanied their mothers to work [33]. This study also found that the intention to exclusively breastfeed for six months or more was associated with exclusive breastfeeding. This is probably because mothers who planned to exclusively breastfeed for six months or more already have the structures to enable them or put measures in place that enable them to continue with EBF even when faced with challenges. Similar to these findings, a systematic review of studies carried out on modifiable factors that positively influence exclusive breastfeeding duration to 6 months postpartum reported that intention to breastfeed was an important predictor of actual breastfeeding practices including duration of EBF. Similar to other studies, attending antenatal care at least 4+ times was a significant predictor of exclusive breastfeeding [34]. According to the Uganda demographic survey, most mothers in Uganda, especially those in urban areas get professional counseling and information on health from health facilities, with information on EBF being received mostly from ANC [22]. Similarly, a study on health-seeking behavior and challenges in utilizing health facilities in Wakiso district, found that urban women seek care from health facilities and hardly from the community health workers despite their pivotal role in improving

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breastfeeding practices in low and middleincome countries through the one-to-one reinforcement of knowledge and skills for successful breastfeeding [35]. The increased knowledge and attitudinal changes on infant feeding and the nutritional values of breast milk attained from ANC may be the reason mothers who attended ANC at least 4 times practiced EBF [36]. Similar to the 60% reported in the Uganda Demographic survey in 2016, this study found that 62.1% of the mothers attended ANC at least 4 times [22]. This finding suggests that promoting universal coverage of ANC could be effective in increasing ANC among this group as some

Among mothers attending the postnatal clinic at Hoima Regional Referral Hospital, the factors associated with exclusive breastfeeding are number of antenatal care attendance, intention to exclusively breastfeed, proper breastfeeding practices, infant's age and position at work.

Recommendations

Efforts should be made to protect, promote, and support breastfeeding among working mothers in both informal and formal sectors through enforcing the Employment Act recommendations. Government should sensitize mothers

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studies indicate that women who attend 4 or more ANC visits tend to be wealthier. A higher score in breastfeeding practices at delivery was a positive predictor of EBF. This was likely because women who adhere recommended feeding practices to immediately after birth are more likely to sustain them throughout the breastfeeding period. This is supported by studies done in Ghana where appropriate infant feeding practices such as higher breastfeeding frequency, not giving pre-lacteals and timely initiation of breastfeeding were key determinants of exclusive breastfeeding [37]-[41].

CONCLUSION

about their right to the currently available 60-day leave which provides them with time to establish breastfeeding in the first months of their child's life. Antenatal care services should be focused on building the intention of the mothers to practice exclusive breastfeeding which was found to be a strong predictor of EBF among women. Employers should be sensitized through counseling and health education on the benefits of optimal infant feeding and the existing laws governing employee entitlement to maternity leave and breastfeeding support irrespective of their position at the workplace.

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CITE AS: Nagudi Flavia Kiwuso (2023). Rate of Exclusive Breastfeeding Among Postpartum Mothers at Hoima Regional Referral Hospital's Postnatal Clinic. INOSR APPLIED SCIENCES 11(1):37-49. <u>https://doi.org/10.59298/INOSRAS/2023/4.6.4000</u>