

Early Initiation of Breastfeeding Among Postnatal Mothers at Kafue General Hospital, Kafue Distict, Zambia

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Abstract:

➤ Introduction:

Initiation of breastfeeding within one hour of birth can decrease neonatal mortality and contributes to neonates' health and survival. Despite this knowledge early initiation of breastfeeding practice is approximately 50% in most developing countries, especially in low-income settings where infants could benefit from this feeding practice. Promotion of early initiation of breastfeeding is a single most cost-effective intervention to reduce neonatal mortality in developing countries.

➤ Aim/Objective:

Investigate factors associated with initiation of breastfeeding at Kafue general hospital.

➤ Methodology:

This study used a cross- sectional study design and data were collected from 305 postnatal mothers who delivered at Kafue general hospital with infants of 0- 6 weeks old. A rotary sampling technique using an adapted questionnaire to select the respondents and data was analysed using stata version 14.

➤ Results

The findings from this study indicate that early initiation of breastfeeding is still low among postnatal mothers and stands at 65.12% at Kafue general hospital.

Chi square tests and multivariable binary logistic regression showed that there was no association between early initiation of breastfeeding and socio- demographic, culture and traditions as well as maternal factors which gave p- values greater than 0.005, but was strongly associated to newborn and service-related factors with p- values of 0.001.

➤ Conclusion:

The main reason of delaying breastfeeding was nursing newborns in cot beds and delivery through caesarean section. The findings demands that policy; implementation strategies should put more efforts on newborn and service-related factors in order to reduce the risk of delaying breastfeeding.

Keywords: Postnatal Mothers, Early Initiation of Breastfeeding, Morbidity, Mortality.

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I. INTRODUCTION

Breastfeeding is a vital aspect of public health as it directly influences the wider population's overall quality of health and mortality rate (Birhan et al., 2022). According to the United Nations Children's Fund (UNICEF) and the World

Health Organization (WHO), breastfeeding should be initiated within the first hour of birth and should be exclusive for the following six months after birth (WHO, 2022).

However, it is estimated that three in five newborns do not initiate breastfeeding in the first hour, especially in low

and middle-income countries, increasing the risk of neonatal deaths (WHO, 2022). Neonatal deaths due to sepsis, diarrhoea, pneumonia, and hypothermia are some of the noted results of late breastfeeding initiation (Rukindo and Mijumbi, 2020). Breast milk is the best food for newborns as it is not only clean and safe but also protects infants from illnesses given the antibodies it contains (WHO, 2022). Early breastfeeding initiation allows the newborns to receive colostrum, the first milk containing antibodies that protect the newborn from diseases (Rukindo and Mijumbi, 2020).

Breast milk also contains the necessary nutrients a baby needs and provides it with all the energy indicating that appropriate breastfeeding practices are essential for promoting infant growth, survival, development, and overall well-being of infants (Raihana et al., 2021). Besides keeping the baby healthy, early breastfeeding facilitates bonding between the baby and the mother, promotes a longer duration of breastfeeding, and reduces postnatal haemorrhage incidences which are a leading cause of maternal mortality (Bengough et al., 2022).

Several factors have been associated with the delayed initiation of breastfeeding. In a study by Raihana et al. (2021), women who delivered via caesarean section were found to have increased odds of delaying the initiation of breastfeeding.

According to UNICEF and WHO, (2019), less than half (42%) of all newborns globally are put to the breast within the first hour of birth. But a study in India found that more than 50% of postnatal mothers delayed their breastfeeding initiation, especially in rural settings (Senanayake et al., 2019). According to Walters et al., (2021), the late initiation of breastfeeding trend is more prevalent among low and middle-income countries. In a study by Rukindo et al., (2020), in Uganda, it was found that 32% of the mothers initiate breastfeeding late.

Early initiation of breastfeeding protects newborns and reduces mortality risk as compared to delayed initiation of breastfeeding (Walters et al., 2021). According to the Zambia Statistics Agency (ZSA) of 2018, neonatal mortality has slightly decreased from 24 deaths per 1000 live births in 2013 – 2014 to 17 deaths per 1000 live births in 2024. The common leading causes of mortality being respiratory infections (7%) diarrhoea (15%), fever (16%) which can be prevented by early initiation of breastfeeding.

According to Walters et al., (2021), studies in sub-Saharan confirm that the late initiation of breastfeeding remains a global challenge (Walters et al., 2021). Zambian assessment report on the world breastfeeding trends initiative, only 59.22% of babies were breastfed within one hour of birth in 2022 (Ameyaw et al., 2023). The report shows that nine percent of infants receive food such as, fruit juice, infant formula, and water other than their mother's milk before breastfeeding.

A study by Rukindo et al. (2020) found that late initiation of breastfeeding increases the risk of neonatal

mortality by 85%, showing that infants who start breastfeeding before 24 hours have a greater chance of survival. According to UNICEF, the risk of neonatal death increases by 33% when breastfeeding is delayed beyond the first hour (UNICEF and WHO, 2021).

It has also been reported that studies in low and middle-income indicate a reduction in risk of neonatal deaths by 42 to 44 per cent when breastfeeding is initiated within an hour after birth (Raihana et al., 2021). Other studies also confirm that early breastfeeding protects infants from infections, sepsis, and other illnesses (Raihana et al., 2019).

Several factors have been associated with delayed initiation of breastfeeding. In a study by Raihana et al. (2021), women who delivered by caesarean section were found to have increased odds of delaying initiating breastfeeding. The study also found that less exposure to the media, having an increased body mass index, and being a non-multiparous woman, was found to be some of the contributing factors to late initiation of breastfeeding. In another study, discarding initial breast milk and delivery from home contribute to delay breastfeeding. The observations further reported as contributing factors for delay of breastfeeding were, mother being responsible for the initiation instead of a relative or a health worker and lack of education. (Walters et al., 2021). Therefore, this study is aimed at investigating factors associated with early initiation of breastfeeding among postnatal mothers at Kafue general hospital.

II. METHODOLOGY

This study employed a cross-sectional descriptive research design with a quantitative approach to investigate the factors influencing the early initiation of breastfeeding. The study population comprised 305 postnatal mothers who delivered at Kafue General Hospital in Kafue. Inclusion criteria for the study were postnatal mothers with living newborns aged zero to six weeks, who delivered at Kafue General Hospital and provided informed consent to participate. Simple random sampling was utilized to select the study participants. Data collection was carried out using an interview schedule.

The sample size for a single proportion was determined based on an estimated target population of approximately 2,095 live deliveries in the past year at the study facility (Kafue general hospital, 2023) and a pooled prevalence of early initiation of breastfeeding of 57% among women in sub-Saharan Africa (Birhan et al., 2022).

With this finite target population of women in the period intended for the study, the sample size was calculated using the below formulae by Krejcie and Morgan (1991) as shown below.

$$n = \frac{\chi^2 N p(1-p)}{e^2 (N-1) + \chi^2 p(1-p)}$$

s = required sample size

χ^2 = the table chi-square value for 1 degree of freedom at 95% confidence interval

N= population size of 2095

P=the population proportion. In this case the proportion was a pool of the early breast feeders and late breast feeders' proportion from the 2022 hospital figures. Based on 2022 hospital figures the proportion of early breast feeder was 68.57% whilst that of late breast feeders was 31.43%, therefore the pooled proportion is 50% as calculated below:

$$68.57 + 31.43 / 2 = 50\% = 0.5$$

d= degree of accuracy at 95% = 0.05

Therefore, the sample size for this study =

$$3.841 * 0.5 * 0.5 * 2095 (0.05 * 0.05 * (2095 - 1)) + (3.842 * 0.580.5)$$

$$2011.72 / 6.19525$$

$$324.72$$

$$= 325 \text{ participants}$$

To sample 325 postnatal women out of 2095 postnatal women, the researcher defined the sampling frame and then selected to use the simple random technique sampling method as below:

Sampling Frame: The sampling frame consisted of the 2095 postnatal women who delivered live babies at Kafue General Hospital within the period of 0 to 6 weeks.2

The researcher then selected postnatal women from the 24-hour daily register at random until the desired sample size of 325 was reached. The total number of postnatal women per

day was noted, after which, Excel was used to generate random numbers.

Data collection tools were tested in real settings and among members of the target audience. A data collection instrument is reliable if it can produce similar results more than once under similar conditions (Chandra et al., 2021). In this study, the split-halves reliability method was used to test the reliability of data collection instrument for this study. The test was administered during the pilot stage, split into two, and the spearman-Brown correlation was run to test reliability. It is worthy to note that the data collection tools were tested at Nangongwe maternity health facility with similar characteristics of respondents.

Authority from national health research authority was granted with reference number; NHRA-1061/25/19/03/2024. The University of Zambia Biomedical Research Ethics Committee also gave ethical clearance of the study; reference number 4821-2023. Clearance was obtained from the University of Zambia Biomedical Research Ethics Committee. Signed informed consent was obtained from all study participants.

The data was first cleaned, then coded, and the variables categorized for analysis. The data was analysed using stata version 14. Frequencies and percentages for categorical variables related to early initiation of breastfeeding were calculated, such as demographics, maternal, newborn, service related as well as traditional and cultural factors, and reasons for early or delayed initiation. Measures of central tendency (mean, median) and dispersion (standard deviation, range) for continuous variables such as gestational age and infant weight were computed. Bi-variate analysis was conducted to explore the relationship between early initiation of breastfeeding and various factors. Multivariable logistic regression was used to determine associations and odds of early breastfeeding initiation with the variables that resulted to be significant for final conclusion.

Table 1 Socio-Demographic Characteristics of Respondents (n=305)

Variable	Frequency N=305	Percentage %= 100
Age		
Below 20 years	65	21.35
20 to 35 years	199	65.24
Above 35 years	46	14.2
Marital status of women		
Married	214	70.16
Single	91	29.83
Number of times given birth by a mother		
One	131	42.95
Two to three times	113	37.04
Four to five	47	15.40
Over five	13	4.26
Place of residence		
Urban	236	77.37
Rural	69	22.62
Level of education		
Primary	70	22.95
Secondary	166	54.42

Tertiary	69	22.62
Religion		
Christian	302	99.01
Muslim	3	0.98
Hindu	0	0
Other	0	0
Total	305	100
Monthly Family Income		
≥ ZMW10,000	25	8.19
ZMW5000 to ZMW 9000	132	43.27
≤ ZMW4,000	148	48.52
Employment type		
Formal	88	28.85
Informal	217	71.14

Table one above shows that most of the respondents 199 (65.24%) were aged 20 to 35. 214 (70.16%) were married and 131 (42.95%) had only given birth once. The majority resided in urban areas 236 (77.35%) with the level of education being secondary education, 166 (54.42%). The highest number of mothers subscribed to Christianity 302 (99.01%) and most mothers came from homes with a family income of K4, 000 and less per month 148 (48.52%). The majority were engaged in informal employment 217 (71.14%).

Table 2 Maternal Health Related Characteristics of Respondents (n=305)

Variable	Frequency N=305	Percent (%) =100
Antenatal Care Commencement		
1 to 3 months after pregnancy (1 st trimester)	275	90.24
4 to 6 months after pregnancy (2 nd trimester)	45	14.75
7 to 9 months after pregnancy (3 rd trimester)	3	0.9
Postpartum conditions resulting in unconsciousness or shock		
Yes	45	14.75
No	260	85.25
Mothers' HIV Status		
Negative	279	91.47
Positive	26	8.52
Any other chronic illness		
Yes	86	28.19
No	219	71.80

Table two above shows that most respondents 275 (90.24%) commenced antenatal care in the first trimester, those who did not experience any post-partum complication that resulted in shock or loss of consciousness were 260 (85.25%) and 279 (91.47%) were HIV negative status. About 219 (71.80%) of the mothers did not suffer from any chronic illnesses that could affect breastfeeding initiation.

Table 3 Service-Related Characteristics of Respondents (N=305)

Variable	Frequency N=305	Percent (%) =100
Delivery Site		
Away from health facility	23	7.1
Health Facility	282	92.45
Birth attendant		
Midwife	224	73.44
Medical officer	81	26.55
Mode of Delivery		
Natural vaginal delivery	219	71.8
Instrumental vaginal delivery	5	1.5
Caesarean section	81	26.55
Skin to skin contact immediately after birth		
Yes	216	70.81
No	89	29.18
Time after delivery until the baby was given to the mother		

Within an hour	218	71.47
After an hour	87	28.52
Baby admitted to NICU		
No	167	54.75
Yes	138	45.24

Table five above shows that 282 (92.45%) respondents gave birth from the health facility, 224(73.44%) were delivered by midwives and 219 (71.8%) delivered through normal vaginal delivery. Most respondents, 216 (70.81%) had skin to skin contact with their babies immediately after birth and 21 (71.47%) respondents had their babies given to them within an hour of delivery. Babies who were not admitted to NICU were 167 (54.75%).

Table 4 New born Characteristics of Respondents (N=305)

Variable	Frequency N=305	Percent (%) =100
Baby put in a cot		
Yes	138	45.24
No	167	53.77
Did the baby cry at birth?		
Yes	227	72.42
No2	78	25.57
Baby born with abnormalities		
Yes	44	14.42
No	261	85.57
Birth Weight		
Less than 2.5kg	98	32.13
2.5kg- 3.5.kg	141	46.22
3.6kg and above	65	21.31
Gestational age at birth		
Full term	183	60
Preterm	122	40

Table four above shows that 167 (53.77%) babies were not nursed in a cot after birth, 261 (85.57%) babies were born without abnormalities. Majority of the babies 161 (50%) had a birth weight between 2.5kg- 3. 5kg .Babies born at term occurred most frequently, 141 (46.22%) and 227 (72.42%) babies cried at birth and majority of the babies 183 (60%) were born at full term.

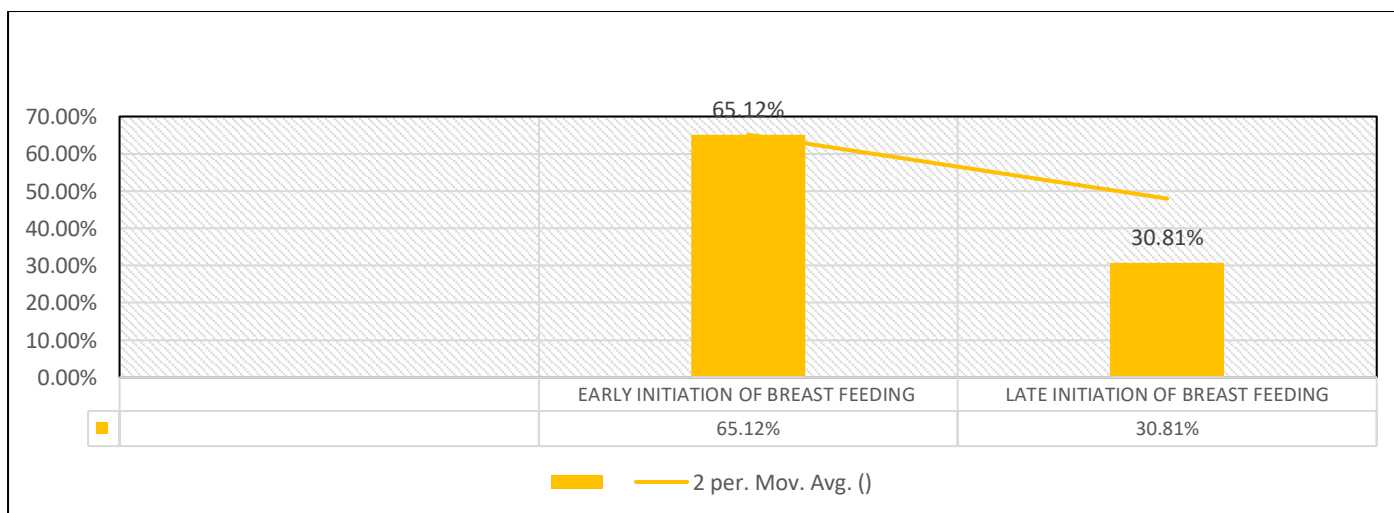


Fig 1 Breastfeeding Initiation Prevalence

Figure one above shows that 211 (65.12%) of the women in this study initiated breastfeeding early, while 94 (30.81%) initiated breast feeding late.

➤ Inferential Statistics

This part is indicating is indicating the chi- square test on relationship between the outcome variable 'initiation of breastfeeding and other variables in order to come up with

significant variables to the study by level of outcome variable "initiation of breastfeeding".

➤ The Relationship Between the Outcome Variable and Socio Demographic Factors

Table eight below infers all characteristics for socio demographic factors disaggregated by the levels of the outcome variable, "initiation of breastfeeding".

Table 5 Socio Demographic Characteristics (N=305)

VARIABLE	WITHIN 1 HOUR n=211 (65.12%)	BEYOND 1 HOUR n= 94 (29.01%)	TOTAL N= 305	P-value
Age group of participants- 20-35yrs	50 (23.7%)	15 (16.0%)	65 (21.31%)	
20- 35	131 (62.1%)	68 (72.3%)	199 (65.24%)	0.204
>35	30 (14.2%)	11 (11.7%)	46 (14.2%)	
Education level - Primary	47 (22.2%)	23 (24.5%)	70 (22.66%)	
Secondary	116 (55.0%)	50 (53.2%)	166 (54.42%)	0.954
Tertiary	48 (22.7%)	21 (22.3%)	69 (22.62%)	
Monthly income				
≥ 10,000	19 (9.0%)	6 (6.4%)	25 (8.19%)	
5,000- 9000	91 (43.1%)	41 (43.6%)	132 (43.27%)	0.737
≤4,000	101 (47.9%)	47 (50.0%)	148 (48.52%)	
Number of children birthed				
1 child	92 (43.6%)	39 (41.5%)	131 (42.95)	
2-3 children	79 (43.1%)	34 (36.2 %)	113 (37.04%)	0.270
4-5 children	28 (13.3%)	19 (20.2%)	47 (15.40%)	
>5 children	12 (5.7%)	2 (2.1%)	13 (4.26%)	
Marital status				
Married	152 (72.0%)	62 (66.0%)	214 (70.16%)	0.139
Single	59 (27.9%)	32 (34.2%)	91 (29.83%)	
Place of residence- Urban	163 (77.3%)	73 (77.7%)	236 (77.37%)	
Peri- urban	5 (2.4%)	8 (8.5%)	13 (4.26%)	0.026
Rural	43 (20.4%)	13 (13.8%)	56 (18.36%)	
Employment type	2			
Formal employment	61 (28.9%)	27 (28.7%)	88 (28.85 %)	0.974
Informal employment	150 (71.1%)	67 (71.3%)	217(71.14%)	

CS = Chi square test; n = Frequency

However, of the 305 sampled participants, over 65% (n = 211) initiated breastfeeding within an hour of delivery, about 65.24% (n = 199) were aged between 20 and 35 years, only about 4.3% (n = 14) did not have a formal education, only about 8.19% (n = 25) had a monthly income greater than ZMW10000, around 42.95% (n = 131) were first-time mothers, almost 70.16% (n = 214) were married, almost 77.37% (n = 236) were resident in an urban which area and the majority were informally employed (approx. 71.14%, n = 217). Therefore, demographic variables showed no association with early initiation of breastfeeding and gave p- values greater than 0.005.

Table 6 Maternal Health Characteristics (N=305)

VARIABLE	Within 1hr (n=211)	Beyond 1hr (n=94)	Total (n=305*)	P-value
Commencement ANC				
1 st trimester	192 (91.0%)	83 (88.3%)	275 (90.24%)	0.379 ^{FE}
2 nd trimester	18 (8.5%)	9 (9.6%)	27 (8.85%)	
3 rd trimester	1 (0.5%)	2 (2.1%)	3 (0.9%)	
Post-partum altered consciousness or shock				
No	181 (85.8%)	79 (84.0%)	260 (85.25%)	0.692 ^{CS}
Yes	30 (14.2%)	15 (16.0%)	45 (14.75%)	
HIV infection status				
Negative	198 (93.8%)	81 (86.2%)	279 (91.47%)	0.027 ^{CS}
Positive	13 (6.2%)	13 (13.8%)	26 (8.52%)	
Other chronic condition(s)				
No	160 (75.8%)	59 (62.8%)	219 (71.80%)	0.019 ^{CS}
Yes	51 (24.2%)	35 (37.2%)	86 (28.19)	

CS = Chi square test; n = Frequency

Table nine above shows that all the p- values were greater than 0.005 significance level, however 65% (n = 211) initiated breastfeeding within an hour of delivery, about 90.24% (n = 275) started ANC within the first trimester, about 85.25% (n = 260) did not have experience post-partum complications, about 91.47% (n= 279) were HIV negative and 71.80% (n = 219) did not have other chronic conditions.

Table 7 New Born Characteristics (n=305)

VARIABLE	Within 1 hr (n=211)	Beyond 1 hr (n=94)	Total (n=305*)	P-value
Baby cried at birth				
Yes	186 (88.2%)	41 (43.6%)	227 (72.42)	<0.001 ^{CS}
No	25 (11.8%)	53 (56.4%)	78 (25.57%)	
Baby had an abnormality				
No	199 (94.31%)	62 (65.95%)	261(85.57)	0.227 ^{CS}
Yes	12 (5.68%)	32 (34.04%)	44(14.23%)	
Gestational age				
Full- term baby	109 (51.7%)	74 (78.7%)	183 (60%)	<0.001 ^{CS}
Pre- term baby	102 (48.3%)	20 (21.3%)	122 (40%)	

CS: Chi-square test; FE: Fischer's exact test

Table nine above shows that the majority of participants were associated with newborn factors; of the 305 sampled participants, 65% (n = 211) initiated breastfeeding within an hour of delivery, about 72.42% (n = 227) cried at birth and birth at term were significantly associated with p- values of <0.001) while babies born with had no abnormalities were not significantly associated .

Table 8 Service-Related Characteristics (n=305)

VARIABLE	Within 1hr (n=211)	Beyond 1 hr (n=94)	Total (n=305*)	P- value
Place of delivery- Health facility	189 (89.6%)	93 (98.9%)	282 (92.45%)	0.004 ^{FE}
Outside the facility	22 (10.4%)	1 (1.1%)	23 (7.1%)	
Birth attendant - Midwife	176 (83.4%)	48 (51.1%)	224 (73.44%)	<0.001 ^{CS}
Medical doctor	35 (16.6%)	46 (48.9)	81 (26.55%)	
Mode of delivery Vaginal delivery	173 (82 %)	51 (54.3%)	224(73.3%)	<0.001 ^{FE}
Caesarean section	38 (18.0%)	43 (45.7%)	81 (26.55%)	
Skin-to-skin contact- Yes	173 (82.0%)	43 (45.7%)	216 (70.81%)	<0.001 ^{CS}
No	38 (18.0%)	51 (26.1%)	89 (29.18%)	
When was baby given to you-Within 1hr of delivery	156 (73.9%)	62 (66.0%)	218 (71.47%)	0.154 ^{CS}
Beyond 1hr of delivery	55 (26.1%)	32 (34.0%)	87 (28.52)	
Baby taken to neonatal ICU No	127 (60.2%)	40 (42.6%)	167 (54.75)	0.004 ^{CS}
Yes	84 (39.8%)	54 (57.4%)	138 (45.24%)	

CS: Chi-square test; FE: Fischer's exact test

All the service-related factors were significantly associated with early initiation of breastfeeding as it shows in table eleven will p- values less than 0.005; of the 305 sampled participants, 65% (n = 211) initiated breastfeeding within an hour of delivery, about 92.45% (n = 282) delivered at the health facility, 73.44% (n = 224) were attended to by a midwife, 70.81% (n= 216) babies were put in skin to skin immediately after birth, only 54.75 % (n= 167) babies were admitted to NICU and 71.8% (n=219) babies were born through normal vaginal delivery.

The above inferential statistics results showed significant association with newborn and service related factors, therefore; Newborn and service-related factors were subjected to further analysis because their p values were less than 0.005. However, although maternal factors' p values were greater than 0.005, literature indicates that that they are significant; the reason it was included also for further analysis as indicated in the tables below.

Table 9 Results of Multivariable Logistic Regression Modelling of Maternal and Neonatal Factors

VARIABLE	OR	(95% CI)	P- value
MATERNAL FACTORS			
ANC commencement- 1st trimester	Ref		
2 nd trimester	0.84	(0.489273, 1.449118)	-0.62
3 rd trimester	0.88	(0.3874059, 2.030666)	-0.28
HIV status- Negative	Ref		
Positive	1.03	(0.456902, 2.354181)	0.09
Presence of chronic illness- Yes	Ref		
No	0.62	(0.272607, 1.040536)	-1.81
Postpartum condition resulting in shock or unconsciousness- Yes	Ref		
No	1.51	(0.7406645, 3.116392)	1.41
NEWBORN FACTORS			

Gestational age at birth-	Term	Ref	-	-
	Preterm	1.41	(0.6785044, 2.939941)	0.356
	Post term	0.43	(0.2521611, 0.7306955)	0.002
Baby cried at birth -	Yes	Ref	-	-
	No	0.9	(0.6042111, 1.597081)	0.943
Birth weight	<2.5kg	Ref	-	-
	2.5 kg-3.5kg	1.04	(0.4358699, 2.528209)	0.917
	≥3.6 kg	1.45	(0.6016469, 3.513993)	0.406
Admission to NICU -	Yes	Ref	-	-
	No	0.56	-(0.3265492,0.9587127)	0.007
Baby with abnormalities-	Yes	Ref	-	-
	No	0.55	(0.3263491, 0.9587126)	0.006
Baby put a cot	Yes	Ref	-	-
	No	3.67	(2.206513, 6.106113)	0.001

Ref = Reference category; CI = Confidence interval; OR = Odds Ratio;

* = Predicts outcome perfectly (deterministic relationship with outcome)

The results in table twelve above indicate that maternal variables were not significantly associated with early initiation of breastfeeding as all the p- values were greater than 0.05 nevertheless literature indicates that it is significant. However, newborn variables, baby being born preterm was associated with reduced odds (0.43) of early initiation of breastfeeding as compared to babies who were nursed in a cot bed had also reduced odds (3.67) of early initiation of breastfeeding as compared to those nursed with their mothers.

Table 10 Results of Multivariate Logistic Regression Modelling of Service-Related Factors

VARIABLE	OR	(95% CI)	P- value
SERVICE-RELATED FACTORS			
Presence of social support- 2Present	Ref	-	-
Absent	0.65	(0.2075748, 2.045341)	0.463
Place of birth			
Outside the health facility	Ref	-	-
At the health facility	0.46	(0.3616524, 0.5880597)	0.001
Skilled personnel			
Midwife	Ref	-	-
Medical officer	7.23	(4.198075, 12.47712)	0.001
Mode of delivery			
Normal vaginal delivery	Ref	-	-
Caesarean section	9.7	(5.527243, 17.02295)	0.001
Skin to skin - Yes	Ref	-	-
No	10.41	(5.97, 18.13)	0.001

Ref = Reference category; CI = Confidence interval; OR = Odds Ratio;

* = Predicts outcome perfectly (deterministic relationship with outcome)

The results in table thirteen above show that almost all service-related variables were significantly associated with early initiation of breastfeeding and there was a statics had a p-values of 0.001 for place of delivery, skilled birth attendants, mode of delivery and skin to skin practice. Place of delivery was significant associated with increased odds (0.46) with early initiation of breastfeeding as compared to those born at home. Deliveries conducted by medical officers has reduced odds (7.23) of early initiation of breastfeeding as compared to those conducted by midwives. Normal vaginal deliveries gave a p-value 0.001 with deduced odds (9.7) of early initiation of breastfeeding as compared to caesarean sections. Babies who were not put skin to skin with the mother at birth gave a p-value 0.001 with a reduced odds (10.41) of early initiation of breast feeding.

III. DISCUSSION OF FINDING

Early initiation of breastfeeding within one hour of birth increases new-borns' survival, growth and development to full potential (Rollins et al., 2020). This practice protects the newborn from acquiring infection and reduces newborn mortality. It facilitates emotional and bonding of the mother and the baby and has a positive impact on duration of exclusive breastfeeding. However, efforts to improve breastfeeding are not an easy feat. This is because of poorly integrated action including policy makers, institutions, community, and individuals Ahmed & Salih (2019). Therefore, the aim of this study was to investigate factors influencing the early initiation of breastfeeding among 305 postnatal mothers of newborns aged 0 to 6 weeks at Kafue General Hospital who were recruited. In this chapter, findings of the study and how they relate to knowledge gathered during literature review are interpreted and discussed.

➤ Social - Demographic Factors of Postnatal Mothers Affecting EIBF

The results of this study are based on 305 postnatal mothers from zero to six weeks after delivery who delivered at Kafue general hospital among which (table 3 page 29), the majority of the respondents belonged to the age group 20 to 35 years and gave result of (65.24% (n = 199) with a P-value = 0.022 on table eight and page twenty six. According to literature, a study by John et al (2019) in Ethiopia observed no significant difference in breastfeeding initiation across different age groups, supporting the findings of the current study. This finding implies that the majority of the respondents belonged to the prime childbearing age group. Rukindo and Mijumbi, (2021) in Uganda also reported that younger mothers often initiate breastfeeding earlier than older mothers, suggesting age as a significant factor. However, these findings disagree with Desalew et al. (2022) who reported that mothers who are 35 years and above were 2.75 times more practicing early initiation of breastfeeding within one hour compared to age less than 35-years old mothers. A possible explanation could be that the more they advance in age and have more than one child with intended pregnancy, the easier for them to start breastfeeding earlier than younger women with one child. Monthly income earnings of less than K4, 000 to K9, 000 (Zambian Kwacha) gave a result of p-value = 0.044. This finding aligns with the study by John et al. (2019), which reported that income is associated with earlier breastfeeding initiation.

Among the residence categories, living in a peri-urban area was associated with about 11 times the odds of delayed initiation of breastfeeding beyond an hour of breastfeeding (p-value = 0.001). Living in a rural area was not associated with a significant estimate (p-value = 0.130). This finding is in contrast to the study conducted by Woldeamanuel, (2020) in Ethiopia whose finding was that mothers that lived in rural areas were less likely to initiate breastfeeding within one hour of birth as compared to those living in urban areas. The possible explanation for this difference might be that rural mothers could end up delivered away from health facilities (i.e., home, in route to health facility) without a skilled birth attendant were associated with delayed initiation of breastfeeding.

There was no significant difference in the levels of practicing EIBF in the three different categories primary, secondary and tertiary (p-value = 0.594). These findings are in line with a study by Ahmed and Salih (2019) who concluded that there was no relationship between educational level and early initiation of breastfeeding, (Ahmed and Salih 2019). This could be attributed to the fact that these mothers all received the same knowledge on EIBF during their antenatal clinics and their attendance was well. However, this finding contrast with a study by Yilmaz et al. (2019) in Turkey that reported that mothers with tertiary education were more likely to start breastfeeding early. This disparity might be that Yilmaz et al. (2019) study could have had a good proportion of respondents at tertiary level which is not the case in the current study.

Marital status (p-value= 0.139) was not associated with EIBF practice so was employment status (p-value=0.974). The current study's finding that marital status does not significantly affect breastfeeding initiation breastfeeding initiation aligns with the research which was conducted in Saudi Arabia by Ahmed and Salih (2019) that found no significant difference in breastfeeding practices between married and single mothers. However, some studies such as the one by Yilmaz et al. (2019), suggested that married women are more likely to initiate breastfeeding early due to greater social and familial support.

Mother's employment status finding indicated no association with EIBF. The finding does not agree with a study by Walters et al. (2020), which reported that employment may predict breastfeeding initiation and confirmed that mother's formal employment status has a negative association with EIBF. However, a study by the Bengough et al., (2022) in Mauritania suggest that employment in formal sectors with better maternity leave policies can promote early initiation of breastfeeding. It is therefore important to ensure that mothers at risk such as the formally employed be the target of promotion of EIBF.

Despite these varied demographic characteristics, the study found no statistically significant relationship between early initiation of breastfeeding and demographic factors. The P-values for all these variables were greater than 0.005. This lack of significant relationships suggests that other factors, perhaps maternal, newborn, or healthcare-related, may play more critical roles in breastfeeding practices. These results both align with and diverge from existing literature, highlighting the complexity and variability of factors influencing breastfeeding behaviours across different populations.

Under social demographic factors, the variables considered included the mother's age, place of residence, educational level, employment status, income level, marital status, and religious affiliation. The results of this study indicate no significant association with Early Initiation of Breastfeeding (EIBF).

➤ Maternal Factors of Postnatal Mothers Affecting EIBF

All the maternal health factors that were considered in this study were not significantly associated with EIBF practice (table 9 and 12, page 35 and 38). ANC, postnatal complications after delivery, presence of chronic illness and mother's HIV status did not have association with EIBF practice. Nevertheless, majority of the respondents in this study indicated that antenatal care commencement was within the first trimester of pregnancy (p-value=0.379). This finding is consistent with a study by Kumar et al, (2023) which reported that early antenatal care has been linked to improved pregnancy outcomes, including EIBF. The practice of early engagement in antenatal care observed in the current study may reflect better healthcare access and maternal health education in this study population. However, the finding contrasts a study by Rocha et al. (2020) who found that mothers who started antenatal care in the second trimester were 49.0% more likely to start breastfeeding within one hour

of delivery than mothers who started antenatal care earlier. However, these results of Ekubay raise the question of how starting antenatal care after four months increase the odds of initiating breastfeeding early.

The finding in this study that most respondents did not suffer from chronic illnesses (p- value=0.019) could affect breastfeeding initiation may suggest a relatively healthy cohort of mothers. This finding agrees with a systemic review of breastfeeding by Bengough et al. (2022), in Mauritania which reported that chronic illnesses can complicate breastfeeding due to potential medication interactions and health complications. This was also highlighted in study by Labrinou et al., (2019) in Europe which stated that chronic conditions such as diabetes and hypertension can negatively impact breastfeeding practices and outcomes.

The finding of high awareness of HIV status among the respondents (p- value=0.027) in this study is encouraging and aligns with global health efforts outlined by UNAIDS, (2019) which guides and promote HIV testing and counselling during pregnancy so that mothers can make appropriate breastfeeding practices choices to prevent and eliminate mother-to-child transmission (EMTCT). However, CDC global survey, (2022) reported contrary findings in some regions with lower rates of HIV testing during pregnancy due to stigma and lack of resources (CDC, 2022). The finding in this study may indicate successful public health interventions and implementation as well as education programs in relation to EMTCT.

The finding in this study that most respondents, 85.25% (p-value=0.692) did not experience any postpartum complications which resulted into shock or loss of consciousness may suggests a generally optimal intrapartum and postpartum care which promotes breastfeeding practices. This finding aligns with global health recommendations by WHO, (2022) which aims at improving the quality of essential, routine postnatal care for women and newborns with an ultimate goal of improving maternal, newborn health and well-being. Therefore, it is evident that that postpartum health is very critical for the mother's ability to initiate and sustain breast feeding because mothers experiencing severe postpartum complications may face challenges in initiating breastfeeding (Sadiq et al, 2020).

➤ New Born Factors Affecting EIBF

All newborn factors which were considered in this study were significantly associated with EIBF practice (Tables 10 and 12, pages 36 and 38). Gestational age (p- value=0.001), the finding indicates that premature babies had 0.43 reduced odds of EIBF, and babies nursed in a cot bed were strongly associated with EIB (p- value=0.001) with 3.65 reduced odds. These findings agree with those obtained from the study by Mekonnen et al. (2019) who concluded that babies born at term and or with a birth weight of ≥ 2.5 kg and above are more likely to establish breastfeeding successfully compared to those with lower birth weights, who may require additional medical support. The report also stated that babies separated from their mothers immediately after birth either by being nursed in a cot bed and or admitted to NICU for specialised

care causing both physical and psychological separation can be a barrier to EIBF as mother-infant proximity positively influence the practice (Mekonnen et al. 2019).

The report further stated that although NICU admission is often necessary for preterm or ill infants, this scenario may cause delays and challenges on EIBF as well as establishing breastfeeding. It is therefore important to strengthen adherence to protocols that encourage mother-infant contact and breast milk feeding in the NICU, such as kangaroo mother care for improvement of outcomes (UNICEF, 2020).

Nevertheless, the current study finding that most babies were nursed in the cot beds and admitted to NICU could be linked to the finding on the variable under service provision where the total rate of caesarean section (mode of delivery) was 28% which is far more than the acceptable WHO rate (10- 15%). Therefore, with this contra finding, a study to investigate this high rate of caesarean section at Kafue general hospital may be necessary.

➤ Service-Related Factors Affecting EIBF

All service-related factors which were considered in this study were associated with EIBF practice (tables 11 and 12, pages 37 and 38). There was evidence that institutional deliveries (p- value 0.001) had increased odds of 0.46 statistically significant, mode of delivery (p- value 0.001); mother skin to skin contacts with the baby immediately after birth (p- value = 0.001) had a statistically significant effect on the on EIBF. These findings align with those obtained from the study by of Berhe et al, (2019) which reported that mothers who gave birth in health institutions were more likely to initiate breastfeeding early than mothers who gave birth at home. The reason maybe that health facility provides an ideal environment for immediate postnatal care and breastfeeding support.

The findings of this study that skilled birth attendant is significantly associated with EIBF also agree with Khanal et al., (2019) whose observation was that mothers whose births were conducted by midwives were more likely to practice EIBF compared to those delivered by medical officers. In this study deliveries conducted by medical officers showed 7.12 reduced odds of EIBF. The study finding could attribute to the nature of midwifery training in maternal and newborn care. The other explanation for the narrative could be that medical officers prioritise clinical procedures over breastfeeding practices, especially in complex deliveries. Therefore, it is important to realise and appreciate the fact that all health care professionals have the prime opportunity to provide breastfeeding support to mothers immediately after birth.

The current study findings shows that normal deliveries had 9.7 increased odds of EIBF and agree with the study by Ahmed and Salih, (2019) which confirmed that Caesarean sections are a major barrier to EIBF, with mothers often needing more time and support as compared to normal vaginal deliveries which usually allow immediate skin-to-skin contact and early breastfeeding, furthermore this is supported by (Ahmed and Salih., 2019).

The findings which indicates that skin to skin contact at birth is 10.41 increased odds to EIBF also agree with Mukora et al., (2019) who found out that mother skin-to-skin contact with the baby immediately after birth enhances the likelihood of EIBF by stabilising the baby's temperature, promoting bonding, and stimulating breastfeeding instincts.

It is therefore important to emphasise the critical role of birth environment and other health related practices in promoting EIBF for better outcomes.

➤ Implications of Findings

• *Implications to the Midwifery Practice*

Midwives must provide EIBF and breast care as early at birth including those born through caesarean section. All other health professionals including those working in NICU and medical officers to be educated on the importance of practice and breast milk. Midwives must be able to provide practical support to mothers to initiate and establish breastfeeding during one hour after birth. Midwives must coach mothers on how to express breast milk in case of separation between mother and baby. Midwives must also encourage and facilitate immediate and uninterrupted skin-to-skin contact between mother and baby.

• *Implications to the Midwifery Education*

Midwifery education can help improve EIBF by re-emphasising that midwives are competent in supporting the practice though adequate training. Midwives should be trained to offer breast care and facilitate EIBF during the first hour after birth and uninterrupted skin-to-skin contact between mother and infant.

• *Implications to the Midwifery Administration*

Midwifery administration can help improve the practice by developing and implement EIBF. Advocacy and provision of rooming-in service in order enhance EIBF in all maternity care settings.

• *Implications of Findings to Research*

Research can help improve EIBF by identifying factors that contribute to delayed initiation and designing strategies to address them through the use of detailed methodologies.

IV. CONCLUSION

In this study, the practice of EIBF at Kafue general hospital was sub-optimal at 65.1% while late initiation is at 33.5 %. This is against WHO recommendations of the practice as universal among mothers giving births to live babies. The main factors of the delay in initiation were neonatal and service related. This demonstrates that delayed initiation of breastfeeding soon after delivery is still a challenge among postnatal mothers at KGH. Generally, mothers had adequate knowledge on EIBF. They knew the time to earliest initiate breastfeeding and the benefits of EIBF as well as the risks of delaying initiation of breastfeeding. However, the practice of EIBF especially to babies admitted to NICU for various reasons is hardly practiced. It was

discovered that almost all the newborns admitted to NICU are introduced on formula regardless of their conditions. The other observation made was that promotion of EIBF was being done, however, the practice proved a challenge for mothers who delivered through caesarean section.

Delayed initiation of breastfeeding leads to adverse events such as increased rates of neonatal and infant morbidity and mortality. Continuous awareness on EIBF campaigns and health education should be promoted at all contact points with mothers in order to improve their practice. EIBF education and counselling should also be part of infant and young child feeding nutrition programmes and child survival activities at all levels of health care. Even when there are adequate skilled health workers, evidence shows that a breastfeeding practice still remains sub-optimal. Therefore, there is need for concerted efforts between the government and health care providers towards improving the rate of EIBF.

RECOMMENDATIONS

➤ *Policy Formulation:*

Ministry of Health to strengthen policy particularly EIBF and develop a tool to assess the EIBF needs and challenges. Trainings and mentorships on best breastfeeding practices and counselling skills for health professionals working in NICU and MCH departments is also an effective strategy which can be used. Deliberate policy to promote EIBF at all levels of health care can contribute significantly to newborn survival and overall health of both mother and baby.

➤ *Health Facility Management Teams:*

The teams need to put up a designated area for Kangaroo mother care (KMC). The facility also needs to incorporate breastfeeding clinic in maternal and child health (MCH) departments in order to raise awareness and knowledge mothers by providing breastfeeding counselling to all mothers.

➤ *Midwives:*

All attending midwives to have the skill to promote, guide and counsel mothers on EIBF and coach them on how to express breast milk in case of separation between mother and baby especially mothers who deliver by caesarean section and those with babies admitted to NICU. Midwives must be able to provide practical support to mothers to initiate and establish breastfeeding during one hour after birth. Midwives must also encourage and facilitate immediate and uninterrupted skin-to-skin contact between mother and baby.

➤ *Nursing and Midwifery Council of Zambia and Institutions of Higher Education:*

The midwifery curricula should include a component of EIBF knowledge to be part of the mandatory core competencies.

➤ *Researchers:*

There is need for further research to explore these dynamics in more depth, potentially focusing on qualitative aspects such as, healthcare support, personal attitudes and experiences towards early initiation of breastfeeding.

➤ Dissemination and Utilisation of Findings

The findings of this study will be disseminated through submission of summaries of the report to the NHRA, NMCZ (Nursing and Midwifery Council of Zambia), MAZ (Midwives Association of Zambia), DHO and KGH. Findings will as well be shared with respective school heads and all interested stakeholders. A copy of the final research report will be submitted to University of Zambia medical library and School of Nursing sciences. The researcher will publish research findings in at least one peer-reviewed journal and submit an abstract for the Zambia Health Research Conference. Preliminary findings will be presented to the public through the school of Nursing Sciences graduation forum.

➤ Strengths and Limitations

The study had some of the following strengths; a large sample size was used which increased generalisation. Simple random sampling of participants' selection also made the findings more generalizable and the data was collected from facility level.

Early initiation of breastfeeding was self-reported by mothers; hence there was a limitation of potential for recall bias since multiple events occur concurrently during delivery, whereby the exact time for breastfeeding initiation may be incorrectly reported, leading to an over or under estimation of the prevalence. In this study, this was avoided through twenty four hours data collection period, with clear questions in the data collection tool which was piloted before the actual data collection.

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