



Prevalence of Anaemia and Associated Factors in Lactating Mothers Accessing Health Services at Ishaka Adventist Hospital, Bushenyi District

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Abstract

The study was done to determine the prevalence of anaemia and its associated factors in lactating mothers accessing health services at Ishaka Adventist Hospital, Bushenyi district. A cross-sectional study design was used. Structured questionnaires were used to obtain socio-demographic, obstetric and other related anemia factors while blood samples were obtained for hemoglobin determination. Data obtained were entered into excel and exported to SPSS Version 25.0 for analysis. Bivariate and multivariate analyses were performed to assess the factors associated with anaemia. The study results showed 11.7% prevalence of anaemia. Taking iron supplement during pregnancy was significantly associated with anaemia among lactating mothers. The prevalence of anaemia among lactating mothers accessing services at health services at Ishaka Adventist Hospital, Bushenyi district was low (11.7%). Taking iron supplement during pregnancy was significantly associated with anaemia among lactating mothers.

Keywords: anaemia, lactating mothers, pregnancy, Ishaka Adventist Hospital

INTRODUCTION

Anaemia is the most common nutritional deficiency indicator and health status in the world affecting about one third of the global population ¹⁻².

Anaemia is never a diagnosis but occurs secondary to an underlying disease process. Technically, anaemia is defined as a state in which an individual's haemoglobin concentration (red cell mass) falls two standard deviations below the reference intervals in particular population (individuals of similar age, gender and geographical location) resulting into decreased oxygen-carrying capacity of red blood cells to the tissues ³.

Globally, a study conducted in India among lactating mothers found out that the prevalence of anaemia was 66.0% ⁴. A study in Myanmar reported an anaemia prevalence rate of 60.3% in lactating mothers, with 20.3% of lactating mothers having severe anaemia ³.

In Africa, studies conducted in Ethiopia in Lactating mothers from 2011-2015 found out that the prevalence was 22.1% ⁵. Another study in Kenya concluded that lactating mothers whose haemoglobin levels were less than 12g/dL had prevalence of 43.8% ⁶.

Anaemia in lactating mother is common especially if the mother were anemic during their pregnancy. Lactating mothers are vulnerable to anaemia morbidity due to their susceptibility to iron depletion during pregnancy and lactation as well as due to bad consequences of blood loss during their childbirth ⁷⁻¹¹.

Anaemia in lactating mother has various adverse effects like decreased immunity which in turn results in delayed wound healing, and increased susceptibility to infections such as mastitis, ductitis and urinary tract infection and diminished quality or volume of the breast milk. It has also associated with reduction of global household income, cognitive impairment, impaired quality of life, and emotional instability as well as postpartum depression ¹². These devastating impacts make anaemia in lactating mothers to be one of the global health priority areas at the global level, especially in resource-limited areas ¹³.

Studies have shown that, although breast milk is not a good source of iron, the concentration of iron in breast milk is independent of maternal iron status. This indicates that the quality of breast milk is maintained at the expense of maternal stores. Postpartum anaemia is highest in mothers who are anemic during pregnancy ¹⁴.

The study was done to determine the prevalence of anaemia and its associated factors in lactating mothers accessing health services at Ishaka Adventist Hospital, Bushenyi district

METHODS AND MATERIALS

Study design

This was a hospital based cross-sectional study design which was conducted for a period of two months from 1st June 2022 to 1st August 2022.

Study area

This study was carried out in Ishaka Adventist Hospital in Bushenyi district.

Study population

The study population included all lactating mothers accessing Ishaka Adventist Hospital in Ishaka, Bushenyi district during the given period of the study.

Inclusion criteria

This study included only lactating mothers accessing Ishaka Adventist Hospital in Ishaka, Bushenyi district during the given period of the study.

Exclusion criteria

This study excluded all non-lactating mothers, those who did not consent to take part in this study and those lactating mothers with history of illnesses and on iron supplementation.

Sample size determination

The Sample size of this study was determined using the formula by (Keish *et al*, 1965).

This is illustrated as shown below.

$$\text{From } n = \frac{PQZ^2}{D^2}$$

Where,

n = sample size required

P = prevalence of anaemia in lactating mothers among youths was 22.1%⁵.

Z = the score on normal standard curve corresponding to a 95% (1.96) confidence level

Q=(1-P), Proportion of those who do not have the disease.

D = allowable error corresponding to 5%

Therefore,

$$n = \frac{[(1.96)^2 \times 0.221 \times 0.779]}{(0.05)^2}$$

n = 264.5

Therefore 265 samples were considered for the study

Sampling method

Simple random sampling technique was used to recruit until the required number is reached.

Data collection methods/instruments

After obtaining an informed written consent, pretested structured questionnaire was used which was written in two versions i.e. English version and Runyankole translated version for those who could not understand English. The questionnaire was validated and were used to collect information about variables that included demographic, obstetric factors and other anaemia related factors. Whereas the prevalence of anaemia was collected using the blood sample

Sample collection for anaemia testing

The venipuncture site was cleaned using a swab containing 70% isopropyl alcohol and using aseptic techniques, an appropriate vein was identified and hypodermic needle introduced into the vein. About 3-4mls of blood samples was collected into syringe and then transferred into a sterile container containing EDTA and then transported to the hematology laboratory for analysis.

Data analysis

Data was coded, entered into Epi data version 7.2.4.0 and exported into SPSS version 25.0 for analysis. The data was computed to determine frequency and percentages and was presented in form of tables and figures at 95% confidence level.

Ethical consideration

An Introductory letter was sought from the Dean, School of Allied Health Sciences of Kampala International University-Western Campus. This was taken to the Medical Director, Ishaka Adventist Hospital, to seek permission to carry out the study. The Medical Director, then introduced the researchers to the Medical Laboratory Scientists and who is also in charge of the Haematology Laboratory who allowed us to conduct the research. Informed consent was sought first from the participants. Participants were gotten from antenatal and postnatal clinic through the nursing officer in charge of antenatal and postnatal.

Privacy was guaranteed by interviewing each participant separately and ensuring that information collected does not contain individual identity so as to avoid a breach of confidentiality. All information obtained was treated with confidentiality and only for the purpose of this study.

RESULTS

Table 1 shows that majority 128(48.3%) were aged 18-35 years, 219(82.5%) were married, the maternal education level was secondary with 132 (49.8%) was secondary, the paternal education level was also secondary with 138 (52.1%), 166 (62.6%) were unemployed and lastly majority 143(54.0%) came from rural areas.

Table 1: Demographic data of respondents

Variables	Frequency	Percent(%)
Age		
18-25 years	128	48.3
26-35 years	112	42.3
≥ 36 years	25	9.4
Marital status		
Single	25	9.5
Married	219	82.5
Divorced	21	8.0
Maternal level of education		
Primary	80	30.2
Secondary	132	49.8
Tertiary	48	18.1
Never attended school	5	1.9
Paternal level of education		
Primary	60	22.6
Secondary	138	52.1
Tertiary	62	23.4
Never attended school	5	1.9
Occupation		
Employed	99	37.4
Unemployed	166	62.6
Residence		
Urban	122	46.0
Rural	143	54.0

According to Figure 1, 31 (11.7%) were anemic while 234 (87.9%) were not anemic. Thus, the prevalence of anaemia among study participants is 11.7%.

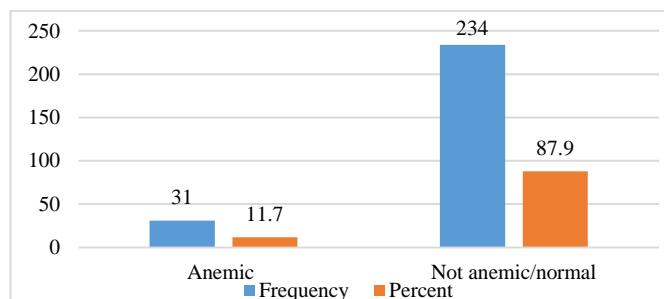


Figure 1: Severity of anaemia in lactating mothers accessing health services at Ishaka Adventist Hospital, Bushenyi district

Of the 31 anaemic mothers, many 16(51.6%) had anaemia classified as moderate, 11(35.5) had anaemia classified as Mild (10-10.9 g/dl) and lastly 4(12.9%) had anaemia classified as severe.

Table 2: Severity of anaemia in lactating mothers attending health services at Ishaka Adventist Hospital, Bushenyi district

Severity of anaemia	Frequency (n=31)	Percent (%)
Mild (10-10.9 g/dl)	11	35.5
Moderate (7.0-9.9 g/dl)	16	51.6
Severe (<7.9 g/dl)	4	12.9

Table 3: Bivariate analysis of socio-demographic factors associated with anaemia in lactating mothers accessing health services at Ishaka Adventist Hospital, Bushenyi district

		Anaemia		aOR(95%CI)	p-value
		Anaemic	Not anaemic		
Age	18-25 years	9	119	0.30(0.09-0.99)	0.049
	26-35 years	17	94	0.72(0.23-2.19)	0.567
	≥ 36 years	5	20	1.00	
Marital status	Single	0	25	N/A	
	Married	31	185	N/A	
	Divorced	0	21	1.00	
Maternal level of education	Primary	10	70	0.57(0.06-5.64)	0.632
	Secondary	12	120	0.40(0.04-3.87)	0.429
	Tertiary	8	39	0.82(0.08-8.34)	0.87
	Never attended school	1	4	1.00	
Paternal level of education	primary	9	46	0.78(0.08-7.84)	0.84
	Secondary	14	124	0.45(0.05-4.33)	0.49
	Tertiary	7	54	0.52(0.05-5.32)	0.58
	never attended school	1	4	1.00	
Occupation	Employed	11	85	0.91(0.41-1.98)	0.803
	Unemployed	20	140	1.00	
Sex	Urban	13	108	0.84(0.39-1.79)	0.643
	Rural	18	125	1.00	

Table 4: Bivariate analysis of Obstetric factors associated with anaemia in lactating mothers accessing health services at Ishaka Adventist Hospital, Bushenyi district

		Anaemia		aOR(95%CI)	P-value
		Anaemic	Not anaemic		
Number of pregnancies have you ever carried	One	12	81	0.79(0.31-2.01)	0.621
	Two	4	35	0.61(0.17-2.14)	0.440
	Three	6	69	0.46(0.16-1.39)	0.170
	More than three	9	48	1.00	
Took iron supplement during pregnancy	Yes	19	186	0.40(0.18-0.88)	0.023
	No	12	47	1.00	
Number of times you attend ANC during your previous pregnancy	No visit	1	13	0.47(0.06-3.77)	0.480
	1-3	4	52	0.47(0.16-1.42)	0.182
	4 and above	26	160	1.00	
Currently using contraceptive method	Yes	9	102	0.53(0.23-1.19)	0.123
	No	22	131	1.00	
Period of breast feeding	< 3 months	12	68	0.35(0.57-3.19)	0.491
	≥ 1 year	6	73	0.63(0.23-1.76)	0.378
	3-9 months	13	92	1.00	
Number of birth ever had in the last five years	Once	17	118	0.89(0.33-2.42)	0.817
	Two	8	78	0.63(0.21-1.96)	0.426
	Three - four	6	37	1.00	
HIV status	Positive	1	31	0.21(0.03-1.63)	0.136
	Negative	30	199	1.00	
Are you pregnant	Yes	1	8	0.94(0.11-7.76)	0.952
	No	30	225	1.00	

Table 5: Multivariate analysis of factors associated with anaemia in lactating mothers accessing health services at Ishaka Adventist Hospital, Bushenyi district

		Anaemia		aOR(95%CI)	p-value
		Anaemic	Not anaemic		
Age	18-25 years	9	119	0.27(0.07-1.09)	0.066
	26-35 years	17	94	0.79(0.23-2.69)	0.707
	≥ 36 years	5	20	1	
Number of pregnancies have you ever carried	One	12	81	0.45(0.47-4.52)	0.517
	Two	4	35	1.01(0.218-4.69)	0.99
	Three	6	69	0.69(0.20-2.39)	0.56
	More than three	9	48	1	
Took iron supplement during pregnancy	Yes	19	186	0.16(0.05-0.46)	0.001
	No	12	47	1	
Number of times did you attend ANC during your previous pregnancy	No visit	1	13	0.19(0.02-2.11)	0.179
	1-3	4	52	0.18(0.05-1.17)	0.055
	4 and above	26	160	1	
Currently using contraceptive method	Yes	9	102	0.59(0.23-1.53)	0.284
	No	22	131	1	
HIV status	Positive	1	31	0.16(0.02-1.37)	0.095
	Negative	30	199	1	

DISCUSSION

In this study, the prevalence of anaemia among lactating mothers attending health services at Ishaka Adventist Hospital, Bushenyi district was 11.7%. This was low compared to 66.0% lactating mothers with anaemia according to a study done in India by [4], and anaemia prevalence rate of 60.3% in lactating mothers according to a study done in Myanmar by (Zhao *et al.*, 2014). It was also low compared to 28.3% among 4658 Ethiopian lactating mothers (Liyew *et al.*, 2020), rate of 43.8% among Kenyan lactating mothers [6], a prevalence of (53.08%) in Mozambique, (46.28%) in Tanzania, and (19.33%) in Rwanda.

According Lakew and colleagues, the lower prevalence of anaemia among lactating mothers may be due to the cultural norms of providing nutritional care to lactating mothers during the postpartum period. Lactating mothers are encouraged to rest for 3–6 months and to eat a variety of foods ⁵. Considerably, in Ishaka and in communities surrounding it, cultural norms are almost extinct following the abolishment of kings in Uganda. For over decades, Ankole has no king and as result women in this region can now eat fish, chicken among other foods that were previously prohibited by culture. Therefore, adoption of such foods that contain lots of iron could be the reason for low prevalence of anaemia among lactating mothers attending health services at Ishaka Adventist Hospital, Bushenyi district.

Regarding the severity of anaemia among lactating mothers, 51.6% had moderate form of anemia, 35.5% had Mild form of anaemia and lastly 12.9% had severe form of anemia.

In this study, taking iron supplement during pregnancy were significantly related to anaemia in lactating mothers. Participants who took iron supplement during pregnancy

were 84% less likely to be anaemic as compared to those who didn't take iron supplement during pregnancy.

This is supported by a study in Bahir Dar- Ethiopia ¹⁵, which showed that iron supplementation during pregnancy is negatively associated with having anaemia both for pregnant and lactating women. The possible explanation could be that, iron is the most important nutrient which is used for the formation of red blood cells and when it was taken during pregnancy it can have a probability of preventing anaemia during the lactation period as well.

A study by carried out in Ethiopia also revealed that lactating mothers who were taking modern contraceptives had a lower risk of having anaemia ⁵.

CONCLUSION

In conclusion, the prevalence lactating mothers attending health services at Ishaka Adventist Hospital, Bushenyi district was low and its severity was commonly in moderate form. The risk of lactating mothers was seen to be significantly reduced with intake of iron supplement during pregnancy.

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