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Original Article

Prevalence of Anemia and Associated Factors in Childbearing Age Women in Shaafi Hospital, Mogadishu, Somalia.

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Abstract

Background: Anemia is a disorder marked by reduced hemoglobin (Hb) concentration and/or the quantity of red blood cells (RBCs). Anemia affects people throughout the world. A shortage of knowledge exists in Somalia due to insufficient research projects. This study examined the prevalence of anemia and its contributing factors in Mogadishu, Somalia.

Methods: A cross-sectional design with a quantitative strategy was used for the investigation. Secondary data were collected from patient records at the Shaafi Hospital in Mogadishu, Somalia, who were clinically diagnosed with anemia between December 2021 and August 2022.

Results: Of the 400 samples collected, 271 (67.8%) women were anemic. Employment, malaria infection, birth interval, number of children, pregnancy status, and menstrual frequency all showed statistically significant associations with anemia. In contrast, age, educational level, marital status, eating habits, sleeping schedules, chronic disease, intestinal parasite, history of blood disorders, and menstrual duration showed no statistically significant associations with anemia.

Conclusion: In this study, the prevalence of anemia in women of childbearing age was high. The association factors were history of malaria birth interval, number of children, pregnancy status, and menstruation. To avoid anemia among pregnant women in the research region, contraceptive methods, information about spacing children, information and services to prevent malaria, and economic empowerment of women are required.

Keywords: Complete blood count, anemia, hemoglobin, childbearing age women

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Introduction

Anemia was reported to affect 2.2 billion people worldwide at a rate of 33% [1]. Anemia, a medical condition, causes a decrease in red blood cell count and/or hemoglobin concentration. Red blood cells that are not enough to meet the needs of the body's physiological processes are known as anemic [2]. The World Health Organization (WHO) states that anemia has a threshold hemoglobin (Hb) level of less than 120 g/L for non-pregnant women and 110 g/L for pregnant women aged 15 years and older. Anemia is a major public health issue with serious effects on human health as well as negative effects on social and economic development [3].

Women are among the most vulnerable demographics because of the blood loss associated with pregnancy, delivery, and menstruation [1]. Nutritional and non-nutritional factors may contribute to anemia in women of reproductive age [4].

Somalia, a country in the horn of Africa, also suffers from anemia. Based on the survey report of Somalia's 2019 micronutrient survey, Somali women aged 15–49 years are anemic approximately 47.2%, Approximately 36% and 6% of anemia were attributable to iron and vitamin A deficiencies, respectively, whereas household possession of soap was associated with approximately 11% fewer cases of anemia [5]. Moreover, over the past decades, political unrest, drought, famine, floods, and man-made emergencies have all affected Somalia, causing internal displacement and family food security deterioration over the whole country [6]

Therefore, this study aimed to determine the prevalence of anemia and associated factors among women of childbearing age attending antenatal clinics in Benadir Hospital, Mogadishu, Somalia.

Methodology

Study setting and design.

A hospital-based cross-sectional study was conducted in Shaafi Hospital from December 2021 to August 2022. The Hospital is located in Mogadishu city, a latitude of 2.03444° or 2° 2' 4" north and longitude of 45.29861° or 45° 17' 55" east; Elevation of 57 meters (187 feet). The town has a total population of 2.388 million people. Currently, the Hospital serves as a teaching hospital, emergency, inpatient and outpatients services for more than 200,000 people living in Mogadishu and the lower Shebelle region.

Study population

All women of childbearing age attending antenatal care in Shaafi Hospital were targeted for the study. Informed consent was taken, and blood samples were collected for examination. A convenience sampling technique was employed to select the study participants.

Sample Size

The sample size was determined using the Raosoft sample calculator, providing a confidence level of 95% and a margin of error of 5%. Assuming a 10% nonresponse rate, a total sample size of 400 women was required.

Data collection

Data was collected using a structured questionnaire, which contains sociodemographic characteristics (age, education, marital status, and occupation), reproductive history (pregnancy, birth interval, frequency of menstruation, and others), and dietary factors (red meat, vegetables, eggs, liver, etc.).

Blood hemoglobin concentration was measured using a BC- 20 hematology analyzer (Manufactured by Mindray, China).

Data Analysis

SPSS version 20.0 was used to analyze the data. The information was displayed as frequency, percentage, or mean standard deviation in charts and tables. Bivariate logistic regression analysis was first carried out to identify factors associated with anemia, and crude odds ratio (COR) with 95% confidence intervals was obtained. Then, significant variables identified in the bivariate logistic regression analysis (p value 0.2) were subsequently included in the multivariable logistic regression model to identify independent predictors. The strength of the statistical association was measured by adjusted odds ratios (AOR) and 95%confidence intervals.

Ethical Approval

For this research activity to be conducted, the ethical review committee of Jamahiriya University Science and Technology (JUST) authorized and accepted this study's ethics. The Shaafi hospital managers received authorization from Jamhuriya University. Regarding the respondents' moral expectations, confidentiality agreements, and ethical standards, the research will be undertaken. We sought our respondents' permission to utilize their data in our research study so that we could maintain ethical standards. If a respondent declines to allow us to utilize their information for our research, we will leave that information out.

Results

Of the 400 samples collected, 271 (67.8%) women were anemic. The age group did not statistically significantly correlate (p > 0.05) with anemia, with the age group of 41–49 years having the lowest anemia of 19.4% and the age group of 21–30 years having the highest anemia of 29.6%. Furthermore, the odds ratio values ranged from.812 (.426-1.549), indicating that age group and anemia had no relationship. With high school females having the highest prevalence of anemia (58.2%) and holders of master's degrees having the lowest incidence (3.1%), the level of education did not statistically significantly correlate (p > 0.05) with anemia. Furthermore, the odds ratio values ranged from 8.29 to 214-3.219. As a result, there was no connection between anemia and education level in relation to marital status. Anemia rates among married people were lowest (29.5%), whereas divorce rates were greatest (47.1%). At p > 0.05, divorced.588 (.381–1.432) was not statistically significant, and the odds ratio variation ranged from 1.243 (.759–2.635). As a result, there was no connection between anemia and marital status. Women who work are twice as likely to get anemia as women who do not. Additionally, the odds ratio varied from 2.069 (1.336-3.205), which was statistically significant at p. 0.05, showing that the employment was connected to anemia.

Table 1: Sociodemographic Characteristics Of Participants In Relation To Anemia N=400

Sociodemographic characteristics	N %	Anemia status		95% CI for OR	P-value
		Anemic	Non-anemic		
Age					
15-20	82(20.5)	22(22.4)	60(19.9)	.824(.434-1.564)	.554
21-30	125(31.2)	29(29.6)	96(31.8)	.812(.426-1.549)	.528
31-40	122(30.5)	28(28.6)	94(31.1)	.997(.486-2.042)	.992
41-49	71(17.8)	19(19.4)	52(17.2)	**Ref. Cat**	
Education					
No Education	71(17.8)	20(20.4)	51(16.9)	.690(1.68-2.836)	.607
High school	228(57.0)	57(58.2)	71(56.6)	.829(.214-3.219)	.787
Bachelor degree	90(22.5)	18(18.4)	72(23.8)	.750(.214-3.219)	.687
Master degree	11(2.8)	3(3.1)	8(2.6)	**Ref. Cat**	
Marital Status					
Single	99(24.8)	34(34.3)	65(65.6)	**Ref. Cat**	
Married	266(65.0)	77(29.6)	183(70.4)	1.243(.759-2.635)	.387
Windowed	24(6.0)	10(41.7)	14(58.3)	.732(.294-1.822)	.503
Divorced	17(4.2)	8(47.1)	9(52.9)	.588(.208-1.663)	.317
Occupation					
Employee	268(67.0)	72(55.8)	196(72.3)	2.069(1.336-3.205)	.001*

Un Employed	132(33.0)	57(44.2)	75(27.7)	Ref. Cat

Table 2: Eating Habits and Parasitic Infection of the Participation In Relation To Anemia N=400

General Characteristics	N%	Anemia status		95%Cl for OR	P-value
		Anemic	Non-anemic		
Eating Red meet					
Yes	120(30.0)	45(37.5)	75(62.5)	.714(.456-1.19)	.142
No	280(70.0)	84(30.0)	196(70.0)	Ref. Cat	
Intake of fruits/Vegetable					
Yes	97(24.2)	33(34.0)	64(66.0)	.899(.554-1.460)	.668
No	303(75.8)	96(31.7)	207(68.3)	Ref. Cat	
Eating Liver					
Yes	98(24.5)	33(33.7)	65(66.3)	.918(.566-1.489)	.729
No	302(75.5)	96(31.8)	206(68.2)	Ref. Cat	
Eating Eggs					
Yes	104(26.0)	37(35.6)	67(64.4)	.017(.510-1.308)	.399
No	296(74.0)	92(31.1)	204(68.9)	Ref. Cat	
Sleeping hours					
8 hours	54(13.5)	16(29.6)	38(70.4)	1.264(.615-2.599)	.524
10 hours	114(285)	51(44.7)	63(55.3)	.657(.375-1.152)	.143
<-8 hours	137(34.2)	29(21.2)	108(78.8)	1.982(1.100-3.571)	.023
12 hours	95(23.8)	33(34.7)	62(65.3)	Ref. Cat	
History of Hereditary Blood Disorder					
No	340(m85.0)	106(31.2)	234(68.8)	Ref. Cat	
Yes	6(15.0)	23(38.3)	37(61.7)	1.372(.777-2.424)	.275
Chronic disease					
Yes	316(79.0)	99(31.3)	217(68.7)	1.218(.734-2.019)	.445
No	84(21.0)	30(35.7)	54(64.3)	Ref. Cat	
Intestinal parasite					
Yes	142(35.5)	52(36.6)	90(63.4)	Ref. Cat	
No	258(64.5)	77(29.8)	181(70.2)	.736(.477-1.36)	.166
Malaria Infection					
Yes	218(54.5)	85(39.0)	133(61.0)	Raf. Cat	
No	182(45.5)	44(24.2)	138(75.8)	2.004(1.297-3.097)	.002*

Table 3: Reproductive Characteristics of the Participants In Relation To Anemia N=400

Reproductive History	N%	Anemia status	95%CI for OR	P-value

	Anemic	Non-anemic		
Birth Interval				
> 1 year	246(61.5)	92(37.4)	154(62.6)	Ref. Cat	
<1 year	88(22.0)	11(12.5)	77(87.5)	1.088(.623-1.900)	.767
No birth	66(16.5)	26(39.4)	40(60.6)	4.550(2.041-10.145)	.000*
Use Contraception pills				
Yes	103(25.8)	37(35.9)	66(64.1)	.801(.499-1.283)	.355
No	297(74.2)	92(31.0)	205(69.0)	Ref. Cat	
Number of children				
_>children	62915.5)	19(14.7)	43(15.9)	.823(.445-1.523)	.535
1-2 Children	13(28.2)	50(38.8)	63(23.2)	.458(.285-.736)	.001*
No children	225(56.2)	60(46.5)	225(56.2)	Ref. Cat	
Pregnant Status				
Pregnant	163(40.8)	62(48.1)	67(51.9)	.642(.420-.981)	.041*
Non-pregnant	232(59.2)	101(37.3)	170(62.7)	Ref. Cat	
Frequency of menstruation				
One per month	242(60.5)	91(37.6)	151(62.4)	Ref. Cat	
Two or more per month	158(39.5)	38(24.1)	120(75.9)	1.903(1.216-2.979)	.005*
Duration of Menstruation				
Normal duration: 5-7 days	334(83.5)	103(30.80)	231(69.2)	Ref. Cat	
>8 days per month	66(16.5)	26(39.4)	40(60.6)	1.458(.845-2.516)	.176
Heavy flow of menstruation				
Yes	272(68.0)	96(35.3)	176(69.7)	Ref. Cat	
No	128(32.0)	33(25.8)	95(74.2)	.686(.398-1.184)	.176
Nausea				
Yes	154(38.5)	55(35.7)	74(30.1)	Ref. Cat	
No	246(61.5)	99(64.3)	27(67.8)	.774(.505-1.188)	.241

Discussion

Anemia is a common global health problem, particularly affecting women of childbearing age. In developing countries, such as Somalia, the prevalence of anemia tends to be high, thus posing significant health risks for women and their infants. The prevalence of anemia in Somalia has been reported to be alarmingly high, affecting a

considerable proportion of childbearing age women. In our study, we report that the prevalence of anemia among the childbearing age is 67.8%. A recent study used nationally representative data to report the prevalence and risk factors for anemia among women of reproductive age in three South Asian nations. In Bangladesh, 58.5% of people had anemia, compared to 40.6% in Nepal and 41.8% in the Maldives. According to earlier studies, anemia is very common among women in Bangladesh, the Maldives, and Nepal. The prevalence of anemia found in this study is higher than the global prevalence of anemia, which was 32.8% in 2016 (Rahman et al., 2021).

The prevalence of anemia was 18.9% (95% CI: 18.8–19.0%) in another study conducted by Wu, Y. et al. (2020). Anemia (Hb 12 g/dL) was observed in 40% (390) of women in a study done by AlQuaiz et al. (2013). The average (SD) values for mean corpuscular hemoglobin, mean corpuscular capillary hemoglobin concentration, mean corpuscular hemoglobin concentration (MCHC), and mean corpuscular hemoglobin concentration (RDW) were 79.21 fL, 26.37 pg, 32.36 g/dL, and 14.84 % (4.65%), respectively. A Different Study Conducted by Berhe, B., et al. (2019) At Adigrat General Hospital, 7.9 percent of pregnant women had anemia. The prevalence was 25.8% (95% CI, 21.6-29.8) in another study done (Mahamoud et al., 2020).

Tesfaye et al. also presented their findings from another study. The prevalence of anemia was 40.9%; rural dwellers had a 46.6% greater prevalence than their urban counterparts. According to Fatima Abdalla et al. (2022), the overall prevalence of anemia in pregnant women was 25.5%.

The strength of this study is that it provides a recent and up-to-date estimate of the prevalence of anemia in Somalia. It also used a rigorous research design, which minimized the risk of bias.

The limitation of the study is that it was conducted in a single setting, namely internally Shaafi Hospital in Mogadishu. This means the results may not be generalizable to other parts of Somalia. Additionally, the study did not collect data on all potential causes of anemia, such as hookworm.

Conclusion

This study demonstrates that anemia in women of childbearing age remains a serious issue, as demonstrated by the fact that a third of pregnant women who attended prenatal care were anemic. According to the study, the leading causes of anemia in women are poverty, illiteracy, a lack of health knowledge, and nutritional culture.

Interests in conflict: None have been identified.

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