



Study of Causes Associated with Anemia among Pregnant Women Attending at El-Nuhud Teaching Hospital, West Kordufan State, Sudan-2019

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Abstract

Background: Anemia is a common problem in Africa, with prevalence ranging from 21.1% to 64.4%. According to WHO estimates, 56 million pregnant women were anemic in 2005, more than half of them (57.6%) would be in Africa.

Objectives: The main objective of this study to study prevalence of anemia among pregnant women attending at El-Nuhud Teaching Hospital, West Kordofan State, 2019.

Methodology: A cross-sectional descriptive hospital based study was carried out from August to November 2019. The sample size was total coverage of all pregnant women attending at El-Nuhud Teaching Hospital, West Kordofan State. A number of 420 samples of data of structured administrated questionnaire and blood samples were collected from pregnant women. The blood samples were collected and investigated by laboratory technician by using Colorimeter to measure hemoglobin level. The data were analyzed by using Statistical Package for Social Science (SPSS), version 20 and Chi-Square test (X²) used to check difference between variables, p value less than 0.05 was considered significant.

Results: The age group more than 45 years old was the most affected (100 %). This study shows that (77.4%), (69.2%) and (51.6%) anemic of pregnant women their family size (> 6 persons), (6 persons) and (< 6 persons) respectively. Pregnant women had irregular follow up during pregnancy represented 79.50% of infected pregnant women. The study revealed that folic acid and iron intake has significant effect (82.50%), (78.20%), and (44.50%) anemic of pregnant women their answer (no), (irregular) and (regular) respectively.

Conclusion: The study concluded that the prevalence of anemia among pregnant women was more than half. The study recommended to implement health education programmes at all levels, use appropriate vaccinations, supplementations and vitamins during pregnancy to prevent anemia, family planning, optimum maternal and child health, and environmental Sanitation.

Keywords: Pregnant Women; Prevent Anemia; Environmental Sanitation

Abbreviation: WHO: World Health Organization.

Introduction

Anemia is common in both developing and industrialized nations. It affects about two billion people worldwide, i.e 30% of the inhabitants of the planet, according to data from the World Health Organization (WHO). Hence it is considered a public health problem. It greatly affects a person's life, especially in its more severe forms. Anemia cause tiredness, weakness, malaise, and making routine tasks more difficult and painful. Anemia is a common problem in Africa, with prevalence ranging from 21.1% to 64.4%. It has significant impact on morbidity and mortality. The affected person may be drowsy, with less resistance to physical activities and deterioration in cognitive function and immunity [1].

Anemia defined as low blood hemoglobin concentration has shown to be public health problem that affects low, middle and high income countries and has significant adverse impacts on social and economic development [2].

Globally anemia affects 32.4 million (38.4%) of pregnant women it is major public health problem in South Asia (48.7%) and Africa (46.3%) [3].

Pregnant woman's anemia is a critical issue of public health due to its frequency, multifactorial nature and impact on pregnancy evolution. According to WHO estimates, 56 million pregnant women were anemic in 2005, more than half of them (57.1%) would be in Africa .It contributes to the 20% of maternal deaths related to indirect causes [4]. Anemia of pregnancy an important risk factor for fetal and maternal morbidity is considered a global health problem affecting almost 50% of pregnant women [5]. In Africa the prevalence rate of anemia among antenatal women range from 35% to 72% while in Asia 37% to 75% [6]. Anemia is a global public health problem, but is more prevalent in pregnant women and young as stated by WHO [2]. Anemia among pregnant women worldwide was 38% and Sudan among countries considered with a moderate type of anemia during pregnancy [7].

In a cross - sectional study was conducted among pregnant women in Erbil city. The result of the study was showed the prevalence of manemia among pregnant women 46.2% [8]. In India anemia is the second most common cause and accounting for 20% of total maternal, the prevalence of anemia ranges from 33% to 89% among pregnant women and is more than women from 60% among adolescent girls with wide variations in different regions of countries [9]. In fact over 20% of pregnant women in Europe are anemic during pregnancy [10]. The United Kingdom prevalence of maternal anemia in the antenatal period was estimated as 24

% in a recent cross sectional study [11].

Justifications and Problem State

Anemia is most common medical disorder in pregnancy and postpartum period [12]. Anemia in pregnancy is an important health issue resulting in high maternal morbidity and mortality [13]. The World Health Organization (WHO) has estimated that prevalence of anemia in pregnant women was found 14% in developed, 50% in developing countries and 60-75% in India Sahoo, et al. This study conducted among pregnant women attending at ElNuhud Teaching Hospital -West Kordufan State in Sudan to determine the most affected age group with anemia the daily frequency of pregnant women who attending hospital about (10- 15) pregnant women and monthly about (300-450) pregnant women (El-Nuhud Teaching Hospital, 2018). Prevalence of anemia in females was higher in most regions and age groups South Asia and Central, West and East Sub-Saharan Africa had the highest burden, while East, Southeast and South Asia saw the greatest reduction [14].

Study of pregnant Sudanese women attended delivery in River Nile State Sudan the study revealed that (64.3%) of study population were anemic. Study carried out in Ethiopia among pregnant women revealed that (34.6%) were anemic [15]. Surveys in different parts of India indicate that about 50-60% of women belonging to low socio-economic group are anemic in last trimester of pregnancy [16].

• Objective

To investigate the causes associated with anemia among pregnant women attending at El Nuhud Teaching Hospital, West Kordufan State, Sudan-2019

Material and Method

- **Study Design:** A descriptive cross sectional hospital based study. Study area: El-Nuhud Teaching Hospital, West Kordufan State, Sudan. Sample size: The sample size was determined by total coverage of pregnant women attending at El-Nuhud Teaching Hospital -West Kordufan State during three months (August - November 2019) to obtained 420 pregnant.
- **Location:** Study conducted at El-Nuhud Teaching Hospital, West Kordufan State - Sudan, 2019. El-Nuhud locality located between latitude 9.25-16.3o North and latitude 27-32o East it surrounded by many areas in the East Alkhevi locality and Abuzabad locality, in the West Wadbanda locality and in the South South Kordufan State West Kordufan University.
- **Building:** El-Nuhud Teaching Hospital building were from stable material such as bricks and stone.
- **Health Services:** Regarding to health services there are

2governmental hospitals, 6 health centers, 12 private dispensaries and 8 private clinic El-Nuhud locality.

- **Education Services:** Education services in El-Nuhud locality include basic; higher secondary schools and universities; 194 basic, 15 higher secondary schools and two universities.
- **Study Population:** All pregnant women attending at El-Nuhud Teaching Hospital that fulfill the inclusion criteria during the data collection period was considered as study participants. The number population (327051) persons in El-Nuhud locality, (192961) of them as women, (78819) as age reproductive women and (13115) as pregnant women [17].

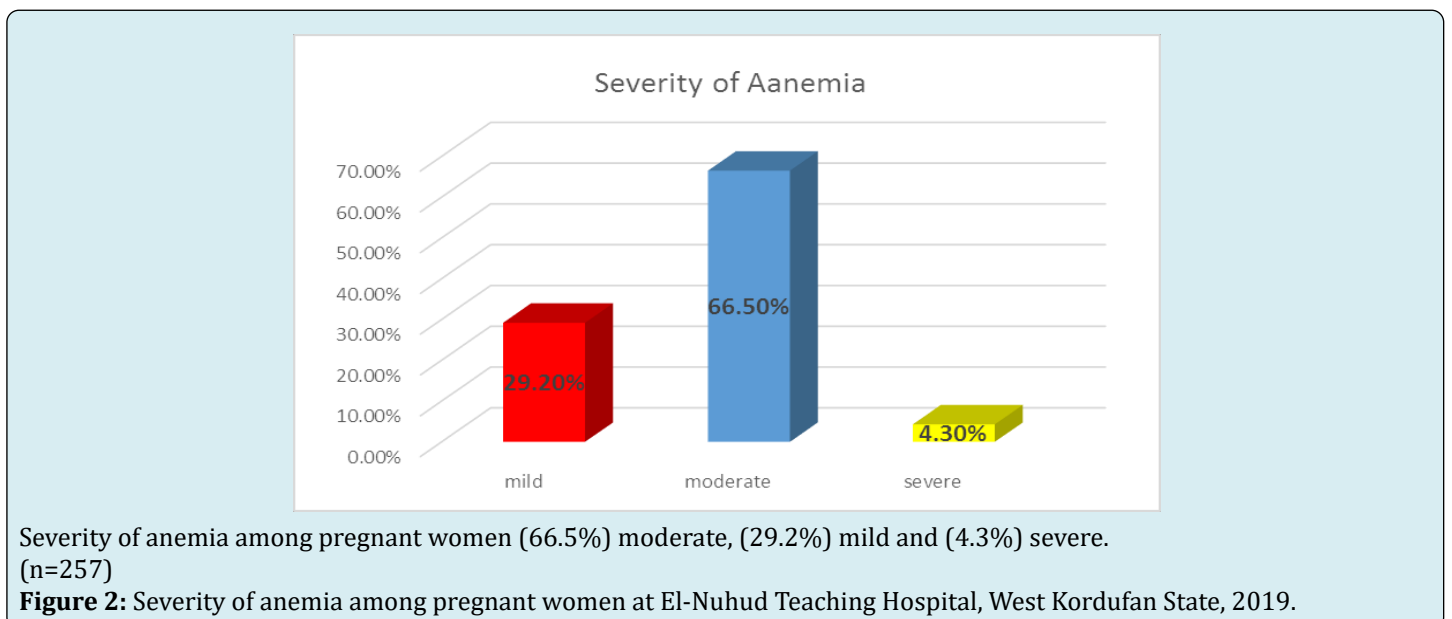
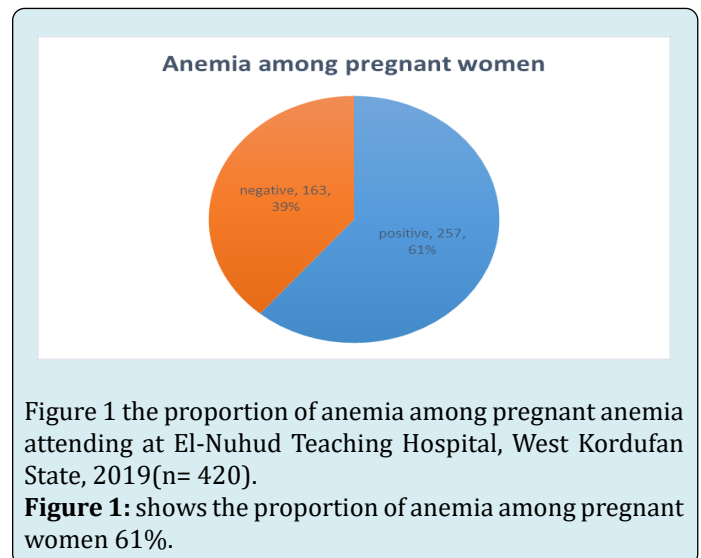
1.1. Methodology: Data collected using following tools:

- **Questionnaire:** In the form of administrated questionnaire filled by pregnant women attending at El-Nuhud Teaching Hospital, West Kordufan State. The questionnaire includes the following variables: Socio-demographic factors (age, educational status, her husband education, her occupation, her husband occupation, family size, Gestation period and income).
- **Laboratory Investigation:** Hemoglobin level determined using Colorimeter hemoglobin and all laboratory investigations were done by technician's laboratory. Pregnant women was considered anemic when her hemoglobin less than 11gm/dl according (WHO).
- **Data Analysis:** Data entered and analyzed by using computer-based operation practically (Statistic Package for Social Science) version 20 and Chi - Square test (χ^2) was used to check the differences between variables. The (P.value) less than 0.05 considered significant.

- **Ethical Consideration:** Permission was taken from the pregnant women with her full consent and permission was obtained from the Ministry of Health, West Kordufan State, also permission was taken from the Hospital Medical Manger as well as an ethnical approval from the Department of Epidemiology, Faculty of Public and Environmental Health, University of Khartoum.

Results

A cross-sectional descriptive hospital study was conducted at ElNuhud Teaching Hospital, West Kordufan State, with an objective to study the prevalence of anemia among pregnant women (420). The study showed the following findings as explained in the figures and tables below.



Anemia age group	Positive		Negative		Total	
	N	%	N	%	N	%
Less than 18 years	23	49	24	51	47	11
18-31years	142	55	117	45	259	62
32-45years	88	80	22	20	110	26
more than 45 years	4	100	0	0	4	0.9
Total	257	61	163	39	420	100

$\chi^2 = 26.314$ $P = 0.000$

Table 1: Age group among pregnant women in relation to anemia at El-Nuhud Teaching Hospital, West Kordufan State, 2019 (n=420).

Table 1 shows high affected age group more than 45years old (100%) followed by 32-45years old (80%), 18-31years old (54.8%) and less than 18 years old (48.9%).

This significant relation between age group and anemia among pregnant women, (p value = 0.000).

Anemia Family Size	Positive		Negative		Total	
	N	%	N	%	N	%
< 6 persons	22	52	114	48	236	56
6 persons	63	69	28	31	91	22
> 6 persons	72	77	21	23	93	22
Total	257	61	163	39	420	100

$\chi^2 = 21.752$ $p = 0.000$

Table 2: Family size among pregnant women in relation to anemia at El-Nuhud Teaching Hospital, West Kordufan State, 2019 (n = 420).

Table 2 shows high affected in more than 6 persons (77.4%) followed by 6 persons (69.2%) and less than 6 persons (51.6%). This significant relation between family size and anemia among pregnant women, (p value = 0.000).

Discussion

This a cross-sectional descriptive hospital based study was conducted at El-Nuhud Teaching, West Kordufan State with an objective to study the prevalence of anemia among pregnant women in period (August- November) 2019.

The proportion of anemia among pregnant women (61%) this lower than that what had been revealed by Khan NAM, et al. [18] showed the prevalence of anemia was (84.85%) of pregnant women in the rural population of Mudkhed, Maharashtra, this also lower than what had been revealed by Shwetha, et al. [19] showed the prevalence of anemia among pregnant women in Bangaluru, India was (68.6%), this higher than what had been found by Abreha A, et al. [20] showed the prevalence of anemia was (19.7%) among pregnant women in Mekelle, Ethiopia, also higher than what had been carried out by Alene KA, et al. [21]

they showed the prevalence of anemia was (56.8%) among pregnant women in Gode town, Eastern Ethiopia, also higher than what had been revealed by Alem M, et al. [22] showed overall prevalence was (21.6%) among pregnant women in Azezo health center, Gonder town, Northwest Ethiopia, also higher than what had been revealed by Bekele A, et al. [23] showed overall prevalence of anemia was (32.8%) among pregnant women in Arba Minch, Ethiopia, also higher than what had been revealed by Lebso M, et al. [24] they showed overall prevalence of anemia was (23.2%) among pregnant women in Lemo District, Southern Ethiopia, also higher than what had been revealed by Jufar AH [25].

they showed the prevalence of anemia among pregnant women attending at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia was (21.3%), also higher than what had been showed by Zekarias, et al. 2017 they showed the prevalence of anemia among pregnant women attending at Antenatal Care department of Mizan Tepi University Teaching Hospital, South West Ethiopia was (23.5%), also higher than what had been revealed by Fassil R [26] showed the prevalence of anemia was (16.3%) of pregnant women attending Antenatal Care at Selam Health Center, Addis

Ababa, Ethiopia, also higher than what had been revealed by Nwizu EN, et al. [27] showed the prevalence of anemia was (17%) among pregnant women attending Antenatal Care for the first time at Aminu Kano Teaching Hospital, Kano, Nigeria. And this also higher than what had been revealed by Selim NAA, et al. [28] showed the prevalence of anemia was (27.1%) among Arab pregnant women in Qatar.

The most affected age group with anemia among pregnant women was more than 45 years old (100%) this dissimilar what had been indicated by Opitasari C, et al. [29] in their study of anemia among pregnant women in a governmental hospital and a private hospital in Jakarta, Indonesia revealed those with aged 16- 20 years had 56% higher risk to be anemic and also this similar what had been revealed by Shwetha, et al. [19] in their study of anemia among pregnant women in Bangaluru, India the most anemic age group were 21-35 years old. This shows that (100%), (80%), (54.8%) and (48.9%) anemic of pregnant women in their age group (more than 45), (32-45years old), (18-31years old) and (less than 18 years) respectively, a significant relation between anemia among pregnant women and age (p value = 0.000) and this similar with study of Jufar AH, et al. [25] showed that significant associated between anemia and age group 39-45 years old (p value = 0.033) and also similar with study of Khan NAM, et al. [18] showed that sociodemographic like age, education of women, socioeconomic class, gravid status and gestation period were found to be significantly associated with anemia in pregnancy.

This study shows that (77.4%), (69.2%) and (51.6%) anemic of pregnant women their family size (> 6 persons), (6 persons) and (< 6 persons) respectively, a significant associated between family size and anemia among pregnant women (p value = 0.000) and this similar with study of Bekele A, et al. [23] revealed that had statistically significant association with family size and in pregnancy

Conclusions

This a cross- sectional descriptive hospital based study was conducted with an objective to study prevalence of anemia among pregnant women attending at El-Nuhud Teaching Hospital, West Kordufan State, 2019. The prevalence among pregnant women (61%). The most affected age group was more than 45years old (100%). The more causes associated with anemia among pregnant women were age group, family size, latrine inside house, pregnant women's educational level, her husband educational level, pregnant women's job, gestation period, parity, stillbirth history, abortion history, complication during pregnancy, problem health, meals per day poultry eggs intake, fruits and vegetables intake, follow up during pregnancy and folic acid and iron intake during pregnancy.

The Study Recommended To

Implementation of health education programmes at all levels, especially nutritional education to change dietary habits and feeding practices.

- Provision adequate of quality and quantity of nutrients and food during pregnancy
- Encourage family planning
- Provision universal, perfect, affordable and accessible antenatal care services.

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