

The Rate of Anemia in Pregnant Women and Some Related Factors in Ea Tieu Commune, Cu Kuin District, Dak Lak Province, 2022

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Abstract— Anemia is a global public health problem affecting both developed and developing countries, with major consequences for human health, especially pregnant women. Economic improvement, and health education communication can reduce the rate of anemia in pregnant women. **Objectives:** This study was conducted to determine the prevalence of anemia in pregnant women and some related factors in Ea Tieu Commune, Cu Kuin District, Dak Lak Province in 2022. **Research subjects and methods:** A cross-sectional descriptive study was conducted on pregnant women in Ea Tieu commune, Cu Kuin district, Dak Lak Province. **Results:** The prevalence of anemia among pregnant women in this area is still quite high (27,9%); mild anemia (23,5%), moderate and severe anemia (4,4%). It also found a relationship between the rate of anemia and some related factors such as economic conditions, number of pregnancies, iron supplements, adequate diet, and parasitic infections, with $p < 0,05$. **Conclusion:** The rate of anemia among pregnant women in Ea Tieu Commune, Cu Kuin District is still high. Therefore, to reduce the rate of anemia among pregnant women in the area, it is necessary to strengthen communication and education on health and improve economic conditions.

Keywords— Anemia, Pregnant women.

I. INTRODUCTION

Anemia is a global public health problem affecting both developed and developing countries, and anemia has major consequences for human health as well as economic and social development. Subjects at risk of anemia and the most severe consequences are pregnant women. According to the global database on anemia of the World Health Organization in 2011, the world has 32.4 million pregnant women with anemia, accounting for 38.2% [10].

In Vietnam, according to the Prime Minister's decision to accept the National Strategy on Nutrition for the period 2021-2030 and the vision to 2045, the Prime Minister also mentioned nutritional goals for pregnant women. Up to now, the program to prevent nutritional anemia has been widely developed in all localities to reducing the rate of anemia in pregnant women to less than 23% in 2025 and less than 22% in 2030. There have been many interventions to improve anemia such as iron-folic tablets, multi-micronutrient tablets or iron supplements in food. However, iron deficiency anemia in pregnant women has not been improved, especially among pregnant women who are from ethnic minorities [7].

In Tuy Duc, Dak Nong, in 2019 author Nguyen Thi Kim Le also showed that the overall shortage rate of pregnant women of the M'Nong ethnic group was 37.7%. The author found a

relationship with the prevalence of anemia such as malaria parasite infection, nutrient deficiency, culture [8].

Over the past years, the implementation of the project on Reproductive health care and improvement of children's nutritional status under the National Health Target Program has had several intervention activities in Dak Lak province to improve the nutritional status of children, iron-deficiency anemia in pregnant women such as iron tablets, multi-micronutrient tablets, and women of childbearing age has resulted in a reduction in the rate of malnutrition. children, and reduce child mortality, reduce maternal mortality. However, anemia is still a major health concern today.

This study aims to find out about anemia status and some related factors of pregnant women in Ea Tieu commune, serve as a basis for assessing, assessing and paying due attention to maternal and child health care to improve nutritional status, anemia prevention for pregnant women contributes to achieving the goals of the National Strategy on Nutrition from 2021 to 2030 and a vision to 2045 in Ea Tieu Commune, Cu Kuin District, Dak Lak Province.

II. OBJECTIVES

(1) Determine the ratio of anemia among pregnant women in Ea Tieu commune, Cu Kuin district, Dak Lak province in 2022, (2) Determining some factors related to the rate of anemia in pregnant women in Ea Tieu commune, Cu Kuin district, Dak Lak province, in 2022.

III. RESEARCH METHODOLOGY

A. Study design

A cross-sectional descriptive research design was employed for this study. Data were collected on pregnant women living in Ea Tieu commune, Cu Kuin district, Dak Lak province, in 2022.

B. Sample

Select the whole sample. In the first 6 months of 2022, there are 136 pregnant women in the area. So a sample size of the study is 136 pregnant women.

Inclusion criteria were: (1) pregnant women living in the district for 6 months or more up to the time of the study; (2) agreeing to participate in the study.

Exclusion criteria were: Pregnant women with the following diseases: heart failure, marrow failure, bleeding trauma, neurological.

Data were collected through a survey through direct interviews with pregnant women according to questionnaires and blood samples for hemoglobin testing. Test technicians read, analyze and return results based on test standards according to WHO.

C. Data analysis

Data were cleaned and processed using SPSS 22.0 software. The results are presented in tabular form showing frequency, percent, PR, CI 95%.

D. Approval

Pregnant women were explained before the interview. All subject information is for research purposes only and has no other purpose. The research proposal was approved by the scientific council of Buon Ma Thuot University of Medicine according to Decision No. 347QD-ĐBMT dated November 11, 2021.

IV. RESULTS AND DISCUSSION

A. General characteristics of pregnant women

TABLE I. Distribution of pregnant women by age, education, occupation, ethnicity and economic conditions (n = 136).

Pregnant women Information		Frequency (n)	Rate (%)
Age group	≤ 18 years old	10	7.4
	From 19 to 45 years old	122	89.7
	> 45 years old	4	2.9
Ethnic	The Ede	103	75.7
	The Kinh	33	24.3
Education level	Primary level	8	5.9
	Secondary level	73	53.7
	High school and above	55	40.4
Occupation	Office staff	4	2.9
	Farmer	109	79.4
	Worker	13	9.6
	Purchase	10	7.4
Economic conditions	Poor	49	36.0
	Not poor	87	64.0

Among 136 pregnant women in the study area, the age group from 19-45 accounted for a higher proportion than the rest (89.7%). The education level is secondary school (57.3%). This place is mainly Ede ethnic people (75.7%), the rate of poor households is 36.0%.

B. The rate of anemia in pregnant women (n = 136).

TABLE II. The rate of anemia in pregnant women (n = 136)

Content	Frequency (n)	Rate (%)
Anemia	Yes	38
	No	98
Anemia classification	Low level	32
	Medium level	5
	Severity level	1

In the study area, the percentage of pregnant women with anemia (27.9%). The rate of low anemia is 23.5%, medium level (3.7%), and severity level (0.7%).

The rate of anemia among pregnant women in the area is 27.9%. The results are different from that of the author some studies such as Nguyen Cong Hieu in Kon Tum (2017)

(31.2%); Nguyen Thi Kim Le (2019) in Dak Nong (37.9%); Nguyen Thi Tuong Thai (2020) 14.3% [5], [3],[1]. The rate of anemia is different because our study time and location are different from the above authors.

The rating by level, low anemia is 23.5%, medium level (3.7%), and severity level (0.7%). The results are equivalent to some studies of Nguyen Thi Tuong Thai (2020); Le Thi Thuy Trang (2016); Hoang Nguyen Nhat Linh (2018) [3],[2],[4]. In the research, the prevalence of severe anemia was low and several other authors did. This may be due to the effectiveness of the project interventions on reproductive health care and improving the nutritional status of mothers - children under the national health target program in the past time.

C. Factors related to the rate of anemia in pregnant women

TABLE III. Factors related to the rate of anemia in pregnant women (n= 136).

Content	n	Anemia (n)	Rate (%)	PR, CI 95%	p	
Economic conditions	Poor	49	21	42.9	2.1 (1.2-3.7)	0,04
	Not poor	87	17	19.5		
Number of pregnancies	> 2	106	34	32.1	2.4 (0.9-6.2)	0,04
	≤ 2	30	4	13.8		
Pregnancy sickness	No	101	35	34.7	4.0 (1.2-12.3)	0,03
	Yes	35	3	8.6		
Iron supplement	No	52	21	40.4	2.0 (1.1-3.4)	0,01
	Yes	84	17	20.2		
Eat enough nutrition	No	112	36	32.1	3.8(1.0- 14.9)	0,01
	Yes	24	2	8.3		
Worm infections	Yes	4	4	100	3.8 (2.9-5.9)	0,001
	No	132	34	25.8		

The results of the analysis of 136 pregnant women showed that factors such as economic conditions, number of pregnancies, Pregnancy sickness, iron supplementation, eating enough nutrition, and parasitic infection were all related to the rate of anemia (p< 0.05).

Pregnant women with poor economic conditions are 2.1 times more likely to have anemia than women with good economic conditions (P<0,05). The results are similar to some studies [1], [7], [5]. Pregnant women in the study are mainly from ethnic minorities, with difficult economic conditions, low educational attainment, and limited nutritional knowledge during pregnancy. Therefore, to prevent anemia in this group of people, we only stop at solutions such as health education communication, Iron supplement, eat enough nutrition, and prevention of helminth infections... not enough.

The basic solution is that the local community and the government must step in to create social security and economic conditions for the people. The author Nguyen Thi Tuong Thai et al (2020) also showed that the rate of anemia in women with more than 2 children (31.6%) has a risk of anemia 2.8 times higher than that in the group of > 2 children (p<0,05) [5]. Moreover, pregnancy sickness during pregnancy also affects eating habits and has a risk of anemia 4.3 times higher than that of pregnant women without morning sickness (p<0.05).

Most of the iron requirements in pregnant women cannot be met through daily meals, mainly based on the amount of iron stored in the body. Pregnancy many times the body does not provide enough iron needed for the body's needs, forced to use

iron stores. Therefore, depleting the available iron reserves leads to anemia. The research also showed that women who were pregnant more than 2 times had 2.4 times the risk of anemia compared to pregnant women ≤ 2 times ($p < 0,05$). The author Nguyen Thi Tuong Thai et al (2020) also showed that the rate of anemia in pregnant women > 2 times (31.6%) has a risk of anemia 2.8 times higher than that in the pregnant group < 2 times ($p < 0.05$) [5]. Moreover, pregnancy sickness during pregnancy also affects eating habits and has a risk of anemia 4.3 times higher than that of pregnant women without pregnancy sickness ($p < 0.05$).

Analysis of 136 pregnant women showed that the rate of not taking regular iron supplements was quite high (38.2%) and not taking regular iron supplements, the risk of anemia was 1.9 times higher than that of the group iron supplement. Results are equivalent to some studies such as Nguyen Cong Hieu (2017) 4.6 times; Dang Hai Dang (2018) 0.24 times [1],[3]. This lack of regular use of iron made us think of the possibility that pregnant women had morning sickness, had difficulty taking iron and did not have regular antenatal check-ups, so they were not advised to use iron during pregnancy. Iron supplementation is a short-term solution and quickly improves anemia and iron deficiency, but the effect does not last long. Therefore, to maintain serum Hb and ferritin levels as well as improve nutritional status, it is necessary to improve the diet. Pregnant women who do not eat all the groups of substances have 3.8 times the risk of anemia compared with the group who supplemented with all groups of substances. The study is similar to some studies such as Lebso M et al (2017), pregnant women who do not eat a variety and are full of substances have a risk of anemia 3.18 times higher than the group with a full diet ($p < 0.05$) [9].

Worm infections during pregnancy affect anemia. Pregnant women infected with worms have a risk of anemia 3.8 times higher than pregnant women without worm infection with $p < 0.05$. The results are similar to the study of Pham Van An in Cu Chi district, Ho Chi Minh City in 2013 showed that there was an association between the anemia status of pregnant women in the first 3 months of worm infection and the risk of anemia 14.62 times higher than the group without worm infection [2].

V. CONCLUSIONS

A. The rate of anemia in pregnant women

The rate of anemia among pregnant women in Ea Tieu commune is 27.9%, with low anemia level (23.5%); medium level (3.7%); severity level (0.7%).

B. Factors related to the rate of anemia in pregnant women.

The study found factors related to the rate of anemia in pregnant women such as family economy; the number of pregnancies pregnancy sickness; iron supplements; Eat all groups of substances, infected with worms ($p < 0.05$).

VI. RECOMMENDATIONS

Perform hemoglobin tests when pregnant women come to antenatal care to screen and evaluate anemia. Supplement iron/multi-micronutrient tablets and timely treatment of anemia for pregnant women.

Interventions to prevent anemia in pregnant women need to be prioritized for those aged 18-45 years, in addition, they need to be equipped with knowledge about reproductive health for pregnant women and girls under 18 years old.

Strengthen communication and education on health, especially direct counseling, integrated with periodical antenatal check-ups to improve knowledge on anemia prevention such as periodical antenatal check-ups, improve economic conditions, balanced diet, and iron supplements.

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