



PREVALANCE OF ANAEMIA AMONGST WOMEN IN THE REPRODUCTIVE AGE GROUP IN A RURAL AREA OF EASTERN NEPAL

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ABSTRACT

Objectives: To determine prevalence of anemia among women of reproductive age group in rural area, Morang District of Eastern Nepal. There is a need to investigate the prevalence of anemia particularly among females in their reproductive age (15-45) years in the magnitude of anemia in the general population. Effects of anemia on mean age and haemoglobin of women of reproductive age group (15-45) years. **Method:** A cross-sectional study of analytical nature was conducted in one village namely Baijnathpur VDC, Morang district of

Eastern Nepal between March-May 2014. A total 1227 women of reproductive age (15-45 years) were clinically examined. Cyanmethmoglobin method was used to examine the level of haemoglobin (Hb). **Results:** The overall prevalence of anemia was 58.7% (720) out of 1227 females. The majority of anemic women were in the category of mild (84%) to moderate (12%) and severe anemia was (4%). The most affected age group was 30-34 years. The study revealed that mean standard deviation age and mean standard deviation haemoglobin in anemic females was less than that of non anemic females 29.30 ± 8.034, 10.336 ± 1.475 and 30.24 ± 8.077, 13.304 ± 3.950 respectively. **Conclusions:** The present study

revealed anemia to be a major health problem among the women of reproductive age group in rural areas, Morang district of Eastern Nepal affecting their health status.

KEYWORDS: Anaemia, Prevalance, Rural Area.

INTRODUCTION

Anaemia is defined as a clinical condition characterized by reduction in haemoglobin concentration of blood below the normal for the age, sex, physiological condition and altitude above the sea level of that person.^[1] Anaemia is worldwide health problem and in developing countries about 2/3 of pregnant women population are affected by this diseases.^[2] Iron deficiency type of anaemia is most prevalent due to nutritional deficiency all over the world.^[3] The prevalence aetiology and degree of severity vary in different populations, it is 35% for non pregnant women and 51% for pregnant women globally and 3-4 times higher in developing countries.^[4] Multi purity poor socio-economical and educational statuses are the principal reason for high prevalence of anaemia in our population.^[5] Present study was conducted to highlight this situation in reproductive age of rural areas, Morang district of Eastern Nepal. Majority of diagnosed anaemic reproductive age women were those who have poor dietary intake.^[6] and educational statuses.

Anaemia has major consequences on human health as well as social and economic development .Anaemia is the world's second leading cause of disability and is responsible for about >115,000 maternal and 591,000 perinatal death globally per year of which three quarters occur in Africa and South East Asia.^[7] Nepal is a developing country and literacy rate is low as compared to many other developing countries.

A substantial proportion of women in developing countries, such as Nepal, enter pregnancy with inadequate iron stores. Women with inadequate stores are at increased risk of developing IDA during pregnancy. Early detection and treatment of sub-clinical ID among non-pregnant women may play a pivotal role in preventing development of IDA during pregnancy.

Iron deficiency anaemia is the most common form of malnutrition in the world and is the eighth leading cause of disease in girls and women in developing countries⁽⁸⁾. Its estimated prevalence in South East Asia is 50-70% ⁽⁹⁻¹⁰⁾. In another study, Iron deficiency and anemia were also most prevalent among pregnant women and young children, with the highest

prevalence in low income countries.^[11] Iron deficiency and anemia during pregnancy are associated with low birth weight preterm delivery and increased prenatal mortality,^[12-14] while severe anaemia is closely related to the risk of mortality, even mild anaemia carries health risks and reduces the capacity to work.^[15]

The supplementation of pregnant women remains the cornerstone policy for reducing anaemia among women of reproductive age for the reason that the demands of childbearing high fertility rates, breastfeeding are associated with under nutrition and maternal depletion,^[16-17] Little progress has been made in reducing iron deficiency anaemia among women in developing countries in spite of the introduction of iron supplementation programmes in many of them. In Indonesia, for example, iron supplementation for pregnant women was started some 10 years ago, but the prevalence of anaemia among pregnant women remains at 63.5%,^[18]

Several studies have also found a negative association between the socioeconomic situation (SES) and anaemia prevalence,^[19-21] Women from poor households are usually found to have higher anaemia prevalence. A poor SES is known to be associated with a number of factors, such as high parity, short birth interval, poor diet both in quantity and quality, lack of health and nutrition awareness and a high rate of infectious disease and parasitic infestations. Since the socioeconomic situation is an important determinant of access to health care, poor people have often limited access to medical attention and preventive measures,^[22] increasing their risk of becoming anaemic.

In India, the prevalence of anaemia among all ages remains very high. The prevalence rate among rural pregnant women is 84.9% with 9.9% having severe anaemia.^[23] Moreover, this is supported by the nutritional foundation of India's study in 7 states (2002-2003) reporting 86% with 9.3% having severe anaemia,^[24] Another study done in Morang District of Nepal and South Western Region of Nepal, the prevalence of anaemia was 67.3% and 54.89% respectively.^[25-26]

The determination of factors that influence the occurrence of anaemia in a population is fundamental for the implementation of control measures. In view of this, our aim is to determine the prevalence of anaemia among ever married women of reproductive ages from the Morang District, Eastern region of Nepal and to explore some factors commonly

associated with anaemia. Socioeconomic differentials are also presented to understand the prevalence of anaemia.

There are many studies on anaemia in pregnancy in Nepal. The prevalence of anaemia was 62.2% out of which 3.6% with severe anaemia showed in a study done in Kathmandu, Nepal,^[27] Another study showed that prevalence of anaemia was 47.2% in Biratnagar, Morang District of Nepal.^[28] Similarly high prevalence (50-60%) of anaemia was noted in the study carried out for Nepal in 1988.^[29]

MATERIALS AND METHODS

A cross sectional study was conducted among women in the reproductive age group (15-45 years) during March-May, 2015 in the rural area sub health post Bajinathpur VDC, associated with District Public Health Office (DPHO) Morang District, Nepal. It is located in the Eastern part of Nepal which is inhabited mainly with lower and middle class people with low income and the majority of the people depends on agriculture and mostly the peoples are illiterate 67% in this village. The data was collected by personal interview using a pre-tested questionnaire and haemoglobin estimation was done using Cyanmethemoglobin Method,^[30] Anaemia status of the study populations was graded according to cut-off points for diagnosis of anaemia. According to INACG., Mild, Moderate And severe were defined as Hb level 9.0-11.9(gm/dl), 7.0-9.0(gm/dl) and <7.0(gm/dl) respectively. Female found to be pregnant during study period were excluded from the study due to different cut-off value of haemoglobin for detecting anaemia among pregnant females. Statistical package for social science (SPSS 20.0) was used for data analysis. Data were presented as mean±SD. Statistical significance was calculated using Chi-square test and p value <0.05 was considered significant.

RESULTS

A total 1227 reproductive age group 15-45 years women were studied. Anemia is one of the most important health problems among women 15-45 years of age in world and specially in developing countries,^[20] In our study, the mean haemoglobin concentration of anaemic women of reproductive age (15-45 years) in rural area of eastern Nepal is found to be 10.336 g/dl with standard deviation 1.47 g/dl. The cumulative distribution of haemoglobin is shown in the Table 1. Demographic characteristics of anemic and non anemic groups are presented in Figure 1. In this study, we found that women of the age group 20-34 years were at high risk of anemia. The prevalence of anemia among women is higher in rural area Morang

District of Eastern Nepal. Data also show that primary educated women are at greater risk of anemia as compared to secondary educated Table 4. Based on concentration of haemoglobin in the blood, anemia is classified into three groups: mild, moderate and severe.

Table-2 Shows the distribution of anemia and its severity as determined by haemoglobin level. Among the anemic patients, when the level of anemia is disasgregated by severity, mild moderate and severe anemia was 84.0%, 12.0% and 4.0% respectively.

When we see the association between grades of anemia with attributes we find that age category is showing not significant association with grades of anemia ($p < 0.340$) univariate analysis shows that <35 years age group of women have more chances to have anemia comparisons to >35 years age group women.

Table 1. Distributions of anaemic and non-anaemic in different age groups

	Age group						Total
	15-20	21-25	26-30	31-35	36-40	41-45	
Anemic	102	172	157	130	81	78	720
	8.3%	14.0%	12.8%	10.6%	6.6%	6.4%	58.7%
Nonanemic	60	121	85	103	81	57	507
	4.9%	9.9%	6.9%	8.4%	6.6%	4.6%	41.3%
Total	162	293	242	233	162	135	1227
	13.2%	23.9%	19.7%	19.0%	13.2%	11.0%	100.0%

P value=0.053

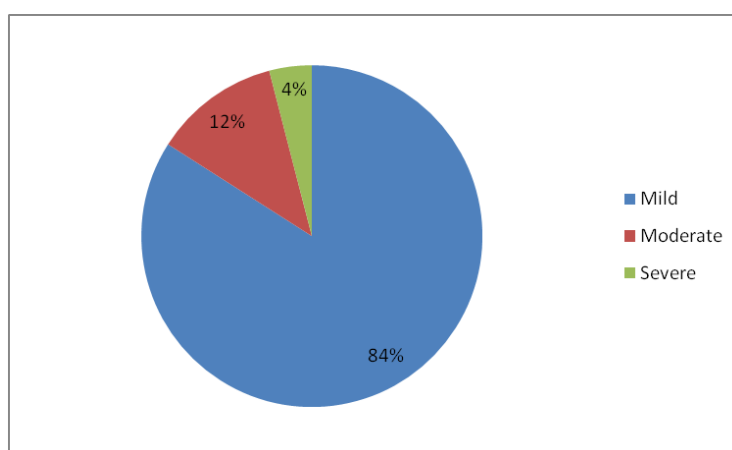


Figure 1. Level of anaemia of study participants

Table2: Prevalence of anemia by age group and severity

Age group	Classification of anemia				Total
	Mild	Moderate	Severe	Normal	
15-19	85	12	5	60	162
	14.0%	14.0%	17.2%	11.8%	13.2%
20-24	146	22	4	121	293
	24.1%	25.6%	13.8%	23.9%	23.9%
25-29	133	18	6	85	242
	22.0%	20.9%	20.7%	16.8%	19.7%
30-34	109	14	7	103	233
	18.0%	16.3%	24.1%	20.3%	19.0%
35-39	69	7	5	81	162
	11.4%	8.1%	17.2%	16.0%	13.2%
40-45	63	13	2	57	135
	10.4%	15.1%	6.9%	11.2%	11.0%
Total	605	86	29	507	1227
	100.0%	100.0%	100.0%	100.0%	100.0%

Chi-Square= 16.649 P-value=0.340

Table3. Comparison of Mean and SD of age and haemoglobin concentration

Anemic		Mean	Std. Deviation
Anemic	Age	29.30	8.034
Non anemic	Age	30.24	8.077
Anemic	Hb	10.336	1.4751
Non anemic	Hb	13.304	3.9507

Table4: Demographic data of study participants

Attributes		No of study participants N=1227(%)	Pvalue
Age	15-20	162	0.000
	21-25	293	
	26-30	242	
	31-35	233	
	36-40	162	
	41-45	135	
Education status	Illiterate	821 (67)	0.000
	primary	271(22)	
	High school	135(11)	
Type of family	Nuclear	764(62.3)	0.000
	Joint	463(37.7)	

DISCUSSION

The prevalence of anaemia in a population is best determined by using a reliable method of measuring haemoglobin concentration.^[31]

Screening for anaemia in pregnancy is useful for a variety of reasons. It may be helpful to collect baseline data on prevalence and severity in a given population and to assess the effects of supplementation with iron tablets, anti-malarial prophylactics, oral anti-helminthic treatment. At primary care level, estimation of haemoglobin can help to decide whether referral is necessary for more detailed investigation and treatment.

In a study on adolescent girls the prevalence of anemia was found to be 59.8%.^[32] In a study on pregnant and lactating women it was found 84% pregnant and 92.2% lactating women were anemic with severe anemia is 9.2 and 7.3 percent respectively.^[33]

In many studies it was found that anemia is a common problem in reproductive age group women because due to low income they are unable to take dietary food, lack of awareness is also a main cause of anemia. Iron deficiency is the most common cause of anemia worldwide. It frequently occurs due to inadequate iron intake, chronic blood loss or disease, malabsorption, or a combination of all these factors.

Further research is recommended to identify the specific risk factors for anemia. It may be helpful to implement measures to improve nutritional knowledge and awareness among mothers and health workers. Finally nutrition education and intervention programs showed address anemia with a focus on both the dietary quantity. All of these interventions must be monitored for effectiveness.^[34]

CONCLUSIONS

The present study revealed anemia to be a major health problem among the women of reproductive age group in rural areas, Morang district of eastern Nepal affecting their health status.

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