

**PREVALENCE OF ANAEMIA AND ASSOCIATED FACTORS AMONG
PREGNANT WOMEN**

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ABSTRACT

Background of the study:

Anemia continues to be a major public health problem in developed and developing countries mutually. It affects 1.62 billion people worldwide, which corresponds to 24.8% of the world population. Global prevalence of anemia in pregnant women is 41.8%, Worldwide, it has been stated that nearly 510,000 maternal mortality arise per year is linked with childbirth or early post-partum. Nearly 20% of maternal death is caused by anemia; among which majority of deaths occurred in third world countries. Therefore, hospital based cross-sectional study was conducted to determine the prevalence and associated factors of anemia in pregnant women.

Materials and Methods

Quantitative approach with explorative survey design was used. The sample of the study was selected by using of Non-probability consecutive sampling technique. Structured

questionnaire was constructed to identify risk factors associated with anaemia which includes reproductive characteristics and nutritional pattern of pregnant women.

Results

In this study overall prevalence of anaemia using a cut off level of haemoglobin <11gm/dl among pregnant women was 73.98%. Out of 111 anaemic pregnant women, 22.66% were having Mild anaemia, 48.66% were having Moderate anaemia and 2.66% were having severely anaemia. Multiple logistic regression analysis revealed that study participants with lack of iron supplement (AOR=3.008, df=95%, CI=1.281- 7.063, p=0.03) and recent History of abortion (AOR=3.973, df=95%, CI=0.305-3.103, p=0.026), consumption of tea/coffee before/after meal (AOR=6.540, df=95%, CI=0.041-1.198, p=0.01) were statistically associated with the anemia.

Conclusion:

The prevalence of anaemia in pregnant women is relatively high. Health care workers should conduct health education promotion programs regarding the cause and prevention of anemia to bring healthy maternal and neonatal outcome.

Keywords : Anaemia, Prevalence, associated factors.

Introduction:

Anemia is a condition with less hemoglobin level than the normal, which reduces oxygen-carrying capacity of red blood cells¹. World Health Organization and Center of Disease Control and Prevention definitions for anemia differ with age, sex and pregnancy status. For pregnant women anaemia is labeled if level of hemoglobin < 11 g/dl^{2,3}

Anemia is recognized as a major public health problem, which affects 32.4 million (38.2%) pregnant women worldwide.^{4,5} Globally, it has been reported that around 510,000 maternal deaths occur per year associated with childbirth or early post-partum. Nearly 20% of maternal mortality is caused by anemia; with majority of deaths occurred in third world countries.⁶

India had the highest prevalence of anaemia in pregnancy and is the home of largest number of anaemic pregnant women in the world.^{7,8} Anemia is the leading cause of morbidity and mortality in pregnant women in developing countries with poor pregnancy outcome⁹, which cause premature births¹⁰, low birth weight,¹¹ fetal cognitive impairment, and death.^{12,13}

The underline causes of anemia during pregnancy in developing countries include nutritional deficiencies of iron, folate, and parasitic diseases, such as malaria and hookworm. The relative influence of each of these factors to anemia fluctuates greatly by geographical location, season, and dietary practices.⁹ Though the government and other stakeholders made efforts to prevent anaemia, it is still a public health problem affecting pregnant women. Since there is limitation of information in the study area, this study was aimed to determine the prevalence and associated factors of anemia in pregnant women.

Materials & Methods

Hospital based cross-sectional study was conducted in selected hospital for the period of one year. The study participants were pregnant women greater than 18 years of age. Total 150 pregnant women were selected with nonprobability Convenience sampling technique. The subjects were explained about the need of the study and informed assent was taken. Data on sociodemographic characteristics of study participants and determinant factors of anemia were collected by structured questionnaire through interview technique.

Statistical Analysis

Data were entered and analyzed using SPSS version 22. Findings were summarized using descriptive statistics. Multi-variate regression tests were employed to measure the strength of association between dependent and independent variables (by calculating AOR). p-value less than 0.05 was considered statistical significant. Chi square was used to identify association of anaemia with demographic variables.

Result

Socio Demographic characteristics presents that mean age of study participants was 24.5 (ranges between 19-30 years), 137 (91.33%) were Hindu, 114 (76%) were belongs to joint family, 52 (34.66%) had secondary education, 104 (69.33%) were housewife, 95 (63.33%) were belongs to poor economic status.

Table: 1 Frequency and percentage distribution of anaemia

Sr.No	Classification of Anaemia	Hb Level	Frequency	Percentage
1	No anaemia	≥ 11	39	26%
2	Mild anaemia	10-10.9	34	22.66%
3	Moderate anaemia	7-9.9	73	48.66%
4	Severe anaemia	≤ 7	4	2.66%

According to WHO classification of anaemia among pregnant women 26% (39) having no anaemia, 22.66 % (34) were having Mild anaemia, 48.66 % (73) were having Moderate anaemia and 2.66 % (4) were having Severe anaemia

Table 2: Risk factors related to clinical & reproductive characteristics

Sr.No	Variables	Category	Anaemia		AOR	p Value
			Yes	No		
1.	Gravidity	Primigravida	49(44.4%)	20(51.28%)	1	
		Secondary Gravida	41(36.93%)	14(35.8%)	1.120	
		Multi gravida	21(18.9%)	05(12.82%)	1.332	
2.	Birth interval	1 year	28(25.22%)	4(23.52%)	0.747	
		2 year	34(30.63%)	5(29.41%)	0.6	
		3 year	22(19.81%)	2(11.76%)	0.3	
		≥4 year	27(24.32%)	6(35.29%)	1	
3.	Trimester	1 st Trimester	20(18.01%)	5(12.81%)	0.510	
		2 nd Trimester	50(45%)	16(41%)	0.854	
		3 rd trimester	41(36.93%)	18(46.15%)	1	
4.	ANC follow up	Yes	28 (24.54%)	7(17.5%)	1	
		No	83(75.45%)	32(82.5%)	1.234	
5.	Any Chronic illness	Yes	16(14.4%)	6(15.38%)	1.110	
		No	95(85.58%)	33(84.61%)	1	
6.	Information about Anaemia	Yes	40(36.36%)	13(35%)	1	
		No	71(63.63%)	26(65%)	0.931	
7.	Contraceptive Methods Use	Copper T	2(1.80%)	2(5.12%)	0.953	
		Condom	23(20.72%)	15(38.4%)	1.973	
		No any	86(77.4%)	22(56.4%)	1	
8.	Iron supplements	Yes	50(50.9%)	27(69.2%)	1	
		No	61(54.95%)	12(30.7%)	3.008	0.03*
9.	Excessive menstrual bleeding	Yes	44(39.63%)	5(12.82%)	0.211	
		No	67(60.36%)	34(87.1%)	1	
10.	Acute Malaria Attack	Yes	8(7.20%)	2(5.12%)	0.777	
		No	103(92.79%)	37(94.87)	1	
11.	Recent History of Abortion	Yes	22(19.81%)	8(20.51%)	3.973	0.026*
		No	89(80.1%)	31(79.48%)	1	

Table 2 revealed that study participants with lack of iron supplement (AOR=3.008, df=95%, CI=1.281- 7.063, p=0.03) and recent History of abortion (AOR=3.973, df=95%, CI=0.305-3.103, p=0.026) were statistically associated with the anemia.

Table 3: Risk factors related to nutritional patterns

Sr No	Variables	Category	Anaemia		AOR	p Value
			Yes	No		
1	Food Habit	Vegetarian	72(64.8%)	23(58.97%)	0.502	
		Non vegetarian	39(35.13%)	16(41.02%)	1	
2	Fruit & vegetables	At Once per day	72(64.8%)	23(58.97%)	1	
		Twice per day	39(35.13%)	16(41.02%)	0.613	
		Not taking	0(0%)	0(0%)	1.725	
3	Take tea/coffee after/before meal	At Once per day	21(18.91%)	4(10.25%)	0.221	
		Twice per day	7(6.30%)	0(0%)	6.549	0.01*
		Not taking	83(74.7%)	35(89.64%)	1	
4	Eat non- nutritive Substance	Yes	28(25.22%)	3(6.69%)	0.676	
		No	83(74.77%)	36(92.30%)	1	
5	Chatting while Eating	Yes	97(87.38%)	14(35.89%)	0.181	
		No	14(12.61%)	25(64.10%)	1	
6	Watching TV while Eating	Yes	95(84.82%)	9(23.68%)	0.092	
		No	17(15.17%)	29(74.35%)	1	

Table 3 shows that consumption of tea/coffee before/after meal (AOR=6.540, df=95%, CI=0.041-1.198, p=0.01) was found statistically significant with the anemia.

Discussion

The present study show a much higher burden of anemia(74%). This was in line with previous studies conducted rural Karnataka with a prevalence of 64%,¹⁴ 72.5% in Belagavi,¹⁵ and 62.3% in Kolar.¹⁶ However, our finding was observed to be lower than other similar studies conducted in DebreBerhan, 9.7%¹⁷, Sudan, 10%,¹⁸ Addis Ababa, 11.6%¹⁹ and Iran, 13.6%²⁰ This disparity could be attributed to a plethora of factors such as variation in the

socio-demographic characteristics, pattern of obstetric variables, medical morbidities, access and utilization of health care services, dietary factors, and even the method of estimation of hemoglobin.

Similar to a report from South western Ethiopia, history of abortion (AOR=3.973, df=95%, CI=0.305-3.103, p=0.026) was significantly associated with anemia.²¹ Our study could not confirm the existence of association between obstetric variables such as gravidity, parity, and history of malarial attack, chronic illness, contraceptive methods use with anemia. However, meta-analysis shows that primigravida women are 61% less likely than multigravida women to develop anemia during pregnancy²² Nevertheless, similar to our study findings, Singh *et al.*²³ did not find any such association with gravidity, whereas Suryanarayana *et al.*¹⁶ could not establish any linkage with parity.

In this study, economic status of family found significantly associated with anemia consistent with other research findings.^{24, 25} Balarajan *et al.*²⁶ also in their analysis of epidemiology of anemia in low and middle-income countries noted a skew in the distribution of anemia in lower income groups.

Conclusion:

This study revealed that the prevalence of anemia among pregnant women was relatively high. History of abortion, lack of iron supplementation, habit of tea/coffee consumption before/after meal were statistical significant associated factors with anemia in this study. Therefore, further large scale longitudinal studies should be done in respect to the importance of regular visit to health centers and health education promotion programs regarding the cause and prevention of anemia among pregnant women by assessing causal related factors for anemia.

Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript.

Source of Funding

Researchers have used own finance to complete research study.

Ethical Clearance

Approval of Institutional Ethics Committee & concerned authority of selected hospital, Vadodara was obtained prior to the conduction of the study. Privacy and confidentiality of collected information were ensured throughout the process.

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