

Analysis of Comorbidities among Pregnant Woman Attending Outpatient Department of Tertiary care Institute

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Abstract

Background: In pregnancy Anaemia and Depression is an important factor associated with an increased risk of maternal, fetal and neonatal mortality, poor pregnancy outcomes, and impaired cognitive development.

Objectives: To assess prevalence and factors associated with anemia & Depression among pregnant women attending antenatal clinic.

Methods: A Facility based cross-sectional study was conducted on 284 pregnant women to at Tertiary Care Institute from June to August 2022. Data on socio-demographic and clinical characteristics of the study participants were collected using a Pretested structured questionnaire by interview and review of medical records. Binary Logistic regression analysis had been used to check for association between dependent and independent variables in all cases. P-value less than 0.05 was considered statistically significant.

Results: The prevalence of anemia was found to be 11.6% (95 % CI; 7.8%-14.8%) and Depression was 8.6% Pregnant women in the second and third trimester [AOR (95% CI), 8.31 (1.24-55.45), and P=0.029] were more likely to be anemic when compared to pregnant women in their first trimester. Pregnant women who did not receive iron/folic acid supplementation [AOR (95%CI), 4.03(1.49 10.92), and P=0.01] were more likely to be anemic when compared to pregnant to women who did take supplementations.

Conclusion: In this study the prevalence of anemia and Depression in pregnancy was low compared to the findings of others. Gestational age (trimester) and iron/folic acid supplementation were statistically associated with anemia.

Keywords: Anemia, Depression, antenatal, Pregnancy, Iron Folic acid supplementation, Prevalence.

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Introduction

The blood's ability to carry oxygen is reduced in anemia. It can happen if the red blood cells' hemoglobin (Hb) concentration or packed cell volume (PCV) falls below

the lower limit of the reference interval for the person's age, gender, location, and physiological status.[1,2] The overall blood volume rises by 1.5 liters during pregnancy.

When compared to red cell mass, plasma volume grows greater, causing hemodilution and a drop in hemoglobin concentration. This is referred to as pregnant physiological anemia.[3,4] The World Health Organization (WHO) has suggested that anemia is present in pregnancy when Hb level is <11g/dl. It also classified anemia in pregnancy as mild (10.0-10.9 g/dl), moderate (7.0- 9.9g/dl), and severe (lower than 7.0g/dl) based on the level of hemoglobin concentration.[5] Public health issues with anemia exist in both industrialized and underdeveloped nations. 1.62 billion individuals, or 24.8% of the world's population, are affected internationally. Pregnant women worldwide experience anemia at a rate of 41.8%, with the greatest rates (57.1%) occurring in Africa.5 Pregnancy depression can have disastrous effects on the mother, the unborn child, and the entire family.[6] Antepartum depressive and anxiety symptoms (ADS and AAS, respectively) can cause postpartum depression[7,8] result in low birth weight and early delivery, and harm a child's development. among order to determine the prevalence of anemia and depression among women visiting ANC clinics, this study was designed.

Material and Methods

Study Design: Facility Based cross sectional study.

Study Settings: Department of Obstetrics and Gynaecology of BMC, Sagar (M.P.)

Study Duration- June to August 2022.

Study Population: Pregnant females attending ANC during the study period.

Sampling Technique: Purposive sampling technique

Sample Size Estimation: The required sample size for this study was calculated

using a single population proportion formula with a 95% CI, 5% margin of error, and assumption that 21.3 % of pregnant women are anemic.[9] Using Formula $4PQ/L^2$ and 10% nonresponse rate the required sample size was 284.

Study Tool: Pretested Questionnaire

Consent Type: Written Informed consent

Ethical Consideration- The study was approved by Institutional Ethics Committee.

Methodology

Interviewer administered structured pretested questionnaire and review of medical records were used to collect data on the sociodemographic characteristics, obstetric and gynecological, diet, and clinical characteristics of the study participants depression and anxiety. The interview and record review were conducted by two trained ANC service provider nurses at ANC clinic. About 4 ml venous blood specimens were taken from each participant in K3-EDTA tubes for the hematological examinations. Automated hematology analyzer Cell-Dyn 1800 (Abbott Laboratories Diagnostics Division, USA) was used to determine complete blood count.

Statistical Analysis

The statistical analysis was performed using SPSS for windows version 25.0 software. The findings were present in number and percentage analyzed by frequency, percent. Chi-square test was used to find the association among variables. The critical value of P indicating the probability of significant difference was taken as <0.05 for comparison.

Results

Table 1: Socio-Demographic Details of the study Participants (N=284)

Parameters	Anemic (n=33)	Depressed (n=24)
Age >=20 years	5	3
20-40 years	23	6
>40 years	5	15
Educational status		
Educated	2	7
Uneducated	31	17
Trimester 1 st	2	6
2 nd	11	6
3 rd	20	12
Blood loss No	32	20
Yes	1	4
IFA supplementation		
No	17	12
Yes	16	12

As per table 1 out of 284 pregnant females, 33 were anemic (11.6%) while 251 were non-anemic. Similarly, 24 (8.6%) were under depression during the time of pregnancy. The most common age group was found to be 20-40 years. Most of the

females were educated. Nearly all came with the problem of blood loss. Iron and Folic acid supplementation was seen in all females of non-anemic but only 5% in anemic. This could be main factor for their low haemoglobin in our study.

Table 2: Prevalence of Anemia and Depression among Pregnant Females

Parameters	Anemic	Depressed	p-value
Age >=20 years	5	3	0.11
20-40 years	23	6	0.001*
>40 years	5	15	0.21
Educational status			
Educated	2	7	0.01*
Uneducated	31	17	0.01*
Trimester 1 st	2	6	0.21
2 nd	11	6	0.11
3 rd	20	12	0.04*
Blood loss No	32	20	0.01*
Yes	1	4	0.55
IFA supplementation			
No	17	12	0.45
Yes	16	12	0.02*

*p<0.05 is considered significant

As per table 2 it was clear the prevalence of anemia is 11.6% and depression was 8.6%. The most common age group to have anemia is 20-40 years and in depression >40 years this can be due to fact that >40 years in nearing the retirement age. This

association was significant. (p<0.05) Most of the pregnant female were anemic and depressed in 3rd trimester. And this association was also significant. (p<0.05) There was nearly no blood loss in females. While IFA supplementation showed drastic

changes. Around 17 females who were anemic and 12 depressed were not taking IFA.

Discussion

The prevalence of anemia in the present study was 11.6% (95 %CI;7.8% 14.8%). This prevalence was almost consistent with studies conducted in Awassa (15.1%), Gondar (16.6%), Debre Berhan (9.7%), Sudan (10%), Iran (13.6%) and Nakhon Sawan, Thailand (14.1%). [10-14] However, our finding is much lower than studies conducted in Pakistan (90.5%), India (87.2%), Malaysia (57.4%), Benin (68.3%), Nigeria (54.5%), Somali Region (56.8%), Walayita Sodo (40%), West Arsi zone (36.6%), and north western zone of Tigray (36.1%). Our result is also lower than results reported from Uganda (22.1%), Southern Ethiopia (29%), Southeast Ethiopia (27.9%) Mekelle (19.7%), and Addis Ababa (21.3%). [15-19] The difference may be due to geographical variation, differences in socioeconomic status, and dietary habits of the study participants. The lower finding of our study also may be due to the governments' effort to achieve Millennium Development Goals (MDGs) since improving maternal health is one of the eight MDGs and targeted to reduce the maternal mortality ratio by three-quarters in 2015. Only the association of gestational age (trimester) and iron/folic acid supplementations did reach to a statistically significance level. Pregnant women in second and third trimester were more likely to be anemic when compared to pregnant women in first trimester. This might be due to the higher maternal plasma volume increments (40–50%) relative to red cell mass (20–30%) and accounts for the fall in hemoglobin concentration. The risk of developing anemia increased in pregnant women who did not receive iron supplementation during pregnancy when compared to those who received iron supplementation. This may be due to iron deficiencies developing during pregnancy because of the increased iron requirements

to supply the expanding blood volume of the mother and the rapidly growing fetus and placenta.

Conclusion

In comparison to studies from other regions of India, this study found that the prevalence of anemia and depression during pregnancy was low (11.62%) and 8.6%, respectively. In this study, statistical correlations between anemia and gestational age (trimester) and iron/folic acid supplementation were found. Therefore, it is suggested that health education be used to raise knowledge about the significance of scheduling antenatal care in advance in order to decrease anemia, and that counseling be provided at each visit in order to lower depression.

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