

## BARRIERS AND ASSOCIATED FACTORS IN PREVENTION OF ANEMIA AMONG WOMEN IN REPRODUCTIVE AGE GROUP-A CROSS SECTIONAL STUDY

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### Abstract

**Background:** Anemia, particularly due to iron deficiency in women is a major public health problem across the globe. Iron deficiency anemia among reproductive-age women is not being properly diagnosed and treated (1). In a survey performed by Health and Nutrition department, found that most of the women are non-compliance with iron supplement. Present study focuses on the barriers and associated factors in prevention of anemia among Reproductive age group. **Materials and Methods:** A cross sectional study was conducted in the field practice area of tertiary care hospital, Tamil Nadu, India. Using purposive sampling about 150 women who visited rural health center of a tertiary care hospital were selected for the study. **Results:** The participants' mean age group was  $26 \pm 4$  years. Total compliance with anemia treatment is only 57%, with the remaining 93% of participants non-compliant. 41% non-pregnant women had non-compliance followed by pregnant women, multi gravida (24.7%), primi gravida (13.9%), and breast-feeding women (19.3%). 15-25 years of age (AOR=1.07; 95% CI; 0.96-1.26), married women (AOR=1.23; 95% CI; 1.08-1.41), multiple pregnancy, low socio-economic status (AOR=2.17; 95% CI; 1.14-3.94), and illiteracy (AOR=0.92; CI; 0.79-1.07) was positively associated with non-adherence to anemia treatment (AOR=1.42; 95% CI ;1.16-1.65). **Conclusion:** Present study showed that there is noncompliance with treatment of iron deficiency anemia among women in the Reproductive Age Group. The government should undertake steps such as economic empowerment, increased awareness of anemia, and make supplements freely accessible, and health education through an integrated multifactorial and multi-sectorial strategy.

## INTRODUCTION

Anemia, particularly due to iron deficiency in women is a major public health problem across the globe. Iron deficiency anemia among reproductive-age women is not being properly diagnosed and treated.<sup>[1]</sup> This is a serious problem, since it can cause infertility and miscarriages. It also has a significant impact on reproductive women health, as iron is crucial for the production of hemoglobin in the body, which carries oxygen to cells.<sup>[2]</sup> According to NFHS -4 (2020), 54.4% in India and 56.9% in Tamil Nadu women of reproductive age group are found to be anaemic.<sup>[3]</sup> Iron deficiency anemia affects about one in four women of childbearing age, according to the World Health Organization

(WHO).<sup>[4]</sup> It's more prevalent among low-income women who don't have access to prenatal care or other health services. The WHO estimates that about 1.7 billion women worldwide are at risk for iron deficiency anemia—and that it has caused between 20 million and 50 million deaths.<sup>[5]</sup> Despite efforts and measures to rectify this problem, it is frequently stated that this vulnerable group does not take them. Poor compliance is caused not only by patient behavior, but also by factors outside the patient's control. In a survey performed by Health and Nutrition department, found that determinants of non-compliance with iron supplementation are inadequate program support (lack of political commitment and financial support). Insufficient service delivery (poor provider – user dynamics,

Patient factors (misunderstanding instruction, side effects, frustration about the frequency and number of pills taken, migration, personal problems, nausea, constipation, etc).<sup>[6]</sup> The IFA intervention appears to be ineffective in reducing the burden of IDA in India (nationally only 30.3 % of mothers consumed IFA for 100 days or more when they were pregnant), probably due to irregular consumption of IFA where the provision of screening under the National Iron+ Initiative scheme appears to be unsuccessful. To strengthen the IFA intervention and its uptake, a concerted effort of community-level health workers (accredited social health activists, auxiliary nurse midwives and anganwadi workers) is urgently needed.<sup>[7]</sup> Previous study done in Tamil Nadu shows that diet pattern, multiple pregnancy, birth spacing was contributing factors for anemia.<sup>[8]</sup> Current study focuses on the barriers and associated factors in prevention of anemia.

## MATERIALS AND METHODS

### Study Design & Setting

A cross sectional study was conducted in the field practice area of tertiary care hospital, Tamil Nadu, India, in the period of July 2022 to September 2022. Ethical clearance was obtained from the host institution.

### Participants

Women in the age group of 15-49 years, with previous history of iron deficiency anemia haemoglobin less than 11.9gm% duly verified with medical records and those who gave consent to participate in the study were included.

Women with other form of anemia like: megaloblastic anemia, sickle cell anemia, thalassemia, aplastic anemia, hemolytic anemia. etc. Patients with severe complications (extreme fatigue, pregnancy complications, heart problems like

arrhythmias) of anemia were excluded from the study.

### Sampling Method

Purposive sampling was done to select the participants, about 150 women who visited rural health center of a tertiary care hospital and who met the inclusion criteria were interviewed.

### Study Tool

All the participants were interviewed using a semi-structured questionnaire. A pilot study was carried out with 30 participants. The questionnaire includes following sections.

The first section consists of questions regarding participants' demographic characteristics such as age, religion, socioeconomic status, etc.

The second section has questions regarding obstetric history, and past history of the participant.

The third section has questions regarding barriers and facilitators for taking treatment, these questions were taken from the previous article (1) (2) and validated.

### Data Collection

Data was collected through interview schedule, women's who visited the rural health centre of a tertiary care hospital, were enquired about their anemia status and screened using sahli's haemoglobin estimation method to confirm their blood haemoglobin levels and question was asked about their socio demographic profile, obstetrics and gynaecology history and barriers for not following treatment regularly, health education was given at the end of the interview.

### Data Analysis

Quantitative data analysis was performed using SPSS where quantitative variables were measured as means and SD, and qualitative variables were measured as a percentage. To measure the associated factors chi-square test, adjusted odds ratio (AOR) was calculated. A p-value of 0.05 was considered as significant with a 95% confidence interval.

## RESULTS

**Table 1: General Characteristic of study participants**

Characteristics	N (%)
<b>Age</b>	
15-25	46 (30.6%)
26-35	52 (34.6%)
36-45	25 (16.6%)
>45	27 (18%)
<b>Marrital status</b>	
Married	126 (84%)
Unmarried	5 (3.3%)
Widow	10 (6.6%)
Separated/divorced	9 (6%)
<b>Religion</b>	
Hindu	96 (64%)
Christian	41 (27.3%)
Muslim	13 (8.6%)
<b>Education</b>	
Illiterate	24 (16%)
Primary school	31 (20.6%)
Middle school	67 (44.6%)
Secondary school	15 (10%)

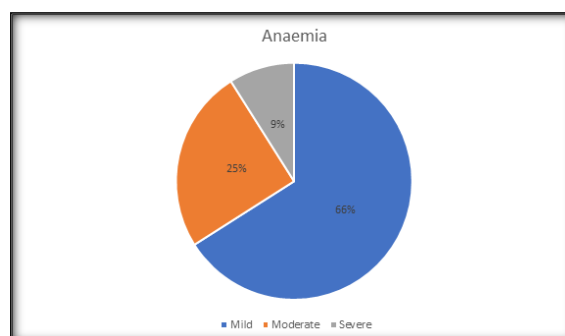
Graduate	13 (8.6%)
<b>Socio economic status</b>	
Upper class	5 (3.3%)
Upper middle class	26 (17.3%)
Middle class	27 (18%)
Lower middle class	43 (28.6%)
Lower class	49 (32.6%)
<b>Diet</b>	
Vegetarian	32 (21.3%)
Non vegetarian	118 (78.6%)
<b>Pregnancy status</b>	
Pregnant women	57 (38.1%)
Breastfeeding women	28 (18.6%)
Non pregnant/non breastfeeding women	65 (43.3%)

The participants' mean age group was  $26 \pm 4$  years, the majority of them were married (84%), the majority of them adhere to the Hindu faith (64%), finished at least middle school education, and the majority of them are from the lower class (49%). The majority of individuals (78.6%) follow a non-vegetarian diet. Around 43.3% of reproductive women were non pregnant, 38.1% were pregnant, and 18.6% were breastfeeding (Table-1).

**Table 2: Distribution of compliance and non-compliance among women participants**

Participants	Compliance (n=57)	Non-compliance (n=93)	Total (n=150)
<b>Pregnancy status</b>			
Primi gravida (<2)	14 (24.5%)	13 (13.9%)	27 (18%)
Multi gravida ( $\geq 2$ )	7 (12.2%)	23 (24.7%)	30 (20.1%)
Breast feeding women	10 (35.7%)	18 (19.3%)	28 (18.6%)
Non pregnant women/Not Breast feeding	26 (40.1%)	39 (41%)	65 (43.3%)

Table 2 shows that total compliance with anemia treatment is only 57%, with the remaining 93% of participants non-compliant. Among them 41% non-pregnant women had non-compliance followed by pregnant women, multi gravida (24.7%), primi gravida (13.9%), and breast-feeding women (19.3%).



**Figure 1: Grades of anemia among study population**

Figure 1 depicts the severity of anemia. The majority of the 150 anemic participants had mild (66%) and moderate anemia (25%). Around 9% of them had severe anemia.

**Table 3: Barriers in taking treatment among non-compliance participants**

Barriers	Non-Compliance (N=93)
Alternative recommendation by family and friends	21 (22.5%)
Do not feel the need of taking tablets (asymptomatic)	11 (11.8%)
Forgetfulness	15 (16.1%)
Lack of supplies in health care	4 (4.3%)
Long duration of treatment	13 (13.9%)
Due to side effects (nausea, vomiting, metallic taste, constipation)	19 (20.4%)
Religious and cultural belief	2 (2.1%)
Others	8 (8.6%)

Table 3 shows, barriers encountered by participants in prevention of iron deficiency anemia, most of them reported that they receive alternative recommendation by family and friends to reduce anemia naturally (22.5%) and majority of them not taking regular treatment due to tablet side effects (20.4%). Around (16.1%) forgot to take medicine regularly. Some of the participants are asymptomatic so they don't feel to take tablet (11.8%). Very few had reported unavailability of the medicine in health care (4.3%) and due to other reasons (8.6%).

**Table 3: Facilitators of treatment adherence among compliance participants**

Facilitators	Compliance N=57
Health care Access	26 (45.6%)
Family Support	18 (31.6%)
Adequate knowledge	13 (22.8%)

Table 3 lists the facilitators of anemia treatment within the compliance group. The majority of participants (45.6%) reported that the availability of health care locally influences their compliance, as does proper support from family members (31.6%), and about 22.8% had adequate awareness of anemia and its problems.

**Table 4: Factors associated with non-compliance of anemia among reproductive women**

Factors	AOR (95%)	P-value
Age		
15-25	1	
26-35	1.07 (0.92-1.26)	<0.001
36-45	0.93 (0.72-1.15)	
>45	0.94 (0.75-1.18)	
Education		
Illiterate	1	
Primary school	0.92 (0.79-1.07)	<0.001
Secondary & above	0.78 (0.64-0.96)	
Marital Status		
Unmarried	1	
Married	1.23 (1.08-1.41)	<0.001
Socio economic status		
Upper class	1	
Upper middle class	0.88 (0.56-1.43)	
Middle class	0.97 (0.71-1.31)	
Lower middle class	1.47 (0.67-3.43)	
Lower class	2.17 (1.14-3.94)	<0.001
Pregnancy		
Non pregnant	1	
Primi gravida	1.08 (0.93-1.26)	
Multi gravida	1.43 (1.23-1.71)	<0.001

Table 3 shows, odds of developing non-compliance of anemia among reproductive age women are in the age group of 26-35 are 1.07 times than other age groups (AOR=1.07; 95% CI; 0.96-1.26). The odds of developing non-compliance among reproductive women who were married are 1.2 times that of Unmarried women (AOR=1.23; 95% CI; 1.08-1.41). Reproductive women who are educated are less likely to have non-compliance when compared to illiterate women (AOR=0.92; CI; 0.79-1.07) & (AOR= 0.78; CI; 0.64-0.96). Reproductive women who belong to lower middle and lower class are 1.4 and 2.17 risk of developing non-compliance (AOR=1.47; 95% CI; 0.67-3.43) and (AOR=2.17; 95% CI; 1.14-3.94). Odds of developing non-compliance among multi gravida women are 1.4 times than primigravida women (AOR=1.42; 95% CI ;1.16-1.65).

## DISCUSSION

The prevalence of anaemia among reproductive age women (15-49yrs) was 57% according to NFHS-V data.<sup>[3]</sup> In our study we found that mild anaemia is 66%. moderate is 25% and severe anaemia is 9%. The age group between 15-25 years shows 52%, 26-35 years shows 46% of iron deficiency and formed largest proportion of this study. Severe anaemia in the child bearing population may lead to an increased need for iron during pregnancy, lactation, and other periods of growth development. In our study 126 of the married women is having 84% iron deficiency anaemia this severity of anaemia may reflect that these women lack support from their families, predisposing to economic hardship, poverty, malnutrition and limited access to health services. About 32.6% of the people had poor socioeconomic level, which shows that lack of insufficient income for an adequate and health diet. Same is reflected in the other studies of people in

Sudan 2020 and Rwanda 2019. However, in our study anaemia is very high in non-vegetarians this may be due to infrequent eating of red meat or due to poor socio economic status and lack of knowledge. Similar results are shown in the study conducted in the Thailand 2020<sup>(11)</sup>.

In our study illiterate people shows 44.6% of iron deficiency anaemia this is due to lack of knowledge, awareness, no motivation, and forgetfulness. Similar results were found in a study conducted by Rushali et al.<sup>[12]</sup>

Numerous studies have shown that elements including education, age at marriage, socioeconomic level, lack of awareness, uneven spacing between babies, and a history of anaemia before pregnancy can all have an impact were important factors that affected anaemia.<sup>[9]</sup> Another study on the impact of knowledge and attitudes on anaemia in South India discovered that misunderstandings about oral iron intake and a lack of health care provider counselling

were important predictors of anaemia in women living in rural areas.

The focus is mostly on nutritional counselling during pregnancy, as shown by a research in Delhi's slums, which found that, despite pregnant women having frequent prenatal appointments, nutritional counselling was inadequate for them.<sup>[13]</sup> Despite receiving appropriate prenatal care, they reported an 85% anemia prevalence in their study. our study revealed that half of the women participants including (pregnancy and breast feeding women) about 57.7% of them had anemia.

In our study forgetfulness for taking iron consumption is around 49.4%. similar results found in the study conducted in puducherry in 2016.<sup>[9]</sup>

### Limitation

The limitation of this study was that the findings are based on the questionnaire. Study may be subjected to recall bias. In depth interview and FGD are needed to get insight into the problem.

## CONCLUSION

Anemia was considered as major public health concern, present study showed that there is noncompliance with treatment of iron deficiency anemia among women in the Reproductive Age Group. Illiteracy, more than 2 pregnancy, low socio economic status are factors affecting adherence to the treatment. Alternate recommendation from others, forgetfulness, side effects are some of the common reasons for non-compliance. The government should undertake steps such as economic empowerment, increased awareness of anemia, and make supplements freely accessible, and health education through an integrated multifactorial and multi-sectorial strategy.

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