

## Knowledge, Attitude and Practices of Antenatal Women towards Iron-Folic Acid and Calcium Supplementation at a Tertiary-care Hospital in Jaipur

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**Abstract:** The purpose of the study was to assess the knowledge, attitude and practices of pregnant women towards iron and calcium supplementation. This questionnaire based cross-sectional study was carried out in 500 pregnant women at the Department of Obstetrics and Gynaecology, S.M.S Medical College, Jaipur. In the study, the awareness about iron and calcium supplementation was 91.2% and 89.8% respectively. Only 9.4% women had knowledge about factors that affected iron and calcium absorption. More public awareness needs to be created about importance of iron and calcium.

**Keywords:** Anaemia, Iron-folic Acid, Calcium, Compliance.

### INTRODUCTION

Iron Deficiency Anaemia remains a major cause of concern, causing 20% of maternal deaths directly and contributing to 50% of the same. It increases the incidence of maternal infection, the severity of antepartum and postpartum haemorrhage, requirement of blood transfusion and heart failure. 100mg of iron with 500µg of folic acid is given free of cost to pregnant women free of cost under the National Nutritional Anaemia Prophylaxis Programme on their antenatal visits. According to the National Family Health Survey 2015-16 [1], 50.3% pregnant women in India were anaemic. Around 51.2% women took atleast 4 antenatal visits but only 30.3% consumed 100 iron and folic acid tablets in their antenatal period. This shows that there is poor compliance at community level.

The developing fetal skeletal system increases the maternal calcium requirement especially during first trimester[2]. There is active transport of calcium across placenta. Frequent childbearing makes the women calcium deficient and susceptible to osteomalacia and later on osteoporosis, contributing to significant morbidity. Calcium deficiency in the mother is associated with its deficiency in the breast milk as well. Calcium and Vitamin D deficiency are also associated with increased incidence of preeclampsia and other adverse perinatal outcomes. The Indian government provides 1000mg of calcium per day to antenatal women. Despite all the measures, there is poor compliance to iron and calcium supplementation. There is lacuna at the community level about the awareness regarding these medications.

The main aim of our study was to assess the knowledge, attitude and practices of pregnant women towards iron and calcium supplementation and assess

the cause of non-compliance so that steps can be taken for better utilisation of resources.

### MATERIALS AND METHODS

This questionnaire-based cross-sectional study was conducted among antenatal women attending the outpatient department at a tertiary-care government hospital attached to S.M.S. Medical College, Jaipur between June 2017 to December 2017. All women were given Iron Folic Acid and Calcium tablets free of cost as a part of government schemes. Pregnant women attending the outpatient department who consented to be a part of this study were included. The study was conducted among 500 antenatal patients who were enrolled in the study through a convenient sample. The results were analysed using SPSS programme, Version 16.

RESULTS

**Table-1: Sociodemographic distribution of study population**

Sociodemographic Characteristics	Number of pregnant women	Percentage
Age (in years)		
18-21	145	29
21-30	203	40.6
30-35	97	19.4
>35	55	11
Address		
Rural	206	41.2
Urban	294	58.8
Educational		
Illiterate	52	10.4
Primary	114	22.8
Secondary	198	39.6
Graduate	104	20.8
Post graduate	32	6.4
Total	500	100

Table 1 shows the socio-demographic characteristics of the study population. Majority of women (40.6%) belonged to 21-30 years age group. 42.2% pregnant women belonged to rural areas. 39.6%

women had attended secondary school, 10.4% were illiterate, 20.8% were graduate and only 6.4% were postgraduate.

**Table-2: Distribution of subjects according to knowledge about iron supplementation**

Knowledge parameter	Number of pregnant women	Percentage
Knowledge about Iron Supplementation	456	91.2
Knowledge about importance of iron supplementation	399	79.8
Ready to attend seminar about iron supplementation	192	38.4
Ready to take iron despite side effects	219	43.8

(Participants could choose more than one answer)

Out of 500 pregnant women, 426 (85.2%) knew that iron supplementation is required during pregnancy. 399 (79.8%) knew the importance of iron supplementation in pregnancy. However, only 38.4%

women were ready to attend a seminar about iron supplementation. When they were explained the side effects of iron only 43.8% were ready to take it (Table 2).

**Table-3: Distribution of subjects according to compliance to iron**

Compliance with Iron	Number of pregnant women	Percentage
Never	128	25.6
Partially	292	58.4
Strictly	80	16

58.4 % women were partially compliant to iron tablets and 16% were strictly compliant. 25.6% women

accepted that they had never consumed iron supplementation given to them. (Table 3)

**Table-4: Distribution of subjects according to cause of non-compliance to iron**

Factor	Frequency	Percentage
Non-availability	22	4.4
Constipation	79	15.8
Diarrhoea	4	0.8
Nausea	75	15
Vomiting	38	7.6
Heartburn	24	4.8
Abdominal pain	61	12.2
Headache	14	2.8
Unusual taste in mouth	53	10.6
Forget	83	16.6
Ignorance	24	4.8
First Visit	23	4.6

Table 4 depicts the reason for non-compliance to iron. 16.6% women attributed to forgetting to take medication 15.8% to constipation, 15% to nausea and

12.2% to abdominal pain. Unusual taste in mouth (10.6%) and vomiting (7.6%) were other important factors.

**Table-5: Distribution of subjects according to knowledge about calcium supplementation**

Knowledge parameter	Number of pregnant women	Percentage
Knowledge about Calcium Supplementation	449	89.8
Knowledge about importance of Calcium supplementation	348	69.6
Ready to attend seminar about Calcium supplementation	182	36.4
Ready to take Calcium despite side effects	278	55.6

81.4% women had knowledge about calcium supplementation in pregnancy, 69.6% knew about the importance of calcium supplementation. 36.4% of them

were ready to attend a seminar about calcium supplementation and 55.6% were ready to take calcium despite side effects. (Table 5)

**Table-6: Distribution of subjects on basis of compliance to calcium**

Compliance with Calcium	Number of pregnant women	Percentage
Never	164	32.8
Partially	287	57.4
Strictly	49	9.8

57.4% women were partially compliant to calcium. 9.8% were strictly compliant and 32.4% never took calcium in their pregnancy (Table 6).

The most important factor in non-compliance to iron was forgetting to take the medication. 15.8% women stopped intake due to constipation, 13.8% due to nausea, 14% due to abdominal pain, 8.4% due to flatulence, and 7.6% due to dyspepsia (Table 7).

**Table-7: Distribution of subjects according to cause of non-compliance to calcium**

Factor	Frequency	Percentage
Non-availability	22	4.4
Constipation	79	15.8
Diarrhoea	6	1.2
Nausea	69	13.8
Flatulence	42	8.4
Dyspepsia	38	7.6
Stomach pain	70	14
Rash	15	3
Urticaria	9	1.8
Forget	99	19.8
Ignorance	28	5.6
First Visit	23	4.6

**Table-8: Distribution of subjects according to intake pattern**

Attitude with Iron Calcium	Number	Percentage
Women compliant with schedule	242	48.5
Women taking iron and Calcium together	200	40
Women taking iron and calcium full stomach	390	78

(Participants could choose more than one option)

48.5% of our study population was compliant with schedule of iron and calcium. However, 40%

women were taking iron and calcium together. 78% women took iron and calcium full stomach.

**Table-9: Distribution according to knowledge about factors affecting absorption of iron and calcium**

Knowledge about factors affecting iron and calcium absorption	Number	Percentage
Yes	47	9.4
No	453	90.6

Only 9.4% women had knowledge about factors that affected iron and calcium absorption like full stomach, caffeine, Vitamin c and that calcium and iron inhibited each other's absorption when given together. (Table 9)

## DISCUSSION

In our study, 58.2% women were partially compliant to iron supplementation while 16% were strictly compliant to iron. This was more than the national average of 30.3% women who consumed iron and folic acid tablets [1]. Similar results were obtained in studies by Mithra *et al.* [3] and Venkatramana [4] at al where the compliance was 64.7% and 63.14% respectively.

The knowledge about iron supplementation was 91.2% but only 69.6% knew about the importance of iron supplementation. More so, very few women were ready to attend a seminar about iron supplementation. Studies carried out at Kasturba Medical College [3], Suez Canal University in Egypt [5] and Kumaon district in Uttarakhand [6] also showed that knowledge of pregnant women about iron supplementation was poor. In our study we can infer that the attitude of the women towards attaining more knowledge about iron was negative. Very few women were ready to take iron when they were explained the side effects which might occur.

The most common cause of noncompliance was forgetting (16.6%) to take medication followed by constipation (15.8%). 40% of the study population was taking iron and calcium together and 78% took them full stomach. A large majority of the pregnant women were consuming the medication incorrectly. Similar results were obtained by Venkataramana *et al.* where forgetfulness in 37.20%, side effects in 27.13%, frustration with daily dose 17.82%, ignorance 16.27 were the main reasons. In his study, only 55.65% were taking iron correctly.

The knowledge about factors which affected absorption of iron was poor (9.4%). Yadav *et al.* [7] in their study of pregnant women in Karnataka also concluded that the knowledge about factors that increased iron absorption such as citrus fruits, liver and meat was low. Similar results were also found by Nivedita *et al.* [8] in a study conducted at Puducherry.

In our study, 89.8% women were aware about calcium supplementation, 57.4 were partially compliant and 9.8% were strictly compliant. These results were better than the study in Chattisgarh [9] where 64% women knew about calcium supplementation and 64% took calcium tablets. This is because of difference in educational status in these states. The reasons for non-compliance were similar in both the studies.

## CONCLUSION

Most of the pregnant women were aware about iron and calcium supplementation in pregnancy but the awareness about their importance and factors that affected their absorption was poor. The compliance among the study population was also low. Forgetfulness, constipation and abdominal pain were the main factors that led to poor compliance. There is a need for more public health awareness measures to improve the knowledge of the masses.

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