

# Consumption of Iron and Folic Acid tablets during Pregnancy among Postnatal mothers in a Tertiary care Hospital in Vadodara, India

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## ABSTRACT

### Background

National Family Health Survey – 4 data show that 50% of pregnant women in India are affected by anemia. Anemia Mukht Bharat- Intensified Iron plus Initiatives fosters newer strategies for tackling anaemia including anaemia during pregnancy.

### Objectives

To assess the adequacy of consumption of Iron and Folic Acid tablets during pregnancy under intensified iron plus initiatives and its associated factors among postnatal mothers.

### Material and Methods

At Sir SayajiRao General Hospital in Vadodara, 170 postnatal mothers were interviewed during September to October 2019 and data was collected on their socio-demographic, pregnancy and antenatal check-up characteristics and tablets taken during pregnancy in appropriate doses for a number of days. The consumption of Iron and Folic Acid tablets in appropriate doses for 150 to 180 days was taken as fair to adequate consumption

### Results

Around 60% of women had consumed less than 150 days of Iron and Folic Acid tablets. There was a statistically significant association between women who were referred and had inadequate iron and folic acid tablets consumption.

### Conclusion

Fair to adequate consumption of Iron and Folic Acid tablets during pregnancy tends to be very low. Proper attention is required to the referral cases.

**Key Words:** Iron deficiency Anaemia, Intensified Iron Plus Initiatives, Iron and Folic Acid tablets consumption

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## INTRODUCTION

Anemia during pregnancy remains a global challenge especially in middle- and low-income countries. According to WHO estimate, in 2019 global prevalence of anemia among pregnant women is 36.5%.<sup>1</sup> Iron deficiency is regarded to be the most prevalent cause of anemia worldwide and it accounts for more than half of anemia occurrences during pregnancy.<sup>2</sup> Anemia during pregnancy adversely affects maternal and perinatal outcomes.<sup>3</sup> The World Health Organization (WHO) emphasizes the importance of proper nutrition during pregnancy for a positive pregnancy experience. The WHO specifically endorses inclusion of certain micronutrients supplements for a basic antenatal care services in addition to a nutritious diet and nutritional education and recommends 30-60 mg of elemental iron and 400 mcg of folic acid daily atleast 180 days during pregnancy period.<sup>4</sup> In alignment with WHO guidelines prophylactic IFA supplementation is provided to all pregnant mothers in India as a part of the basic ANC package under National Health Mission (NHM). Government of India has been addressing the problem of anemia through National Anemia Control Program and later on adopting National Iron plus initiatives using life cycle approach in 2013.<sup>5</sup> However, National Family Health Survey – 4 data shows that 50% of pregnant women in India are Anemic.<sup>6</sup> Anaemia Mukh Bharat, under intensified iron plus initiatives, aims to strengthen existing mechanisms and foster newer strategies for tackling anaemia, including anaemia during pregnancy, both by preventive and therapeutic measures, and recommends a minimum of 180 days, instead of the previous strategy of a minimum of 100 days of daily prophylactic supplementation of iron and folic acid tablets to pregnant and lactating mothers. Daily, 1 Iron and Folic Acid tablet, each tablet containing 60 mg of elemental iron and 500 mcg folic acid starting from the fourth month of pregnancy that is from the second trimester, continued throughout pregnancy for a minimum 180 days during pregnancy and to be continued for 180 days, postpartum.<sup>7</sup> This study aims to assess the adequacy of iron and folic acid tablet intake among postnatal mothers during pregnancy, aligning with the guidelines of this newer strategy. It seeks to uncover factors that may influence adherence to these recommendations, highlighting possible areas of improvement in addressing anemia during pregnancy on a broader scale.

## Material and Methods

A cross sectional study was conducted at Sir Sayaji Rao General Hospital Vadodara among post-natal mothers. A total of 170 post-natal mothers were interviewed from September 2019 to November 2019 and data was collected on their socio-demographic characteristics and tablets taken during pregnancy with appropriate doses for a number of days. The consumption of Iron and Folic acid tablets for minimum 180 days during pregnancy was considered adequate in accordance with the operational guidelines of Anaemia Mukh Bharat. For the present study intake of Iron and folic acid for 150 to 180 days in appropriate doses were taken as fair to adequate consumption. Overall fair to adequate consumption of IFA was taken as 52% from pilot study and sample size was calculated using standard formula for cross sectional studies,  $n = Z^2 p (1 - p) / d^2$ . With 15% of relative error of prevalence of 52% of fair to adequate iron and folic acid tablets consumption at 95% of confidence level, minimum sample size calculated was 164. Women who delivered in the hospital from the start of the study were interviewed till the desired sample size was achieved after obtaining written consent from them. Women who received parenteral iron therapy and who were admitted in ICU were excluded from the study. The folic acid tablets consumed for a number of days during the first trimester of pregnancy was excluded from calculation of adequacy of consumption. Data was collected through structured interview schedules using epi collect 5 in mobile devices. Data was analysed using excel and Epi Info™ software. Socio demographic characteristics were presented as percentage/proportions and to reveal association between some variables chi-square test/fisher exact test was used.

## Results

Socio-demographic characteristics of the participants are as follows as shown in Table 1. Mean age 24.9 ( $\pm$  4.55 SD) years. Among 170 participants, more than 70% participants were having first or second gravida, 37% and 39% respectively. Around 44% participants were illiterate and more than 75% were falling either middle class or below it according to the modified Prasad classification 2019. 57% participants were from rural areas. Majority of them were Hindus (Around 90%).

**Table-1 Socio demographic, Pregnancy and Antenatal checkup characteristics of participants (N=170)**

Characteristic	Variables	Frequency	Percentage
Age (in years)	18-24	91	53.53
	25-30	70	41.18
	31-35	8	4.70
	36 and above	1	0.59
Religion	Hindu	154	90.59
	Muslim	16	9.41
Education	Illiterate	74	43.53
	Primary	33	19.41
	Secondary	38	22.35
	Higher secondary and above	25	14.71
Socio-economic class	Upper class	15	8.82
	Upper middle class	23	13.53
	Middle class	65	38.24
	Lower middle class	52	30.59
	Lower class	15	8.82
Pregnancy	Primigravida	63	37.06
	Second gravida	67	39.41
	Third or more gravida	40	23.53
Residence	Rural	97	57.06
	Urban	73	42.94
First ANC check up	First trimester	129	75.88
	Second trimester	31	18.23
	Third trimester	8	4.71
	No check up	2	1.18
Anemia on first ANC check up	< 11g/dl	91	53.53
	> 11g/dl	79	46.47
Number of ANC check up During pregnancy	No check up	2	1.18
	One check up	11	6.47
	Two check ups	21	12.35
	Three check ups	92	54.12
	Four or more check ups	44	25.88

As mentioned in Table-1, 76% had their first ANC check up in the first trimester and around 80% went for three or more ANC checkup during pregnancy. 53% of women were anemic at their first antenatal checkup. Two women had not gone for an antenatal checkup anywhere. 55% of women had three

antenatal checkups and 25% women had undergone four or more antenatal checkups. Around 60% of women had consumed less than 150 days of iron and folic acid tablets. 2% of women had not taken a single tablet as reflected in Table-2.

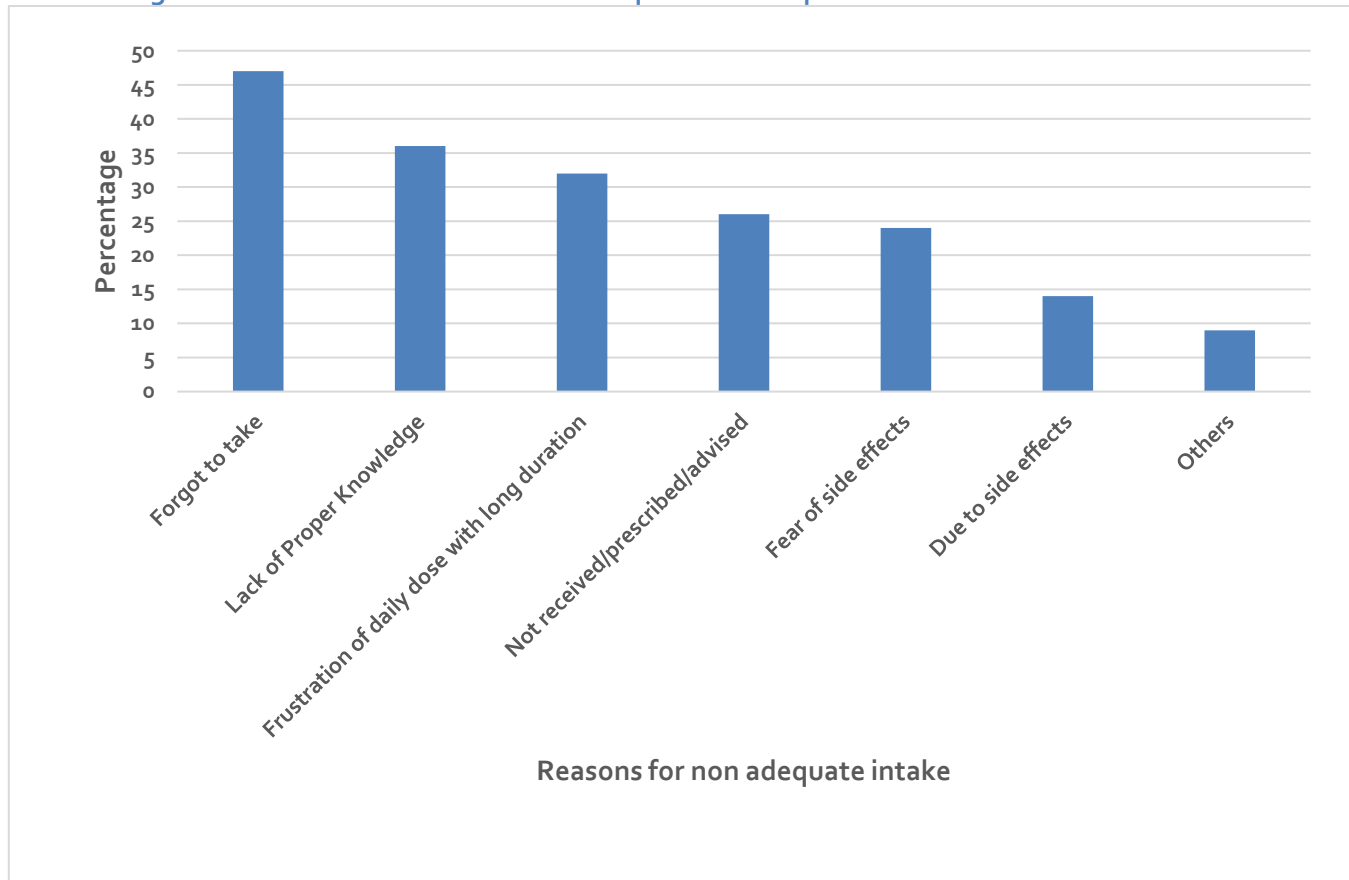
**Table-2 Association of some of the factors with adequacy of consumption of iron and folic acid tablets (N=170)**

Factors	Variables	150-180 days (n=69), n (%)	<150 days (n=101), n (%)	Chi square value	P value
Age in years	18-24	36 (21.18)	55 (32.35)	0.085	p=0.769
	25 and above	33 (19.41)	46 (27.06)		
Residence	Rural	41 (24.12)	56 (32.94)	0.264	p=0.607
	Urban	28 (16.47)	45 (26.47)		
Gravida	Primigravida	24 (14.12)	39 (22.94)	0.258	p=0.612
	Second and above	45 (26.47)	62 (36.47)		
Education	Illiterate	25 (14.71)	49 (28.82)	2.516	p=0.113
	Primary and above	44 (25.88)	52 (30.59)		
Referral	Referred	21 (12.35)	57 (33.53)	11.16	p=0.00084*
	Non referred	48 (28.24)	44 (25.88)		
Anaemic on first ANC check up	Anaemic(<11g/dl)	33 (19.41)	58 (34.12)	1.518	p=0.217
	Non anaemic	36 (21.18)	43 (25.29)		
Socio-economic class	Middle class and above	39 (22.94)	64 (37.65)	0.804	P=0.369
	Lower middle and lower class	30 (17.65)	37 (21.76)		

Chi square value is significant at  $p < 0.05$  for the referral cases and non referred cases at 95% confidence level. Chi square test was not significant for other variables such as age, residence, gravida, education, anemia status or socio-economic status as shown in table 2. 47% of respondents mentioned they forgot to take pills many times. 36% respondents said they were not aware of the duration or quantity of taking tablets. Around 30% of

respondents said they avoided medicines out of frustration. 26% participants mentioned they have not received or prescribed or advised about medicines. 23% participants missed it due to fear of side effects and 14% not taken doses after side effects. Around 10% participants gave no reason or other reasons like overall hesitancy for medicines, medicines will not work, not felt sick so did not take.

Figure-1 Reasons which lead to non adequate consumption of Iron and Folic acid tablets



## DISCUSSION

Among women interviewed, half of them found to be anaemic while their first Antenatal check-up, this prevalence in our study is in concordance with National Health and Family welfare survey statistics reflecting significant burden of anaemia during pregnancy.<sup>8</sup> However, none of them found consumed adequate iron and folic acid tablets during pregnancy as per newer recommendations of intensified national iron plus initiatives of Anemia Mukht Bharat. Adequacy of intake is operationally been defined for present study, as to assess adequacy close to adequate consumption, only 40% had intake of Iron and Folic acid tablets between 150 to 180 days. Very few studies had been conducted to assess adequacy of iron folic acid tablets for minimum recommended level during the entire pregnancy period. In Philippine analysis of Demography and health survey revealed that only 25% of women among 7983 representative women sample compiled to minimum 180 days of Iron and Folic acid tablet intake during their pregnancy.<sup>9</sup> Institutional studies conducted among postnatal mother in India mostly focused on previous recommendations of minimum

of 100 days and either compliance or adherence based. A Haryana study conducted at Postgraduate Institute of Medical Sciences, Rohtak among women recently delivered found that around 61.8% of women consumed Iron and folic acid tablets for less than 100 days.<sup>10</sup> Another tertiary care hospital-based study with a mixed method approach conducted among women who delivered in the Cheluvamba Hospital in Mysuru found overall compliance to Iron and folic acid tablets as 71%.<sup>11</sup> The association with some of the factors were checked in the present study and no association is found between factors like age, residence, gravida status, socio economic class, education and adequacy of intake of Iron and folic acid tablets in this study. However, there is a significant difference in intake of Iron and folic acid tablets and patients who were referred. Referred cases consumed iron and folic acid tablets less adequately as compared to the women who were not referred. The most common reasons for missing doses were forgetfulness, followed by lack of proper knowledge, frustration of taking daily doses with such a long duration and other reasons as shown in figure.

The study conducted to assess compliance with iron folic acid (IFA) tablets and associated factors among pregnant women attending ante-natal care clinic in sub district hospital, Ballabgarh has also most common reason of forgetfulness (63%) followed by second most common reason of side effects (49.5%)<sup>12</sup> however in our study only 14% participants mentioned side effects among reasons for missing doses. Around 26% participants also mentioned they did not receive or prescribed or instructed to take tablets in required quantities, which was also concerned in the exploratory study done on district level Household survey-4 where authors raised concern about insufficient distribution of Iron and folic acid tablets to the women during their antenatal

visits.<sup>13</sup>

### CONCLUSIONS

Insufficient consumption of Iron and Folic Acid tablets during pregnancy, in accordance with newer recommendations under intensified iron-plus initiatives. Fair to adequate consumption of Iron and Folic Acid tablets was found only among 40% of women. Referred women tend to have lower consumption of iron and folic acid tablets compared to women who were not referred.

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