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Original Research Article

Compliance to iron and folic acid supplementation and associated factors among antenatal mothers attending OPD in a tertiary care institute in India

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ABSTRACT

Background: Anaemia in pregnancy is a serious health issue faced globally by all countries. Noncompliance to iron and folic acid supplement plays a role in the high prevalence of anemia in pregnant women.
Objectives: The objectives were to find out the proportion of compliance to iron and folic acid tablets (IFA) among antenatal mothers and to determine factors associated with it.
Methods: A cross sectional study was conducted among 260 antenatal mothers attending antenatal clinic in a tertiary care hospital in Jharkhand from August 2023 to February 2024. Subjects were recruited through consecutive sampling. A pretested, predesigned, semi structured interview schedule was used to collect information. Data were analyzed using SPSS 15.0. Chi square was used to find out the association of compliance with independent variables. P value of <0.05 was considered as significant.
Results: Among the study participants, majority (55.7%) were above 26 years' age and 60% stayed in rural area. Overall, 64.2% stayed in joint family. The proportion of compliance to IFA among antenatal mothers was 58.8% (n=153), and the reason for noncompliance (n=107) in the majority was forgetfulness (46.7%) followed by "side effects" (28%). Factors like socio economic status and type of family have shown significant association with this compliance.
Conclusions: This study highlighted that only around half of the pregnant women are compliant with IFA, and this situation demands for information education and communication activities to generate awareness

Keywords: Anaemia in pregnancy, Compliance, Noncompliance, IFA supplementation, antenatal mothers

INTRODUCTION

Anaemia is a serious global public health problem that disproportionally affects children, adolescent girls, and women of reproductive age, especially pregnant women. Women of reproductive age are more vulnerable to anaemia, particularly severe and moderate anaemia leads to adverse outcomes among pregnant women.[1] Iron and folic acid deficiency during pregnancy are important factors for preterm delivery, anaemia, low birth weight, and this contributes to increased maternal mortality and poor neonatal health.[2]

In 2019, global anaemia prevalence was 29.9% (95% uncertainty interval (UI) 27.0%, 32.8%) in women of reproductive age, equivalent to over half a billion women aged 15-49 years. Prevalence was 29.6% (95% UI 26.6%, 32.5%) in non-pregnant women of reproductive age, and 36.5% (95% UI 34.0%, 39.1%) in pregnant women.[3] In India, 44.1% of pregnant women are having compliance to Iron and folic acid supplementation during pregnancy,

whereas the proportion is 28.2% in Jharkhand. In Deoghar district of Jharkhand, the compliance of iron-folic-acid (IFA) tablets among pregnant women is 18.5% as per National Family Health Survey-5 (NFHS 5).[4]

The World Health Organization (WHO) underscores the importance of good maternal nutrition for a positive pregnancy experience. Apart from encouraging nutritional education and healthy eating behaviour during pregnancy, the WHO specifically advocates for supplementation of certain micronutrients within the ambit of basic antenatal care (ANC) services.[5] That includes routine supplementation of iron-folic acid (IFA) and calcium (in populations with low dietary calcium intakes) as prophylaxis against maternal anemia and pre-eclampsia, respectively, which are important (but preventable) conditions responsible for considerable morbidity and mortality. Promotion of maternal nutrition also resonates with the Sustainable Development Goals and the Decade of Action on Nutrition (2016–2025) proclaimed by United Nations.[6]

Most ministries of Health in developing countries have policies to give pregnant women either iron by itself or combined with folic acid in tablet form (IFA tablets). The National protocols in India require the provision of 1 tablet containing 60 mg elemental iron and 0.5 mg folic acid for daily consumption to all women during pregnancy for 180 days after first trimester.[7] In areas where the prevalence of iron deficiency is high (>40%), the supplementation should proceed for three months in the postpartum period.[8]

Despite continuous Government efforts, anaemia burden still poses a serious challenge in India. However, effectiveness and success of such interventions depend on the compliance to the Iron-folic acid tablets. Medication compliance refers to the degree or extent of conformity to the recommendations about day-to-day treatment by the provider in respect to the timing, dosing, and frequency.[9] Though the cut-offs for non-compliance are not clear cut, missing two or more doses consecutively is usually considered as non-compliance.[10] By identifying non-compliance, we can aim at proper counselling of the subjects regarding the importance of compliance to IFA and decreasing the poor maternal and perinatal outcomes due to anemia in pregnancy.[8]

Thus, considering the public health burden of anaemia in pregnancy, this study was carried out in a tertiary care hospital in Jharkhand to assess the compliance among the pregnant women with iron folic acid therapy and to study the association of compliance to IFA tablets with socio demographic factors in this population.

METHODS

This is a hospital based cross sectional study conducted in the antenatal clinic of a tertiary care hospital in Deoghar Jharkhand for six months, from August 2023 to February 2024. Pregnant mothers attending antenatal clinic who had completed 18 weeks of pregnancy or more were included, and women who requiring immediate admission and who refused to give consent for the study were excluded. The sample size was calculated using anticipated 18.5% compliance with IFA tablets, with 7% absolute precision, 95% confidence interval and 10% non-response error, as 260.[4] This study received ethical approval from AIIMS Deoghar's Institutional Ethics Committee via letter number AIIMS-DEO/RC-IEC-Full committee/2023-Jan/30. The purpose and protocol of the study were presented to the participants. The study subjects were explained about the objectives of the study in their vernacular language in clear words, were provided with the information sheet and a written informed consent was obtained from each of the subjects. Those who were not willing to participate were excluded from the study. The subjects were selected using non-random sampling method (convenient sampling) until the required sample size of 260 was reached. Those who were not willing to participate were excluded from the study. Data were collected through a face to face interview with a predesigned, pretested, structured interview schedule, which consists of two parts, namely socio demographic characteristics of participants and questions regarding compliance to IFA. The socioeconomic status was calculated using Modified Kuppuswamy Scale11. Missing of two or more doses of IFA was considered as non-compliance

The collected data was compiled and analyzed using SPSS version 15.0. Descriptive statistics such as percentage, mean, standard deviation were calculated for quantitative data. Inferential statistics like the Chi square test was applied to study the association between qualitative variables. P value of <0.05 was considered as significant.

RESULTS

The study included 260 women attending the antenatal clinic. The socio-demographic characteristics associated with the compliance towards consumption of IFA tablets is depicted in Table 1. Among the study participants, majority (55.7%) were above 26 years' age and 60% stayed in rural area. Overall, 64.2% stayed in joint family. Also 37.7% of the subjects only received the therapy free of cost.

In total, the overall compliance towards IFA tablets among the subjects was 58.8% (n=153). As depicted in Table 1, the compliance was higher among the subjects from lower socioeconomic class, which was found to be statistically significant ($p<0.05$). The subjects who belonged to joint family had significantly higher compliance ($p=0.014$) as compared to those from the nuclear family.

The reasons for skipping the IFA doses among the non-compliant subjects are given in Table 2. The main reason for skipping the dose is forgetfulness (46.7%) followed by side effects (28%), inability to purchase (15.8%) and beliefs (9.34%).

Table 1: Compliance of the pregnant women with IFA by their sociodemographic variables (n=260).

Characteristics	Complaint	Noncompliant	x^2	P
Age (years)				
18–25	75	40	3.456	0.063
≥26	78	67		
Type of family				
Nuclear	64	29	5.944	0.014*
Joint	89	78		
Education				
Illiterate	6	1		
Primary	37	28	3.016	0.389
Secondary	72	46		
Graduate	38	32		
Working status				
Housewife	104	81	1.831	0.175
Working	49	26		
Socioeconomic status				
Upper (I)	10	4	16.491	0.0024*
Upper middle (II)	11	10		
Lower middle (III)	23	38		
Upper lower (IV)	90	46		
Lower (V)	19	9		
Residence				
Rural	92	63	0.041	0.839
Urban	61	44		
Gravida				
Primi	51	43	1.2813	0.257
Multi	102	64		
Gestational week				
18- 27 weeks	61	43		
28-36 weeks	68	42	1.248	0.535
37 weeks or more	24	22		
Source of IFA tablets				
Government supply (free)	61	37	0.750	0.386
Pharmacy (purchased)	92	70		

χ^2 : chi square , *-significant at p=0.05.

Table 2: Reasons for skipping IFA doses among study participants (n=107).

Reasons	N (%)
Forgetfulness	50 (46.7)
Belief	10 (9.34)
Side effects	30 (28)
Inability to purchase tablets	17 (15.8)

DISCUSSION

This study found 98% of the subjects consuming the IFA tablets and compliance was (58.8%) which is very similar to a study conducted in Agartala in 2019.[8] The main reason for non-compliance as given by the antenatal mothers in our study was forgetfulness (46.7%) which is similar to the previous studies.[8,12] Additional barriers also could include inadequate side effects, beliefs against consuming medications during pregnancy, and inability to purchase tablets.

Also our study observed that there are direct and indirect factors affecting the compliance levels. It was noted in the present study that the pregnant women belonging to lower socio-economic status had better compliance than those who belonged to upper class The reason for poor compliance among women from higher socio-economic status needs more exploration and is up for interpretation. Similar observation was seen in a study by Yadav et al, Selvaraj et al and Mithra et al where they showed that the compliance was better among women from lower socio-economic status.[7,13,14] Godara et al on the contrary reported that compliance was better in women belonging to higher economic status.[15] Our study also reported an association of type PF family with IFA compliance among pregnant women, which is supported by a systematic review.[16]

In the present study, the most common reason given by the pregnant women for non-compliance was "forgetfulness" (46.7%) followed by "side effects" (28%). Mithra et al, Reang et al and Dutta et al in previous studies showed similar observations with forgetfulness being the major reason for missing IFA doses.[7,8,17] Support from the husband and other family members by reminding to take the tablets on time could play a vital role in increasing the compliance. Alternatively, reminders could be placed on mobile phones, as well for the same.

Thus there are many barriers to the successful implementation of IFA therapy among pregnant women. There are fears associated with the side effects of IFA tablets either due to perceived or experienced effects, inadequate counselling and information on significance of IFA tablets in pregnancy and the compliance with them. Reasons like forgetfulness and important patient factors influencing the compliance, which need motivation from the pregnant women and demand further in depth behavioural studies. These socio demographic factors influencing the compliance with IFA tablets and thus determining the anaemia status could still be more and adverse in the other parts of the country where, literacy rates and health care delivery system are yet to reach the desired target.

Limitations

The cross sectional nature of the study does not extend to the information on complete iron intake during pregnancy. There were also chances of recall bias among the study subjects regarding skipping of IFA doses.

CONCLUSION

This study highlighted that only around half of the pregnant women were compliant with IFA and the main reasons were side effects and forgetfulness, which are both preventable if the pregnant mothers are properly counselled and educated on how to deal with the common side effects of IFA. This situation demands for further information, education, and communication activities to generate adequate awareness in this population.

Recommendations

During antenatal visits, the significance of IFA tablets should be repeatedly explained and enforced on. Health education sessions should be conducted for pregnant mothers on regular basis and the same implementation has to be percolated to all cadres of health service providers.

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