

## Iron and Folic Acid Consumption by the Ante-natal Mothers in a Rural Area of India in 2010

Partha Pratim Pal, Shilpi Sharma<sup>1</sup>, Tarun Kumar Sarkar, Povel Mitra<sup>2</sup>

Department of Community Medicine, North Bengal Medical College, Darjeeling, West Bengal, India, <sup>1</sup>Department of Dermatology, North Bengal Medical College, Darjeeling, West Bengal, India, <sup>2</sup>MBBS Student, North Bengal Medical College, Darjeeling, West Bengal, India

### Correspondence to:

Dr. Partha Pratim Pal,  
Department of Community Medicine,  
North Bengal Medical College,  
Po. Sushrutnagar, Darjeeling,  
West Bengal - 734 012, India.  
E-mail: parthapal\_p2p@yahoo.co.in

**Date of Submission:** Jan 18, 2012

**Date of Acceptance:** Sep 15, 2012

**How to cite this article:** Pal PP, Sharma S, Sarkar TK, Mitra P. Iron and Folic Acid consumption by the ante-natal mothers in a rural area of India in 2010. *Int J Prev Med* 2013;4:1213-6.

### ABSTRACT

**Background:** The average rural Indian women enter her reproductive life, particularly in pregnancy, suffer from nutritional anemia due to iron deficiency. National program of India had implemented a strategy for supplementation of iron folic acid by means of iron folic acid (IFA) tablets at least 3 months during antenatal period. The study had been conducted to assess the proportion of pregnant mothers consumes the IFA tablets and the factors determine compliance.

**Methods:** A cross-sectional, community-based study was conducted in rural area of India on 50 antenatal mothers by multistage sampling technique. The data were analyzed by using SPSS 16 (Statistical Package for the Social Sciences, ver. 16), Chicago, considering the level of significance at 95%.

**Results:** The IFA tablet was adequately consumed by 62% mother among the study population. The consumption is more among the mother who were explained properly than those who were not explained by the health worker ( $\chi^2 = 4.529, P < 0.05$ ).

**Conclusions:** The compliance of iron folic acid tablets was still far behind to reach the National Goal though the service component are quite strong by the front line workers and health providers. An effort should be given at the level of front line health workers by training and re-training them to improve the compliance of IFA consumption.

**Keywords:** Accredited social health activists, angan wadi workers, antenatal mother, IFA compliance, iron folic acid tablet

### INTRODUCTION

Women in developing countries are always in a state of precarious iron balance during their reproductive years. It is estimated that prevalence of anemia in India is 30% among expectant women. Anemia is one of the leading indirect causes of high maternal mortality in India. West Bengal has around 70% pregnant women anemic as per National Family Health Survey III, and only around 22.4% pregnant women consume 100 iron and folic acid (IFA) tablets during pregnancy according to the District Level Household

Survey (DLHS) III, 2007-2008.<sup>[1]</sup> Increasing consumption of IFA tablets is a big challenge, especially among rural pregnant women who come for antenatal check-up to Auxiliary Nurse Midwife on Village Health Nutrition Day or those visiting government health facilities. Government of India started a National Anemia Prophylaxis Program in 1970, targeting pregnant and lactating women, and subsequently, the program was modified and renamed to the National Nutritional Anemia Control Program (NNACP) in 1991 for control and prevention of anemia in women of reproductive age and pre-school children, by distributing iron and folic acid tablets.<sup>[2]</sup> Limited data are available in the region like North Bengal population, so the study was conducted with the following aims and objectives.

There are proposed initiatives to improve coverage, quality, and efficiency of the NNACP in the Ninth Plan period. In October 1997, the Ministry of Health and Family Welfare, India organized a National Consultation on Control of Nutritional Anemia to review the epidemiology of nutritional anemia and the existing policy on nutritional anemia control.<sup>[3]</sup> But, the program have not had anticipated success till date. With this preamble, this study had been conducted to assess the proportion of pregnant mothers consumes the IFA tablets and the factors determine its adherence.

## METHODS

A cross-sectional, community-based study was conducted on antenatal mothers of Matigara Block, a rural area of Siliguri subdivision, consisting of 5 Gram Panchayats covering a total population of 126,704, out of which 66,565 were males and 60,139 were females according to census 2001. It was conducted from Dept of Community Medicine, North Bengal Medical College, Darjeeling, India from 1<sup>st</sup> June 2010 to 31<sup>st</sup> July 2010 after getting an ethical approval from the Institutional Ethics Committee. All Pregnant women, whether primi or multi-gravida till their delivery, were included in this study. A multi-stage sampling method had been used for the study. There are 5 areas in Siliguri sub division. Apart from Siliguri Municipal Corporation, the subdivision contains rural areas of 4 community development blocks such as Matigara, Naxalbari,

Phansidewa, and Kharibari. The Matigara block was selected randomly. The block was situated near the North Bengal Medical College and the farthest village, which was included in this study, was around 15 kms. In Matigara Block, there are 5 gram panchayat (*viz.* Atharakhai, Matigara-I, Patharghata, Champasari, and Matigara-II) areas containing total number of 69 Villages.<sup>[4]</sup> Two villages were selected by random sampling from each gram panchayat area. All the pregnant mothers of the selected 10 villages were included during the study period for interview. During the study period of 2 months from 1<sup>st</sup> June to 31<sup>st</sup> July 2010, the pregnant mothers were traced out through the Anganwadi center register or govt. institution or with the help of ASHA (Accredited Social Health Activists)/AWW (Angan Wadi Workers) of the respective villages. The eligible pregnant mothers were interviewed confidentially with the help of a pre-designed, semi-structured schedule after getting written informed consent. The date of issue and number of IFA tablets (containing 100 mg elemental iron and 500 mg folic acid) had been ascertained by the antenatal card or register. The adherence to it was determined according to their up to date and regular consumption till the date of interview and at the end of 90 days of consumption. Lastly, to get other relevant information, an arrangement for focus group discussion was carried out in “angawari center” of respective villages organizing mothers’ meeting, which had been usually conducted by ICDS (Integrated Child Development Services Skeme) workers weekly under the national guidelines. Data were collected according to the age, gestational age/trimester, per capita income, religion, caste, marital status, family type, level of education, occupation, income, number of pregnant women consume IFA tablets regularly (adherence), number of pregnant women registered. The pregnant women whether consume IFA tablet adequately or not were determined by comparing the date of issue and the date of interview for this study. Modified Prasad’s scale was used for socio-economic classification. The data were entered into an Excel data sheet and were analyzed using SPSS 16 (Statistical Package for the Social Sciences, ver. 16, Chicago). Frequency analysis and ‘Chi-square test’ was applied for measuring the association considering the 95% as confidence interval and  $P < 0.05$  as level of significance.

## RESULTS

In this present study, ultimately 50 were participated amongst the 57 eligible antenatal mothers with a non responder rate 12.28%. The mean of the age and gestational age of the study population were 22.18 (SE  $\pm$  0.419) years and 22.76 (SE  $\pm$  0.956) weeks, respectively. The IFA tablet was adequately and regularly consumed by 31 (62%) mothers among the study population. The common factors, which positively influence for taking the drugs, were maternal health (32%) and fetal health (30%) concerned according to the beneficiaries [Table 1]. The mothers belong to scheduled tribes community consume more (75%) in comparison to scheduled casts (57.7) and general cast (58.3%). Mothers belong to joint families' show slight better (72.2%) compliance than nuclear family (56.2%). Socio economic class III and IV according to Modified Prasad Scale were contributing 34% each amongst the study population. The consumption was maximum (100%) in socio economic class V, whereas class I is practically nil. Amongst the study population, 96% were registered in govt. health institution, 60% of the mothers of this study were well oriented about the IFA tablets, 78% were aware regarding its necessity, only 34% of the mothers in this present study were explained properly by the health service provider regarding the importance of its taking. It was also found that there was an association between the consumption and the awareness created by the explanation of the health workers. The consumption is more (82.4%) among the mothers who were explained properly than those who were not explained (51.5%) by the health worker ( $\chi^2 = 4.529$ ,  $P < 0.05$ ) [Table 2].

## DISCUSSION

The present study shows that the consumption rate was higher (62%) than existing data (22.4%) available for India according to DLHS III (District Level Household Survey).<sup>[5]</sup> In a similar study, conducted by Satyajit Bhattacharya in Rajasthan, the consumption rate was found to be 42%. In another study, Usha Malagi and her colleagues concluded with 59% consumption from the 16% population who had received tablets properly,<sup>[6]</sup> whereas in a study placed by A. K. Aggarwal and his colleagues, the compliance was found to be 67%.<sup>[7]</sup> The consumption rate is more amongst the

mother who were explained properly (Table 2), this implies that the health workers play a pivotal role in building cognizance in the society. Therefore, it is evident that consumption of IFA tablets will surely be enhanced if proper social mobilization is undertaken. This simple enhancement will surely change the present scenario in terms of iron and folic acid deficiency in pregnancy towards the better in near future. The Focus Group Discussion also shows that in spite of having awareness about the benefit of IFA tablets during pregnancy, their consumption pattern affected due to various reasons such as forgetfulness, false belief, peer pressure, old misconceptions influenced by senior personnel, metallic bad taste of the product, constipation, and gastro intestinal intolerance.

## CONCLUSIONS

In this rural community of Northern part of West Bengal, India, the compliances of iron folic acid tablets were still far behind to reach the National Goal, though the service component are quite strong by the front line workers and health providers. Due to some social reasons like false belief, peer pressure, lack of awareness, some medical cause though very negligible and practice towards its timely intake, the consumption rate

**Table 1:** Distribution of the study population according to patients' knowledge about IFA tablets. ( $n=50$ )

Reasons cited	Frequency	Percent
For maternal health	16	32.0
For fetal health	15	30.0
For blood production	8	16.0
As a vitamin	6	12.0
Due to health advice	3	6.0
For card	2	4.0
Total	50	100

**Table 2:** Consumption of IFA tablets by the study population based on the explanation given to study groups by health workers

Whether explained by health workers	Whether adequately taken		
	Yes	No	Total
Yes	14 (82.4)	3 (17.6)	17 (100.0)
No	17 (51.5)	16 (48.5)	33 (100.0)
Total	31 (62.0)	19 (38.0)	50 (100.0)

$\chi^2 = 4.529^a$   $df = 1$   $P < 0.05$  (0.033)

was poor. Only few determinants, which positively influence to take it regularly, were felt need of their own health and children's health along with the concept of blood production.

## ACKNOWLEDGMENT

The authors thank

- All faculty members of Dept of Community Medicine, North Bengal Medical College, Darjeeling
- All antenatal mother participated in this study
- Frontline Health workers of the community who helped during data collection.

## REFERENCES

1. Mohfw.nic.in. District level household Survey (DLHS III) of West Bengal, 2007-08. Available from: [http://www.nrhm-mis.nic.in/ui/reports/dlhsiii/dlhs\\_08\\_release\\_1.htm](http://www.nrhm-mis.nic.in/ui/reports/dlhsiii/dlhs_08_release_1.htm). [Last accessed on 2012 Sep 01].
2. Nihfw.org program component and objectives of NNACP. Available from: [http://www.nihfw.org/NDC/DocumentationServices/NationalHealthProgramme/National % 20 NUTRITION ANEMIAPROPHYLAXIS PROGRAMME.html](http://www.nihfw.org/NDC/DocumentationServices/NationalHealthProgramme/National%20NUTRITIONANEMIAPROPHYLAXISPROGRAMME.html). [Last accessed on 2012 Sep 01].
3. Kumar A. Ministry of Health and Family Welfare, Government of India, New Delhi, National nutritional anaemia control programme in India. *Indian J Public Health* 1999;43:3-5.
4. [en.wikipedia.org](http://en.wikipedia.org/wiki/Siliguri_subdivision#cite_ref-distProfile_1-6). District level data of west Bengal-Darjeeling. Available from: [http://www.en.wikipedia.org/wiki/Siliguri\\_subdivision#cite\\_ref-distProfile\\_1-6](http://www.en.wikipedia.org/wiki/Siliguri_subdivision#cite_ref-distProfile_1-6). [Last accessed on 2012 Sep 01].
5. Available from: <http://www.rchiips.com>. Consumption of IFA tablet, State fact sheet District Level Household and Facility Survey 2007-08. Ministry of Health and Family Welfare Government of India. Available from: <http://www.rchiips.org/pdf/rch3/state/India.pdf>[Last accessed on 2012 Sep 01].
6. Usha Malagi, Madhavi Reddy, Rama K. Naik. Evaluation of National Nutritional Anaemia Control Programme in Dharwad (Kar). *J Hum Ecol* 2006;4:279-81.
7. Agarwal AK, Sen AK, Kalra NK, Gupta N. Prevalence of anaemia during pregnancy in district Burdwan, West Bengal. *Indian J Public Health* 1999;43:26-31.

**Source of Support:** Nil, **Conflict of Interest:** The project was funded by Indian Council of Medical Research, New Delhi, India, for the purpose of Short Term Studentship for the year 2010.