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RESEARCH ARTICLE

RAPID ASSESSMENT OF FACTORS ASSOCIATED WITH THE CONSUMPTION OF IRON FOLIC ACID TABLETS BY PREGNANT WOMEN IN NORTHERN INDIA

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ABSTRACT

Background: Iron Deficiency Anaemia is a worldwide public health problem. Estimates from the WHO report that from 35% to 75% of pregnant women in developing countries are anaemic. In India, anaemia is the most common nutritional problem affecting more than ½ of the total population particularly in children and pregnant women where the incident is 50 to 97%. Anaemia prevalence is highest among pregnant women, infants, and young children due to the high iron demands of growth and pregnancy. **Purpose:** To assess the factors associated with the consumption of iron folic acid tablets by pregnant women. **Methods:** It was a community based cross-sectional study, which was undertaken from August to December 2009. Sample size was calculated keeping 95% confidence level and with 10% confidence interval, covered 3 blocks, and interviewed 120 respondents by including 25% extra respondents to get desired sample. **Results:** Most of the respondents were Hindu (85.3%) by religion and two-fifth respondents were either illiterate (40.7%) or had education up to primary / middle level (34%). However, very few (6.7 %) respondents were educated up to graduate or above. It was noted that 98% respondents had heard about IFA and majority of them (132/147, 89.8%) had taken IFA Tablets. **Conclusion:** The study subjects of northern part of India had a low level of compliance towards IFA Tablets during pregnancy. The compliance level was influenced by source of information and socio-economic status of the subjects. The perceived side effects and lack of awareness regarding IFA during pregnancy may have decreased the compliance. Though the grass root level health workers were trying to minimize the gap between beneficiaries and service providers regarding IFA consumption but this study reports that there is lack of felt need by the respondents regarding their own health and baby's health.

INTRODUCTION

Iron Deficiency Anaemia (IDA) is a worldwide public health problem, affecting nearly 30% of the world's population-with adverse consequences especially for women of reproductive age and young children. In India, the National Family Health Survey (NFHS-3, 2005-06) found 57% of woman to be anaemic and with present birth rate and maternal mortality rates, roughly one maternal death occur in every five minutes (Roopa Bakshi, 2006). There is 8-10 times increase in maternal deaths with haemoglobin of less than 5 gm/dl (Kalaivani, 2009) and therefore maternal anaemia during pregnancy induces a vicious circle of infancy, adolescent and maternal anaemia. The situation is worse in northern India, as in Uttar Pradesh alone 28,000 mothers die every year and that accounts for 75 maternal deaths every day. Out of which 15 are due to anaemia (2008-9). It is the second most common cause of maternal deaths, accounting for 20% of total maternal deaths.

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It also significantly increases the maternal morbidity, foetal and neonatal mortality and morbidity including premature delivery and low birth weight. The consumption of IFA for 90 days in mother is only 9% in Uttar Pradesh (http://www.rchiips.org/pdf/rch3/report/UP.pdf, 2014; http:// www.rchiips.org/pdf/rch3/report/UP.pdf, 2014). In India the prevalence of anaemia is high because of poor dietary intake especially iron and folic acid, poor bioavailability of iron in phytate and fibre rich Indian diet, chronic blood loss due to infection such as malaria and Hookworm infestation (Toteja and Singh, 2004; NNMB, 2002).

Reducing maternal mortality is one of the health related Millennium Development Goals. The international community is committed to reduce Maternal Mortality by three quarters between 1990 and 2015 (United Nations, 2000). Haemorrhage is the leading cause of maternal mortality (WHO, 2007). Anaemia is one of the world's leading causes of haemorrhage and disability (UNICEF/UNU/WHO, 2001) and thus is one of the most serious global public health problems.

There is lack of awareness regarding importance of iron and folic acid supplementation during pregnancy, reflected in poor knowledge about the causes and consequences of anaemia and resulting in either poor demand for maternal anaemia reduction or prevention treatments or the discontinuance of iron supplementation therapy by pregnant women. Further, majority of health expenditure is in the private sector, it seems necessary to create a suitable environment conducive to maternal anaemia reduction, using the media and other sources of environment building. But before taking initiatives to create awareness about maternal anaemia, it was realized to evaluate the present status of IFA intake. Keeping in mind this evaluation study was carried out during 2009, which represents the existing situation of northern India. This study was to know the contributions of health system officials as well as community's involvement to take up the maternal anaemia reduction program by IFA supplementation with the following research objectives:

Objectives of the study

- To assess the current level of intake of Iron Folic Acid (IFA) Tablets by pregnant women.
- To understand the status of awareness and involvement of husbands and community leaders for the intake of IFA Tablets by pregnant women.
- To develop a strategy to improve consumption of IFA Tablets.

Methodology

It was a community based cross-sectional study, which was undertaken from August to December 2009. Sample size was calculated keeping 95% confidence level and with 10% confidence interval from the populatuion of 19,000. A sample of 96 was calculated. As we had to cover 3 blocks, so it was decided that the team will interview 120 respondents (about 40 respondents in each block) by including 25% extra respondents to get desired sample after data cleaning. At the end of survey, a total of 156 respondents were interviewed and after data cleaning information of 150 respondents was analysed. The resident of the area for previous 2 years or more were selected by multistage sampling method.

At first stage 3 blocks (Araziline, Cholapur and Sewapuri) were randomly selcted out of 8 blocks of a district which closely stands for the socio-cultural and demographic profile of northern India. At second stage one village from each block was randomly selected. At third stage 25 Currently Pregnant Women (CPW) who completed 6 months of pregnancy (i.e. in 3rd trimester) and 25 Recently Delivered Women (RDW) who have a live births $\leq$ six months from the date of the survey were selected. Respondents were selected from sampled village by reaching to it's center, the lanes were numbered and then one lane was randomly selected. It was followed by house to house survey till the sample of 25 CPW and 25 RDW were obtained. Remaining lanes were taken to continue the sampling process. To appreciate the status of husbands and community leaders about their understanding of maternal anaemia and their role in IFA supplementation in these 3 blocks, a sub-sample by applying purposeful random sampling method, 23 husbands and 23 Community leaders were also selected for in depth interview. As this sampling method adds credibility to a sample when the potential purposeful sample is larger than one can handle. It uses small sample sizes, as the goal is credibility. The data entry and validation were carried out simultaneously and was analysed in January 2010.

The Institutional Ethical Review Committee of Directorate of Family Welfare, Uttar Pradesh had given ethical clearance with the permission to complete the study on or before 30th June 2011.

Observations

This survey was carried out in August 2009 by 3 teams in three blocks and thus 150 respondents (CPW and RDW), 23 husbands and 23 Community Leaders were interviewed in depth rapidly. The observation of this study has been divided into 3 parts.

Currently Pregnant women and Recently Delivered Women

Most of the respondents were Hindu (85.3%) by religion and two- fifth respondents were either illiterate (40.7%) or had education up to primary / middle level (34%). However, very few (6.7%) respondents were educated up to graduate or above. Pattern of educational status was same in the 3 blocks. Nearly half of the respondents (52%) had monthly family income of Rs. 1000 to 3000 and One-fifth (19.5%) respondents belonged to the family income of Rs. 5000 or more. It was also found that respondents living in Sewapuri were relatively financially sound. Respondents (98%) had heard about IFA Tablets. Further the source of information for IFA Tablets was explored (Table 1). Auxiliary Nurse Midwife (ANM) was in general responsible for the distribution of IFA Tablets to the pregnant women and 64.6% respondents stated them for getting information. One-fifth respondents (21.8%) were informed by Aanganwadi Worker (AWW) and 10.9% respondents got information from Accredited Social Health Activist (ASHA). Rajshree J. Bhatt1*et al*. reported that 42.3% adolescents received IFA Tablets from AWW (Rajshree *et al*., 2013).

However out of 147 respondents who had heard about IFA Tablets majority of the respondents 132/147 (i.e. 89.8%) had taken IFA Tablets. This finding can be corroborated to the availability of IFA Tablets in the area (Table 1). It was noted that 40.9% respondents, out of 132 respondents, had consumed more than 90 Tablets, 31.1% had consumed 51 to 90 Tablets. (Dabade Kuldeep Jagannath *et al*., 2013) from Maharashtra reported in their study that only 41.7% respondent women had consumed equal to or more than 100 IFA Tablets and observation is in line with this study. Study carried out by (Siddharth Agarwal, 2007) found that 36(11.5%) mothers consumed more than 100 IFA Tablets. However, only 28.1% respondents have taken less than 50 Tablets during pregnancy which is a serious concern (Table 2).

Table 1. Source of information of respondents out of those who had heard about IFA Tablet

Source of information	Respondents had heard about IFA tab from different sources (n=147)		
	No.	Proportion (%)	95% Confidence Interval
ANM	95	64.60%	56.87 - 72.33
ASHA	16	10.90%	5.86 – 15.94
AWW	32	21.80%	15.13 – 28.47
District hospital and medical shops	4	2.70%	0.08 – 5.32

Table 2. Relation between number of days advised to take IFA tablets and number of tablets actually consumed

Number of IFA tablets actually consumed by the respondents	Number of days respondents were advised to take IFA tablets during pregnancy							
	50 Days		90 Days		100 Days		n	
	No.	Proportion (%)	No.	Proportion (%)	No.	Proportion (%)	Proportion	(%)
≤ 30 tablets	4	80.0	2	50.0	8	6.8	15*	11.4
31 - 50 tablets	0	0.0	1	25.0	19	16.1	22*	16.7
51 - 90 tablets	0	0.0	1	25.0	38	32.2	41*	31.1
> 90 tablets	1	20.0	0	0.0	53	44.9	54	40.9
Total	5	100	4	100	118	100	132	100

*Includes five respondents who did not reply

In the year 2008, counselling of grass root level Health workers during the distribution of IFA Tablets was found in a very poor state and this could be one major reason for the gap between availability and consumption levels of IFA Tablets by pregnant women. This showed a scope to enhance knowledge about benefits of IFA Tablets among rural women so it may itself lead to increased consumption of IFA Tablets. Consequently each mother may consume at least 100 Iron Folic Acid Tablets for her health as well as to have healthy and intelligent baby. In this study 94.6% respondents replied that they were properly informed about the intake of IFA Tablet at the time of their pregnancy.

Tablets, majority of them (67.5%) continued the intake of tablet (Table 3). This could be attributed to the corrective measures taken through improved counselling of field workers in the year 2008. 132 pregnant women got IFA Tablets from the workers by their efforts and the observation was quite in favour for the need of demand generation activities. Respondents were asked about their opinion regarding different sources to get IFA Tablets. In response, most of the respondents 109 (72.7%) replied that they can easily get IFA Tablet from AWW, whereas 14.0% from ASHA and 11.3% from ANM. Very few respondents reported that they would buy from the medical shop considering it the best place.

Table 3. Number of respondents who continued the intake of IFA tablets in spite of facing problem

Status of respondents after the intake of Iron Folate Tablets	Number of respondents who continued taking Iron Folic Acid tablets				Total	
	Continued intake		Did not continue			
	No.	%	No.	%	No.	%
Problem faced	27	67.5	13	32.5	40	100.0
Did not face problem	85	100.0	0	0.0	85	100.0
Did not answer	0	0.0	7	100.0	7	100.0
Total	112	84.8	20	15.2	132	100.0

Thereafter, 132 pregnant women who had taken IFA Tablets were further interrogated for their health problems faced during consumption of IFA Tablet. Out of them three-fourth (64.3 %) respondents said that they did not have any problem due to the consumption of IFA Tablet. Very few (5.3%) remained silent on this issue and could not share their views. However, 40 pregnant women (30.3%) had some problem due to consumption of IFA Tablet. (Mithra *et al*., 2013) reported in a study carried out in Manglore that the reasons for non-compliance in their study was the experience of side-effects that they associated with the tablets, misunderstanding that they needed to continue taking the tablets throughout pregnancy and forgetfulness. Additional barriers also could include inadequate counselling. When these 40 women were further asked whether they were continuously taking IFA Tablets or not, then it was quite encouraging to observe that in spite of some problem due to consumption of IFA

The respondents were asked about their opinion regarding the type of support they require making themselves aware so that they demand for IFA Tablets from health centres. Nearly, one-fourth (22.7%) women said that the level of awareness should be raised so pregnant women start demanding the IFA Tablet from government health centres. One-fifth (20.7%) respondents were satisfied with the present system of distribution of IFA Tablet and about half of the women (56.7%) could not tell about the support required by them. However they were not in position to suggest for improvement regarding availability of IFA Tablet in their area. Most of the respondents (97.3%) were of the opinion that IFA Tablet should be provided free of cost while very few (2.7%) agreed to buy themselves as majority of them belonged to low income group. Respondents (CPW & RDW) were further asked to tell their suggestions so that every pregnant woman consumes 100 IFA Tablet by them.

About half of respondents (48.0%) replied that awareness is still required. Where as 40% were unable to express. However 12% said that by motivating pregnant women for good health of mother and baby both and for safe delivery. If mother and baby gets all type of benefits then it will raise the demand of IFA Tablets, was suggested by 3.3% respondents. The respondents were also asked to tell about the role of Grampradhan, the village head, in the promotion of consumption of IFA Tablet. Majority of the respondents (84.7%) were silent. However, few of them (13.3%) accepted that Grampradhan can play very vital role by mobilizing, cooperating people and by making arrangements for distribution and availability of IFA Tablet. The role of family member is very decisive in the success of any health programme. The respondents were asked that who accompanied them for ANC checkups at health centre. About half of the respondents (46%) had gone with their mother-in-law for their ANC checkups and 19.3% by themselves (alone). Whereas, 16.7% women went for ANC checkups with their husband and rest (18%) went with some other persons like friends or relatives. The supportive role of their husbands is vital and hence they were also asked about their opinions in relation with IFA Tablets supplementation programme.

Husband of pregnant women / lactating mothers

During this survey 23 husbands were interviewed to understand the involvement and role of husbands of rural areas in the maternal anaemia control activity. 21 husbands (91%) were aware of intake of IFA Tablets of their wives. Out of which, 12 husbands (52%) gained knowledge of the importance of IFA Tablets through their wives and remaining 9 (39%) through the health workers. Remaining 2 husbands (8.7%) whose wives did not consume Iron Folic Acid Tablets, they neither motivated nor asked their wives to take Iron Folic Acid Tablets during pregnancy. Perhaps they were not aware of the importance of tablets during pregnancy. Most of the husbands (91%) informed that the source of IFA Tablets were ANM, AWW and ASHA for their wives. About 65.2% husbands said that they would not purchase IFA Tablets for their wives if not provided free of cost from health centres by Government.

Community Leaders

In the same way 23 community leaders were interviewed as they have vital role in motivating the pregnant women of their villages to consume 100 IFA Tablets to reduce maternal nutritional anaemia. Majority of them (82.6%) replied that they know the advantages of IFA Tablets. About their role in increasing the consumption of IFA Tablets by pregnant women, 47.8% replied that they can play important role in increasing awareness. While 8.7% said that they can be a better counsellor than any other outsider. However, 17.4% said that they can sensitize members of Panchayat to facilitate the availability of IFA Tablets. Remaining community leaders suggested that a planned counselling strategy is required for promotion of the consumption of 100 IFA Tablets by pregnant women in rural areas. However, they could not specify the deep rooted myths prevailing in the rural community regarding IFA Tablets but they expressed the removal of prevailing myths through BCC.

Limitations

It was a cross sectional study and respondents were interviewed at one point of time. Thus the information for the whole period of pregnancy could not be obtained regarding intake of IFA Tablets. There could be chance of recall bias among respondents about missing of IFA Tablets.

Conclusion

The study subjects of northern part of India had a low level of compliance towards IFA Tablets during pregnancy. The compliance level was influenced by source of information and socio- economic status of the subjects. The perceived side effects and lack of awareness regarding IFA during pregnancy may have decreased the compliance. Though the grass root level health workers were trying to minimise the gap between beneficiaries and service providers regarding IFA consumption but this study reports that there is lack of felt need by the respondents regarding their own health and baby's health. It could be concluded that there is a need to carry out demand generation activity in the rural community. It will eventually bring down MMR and IMR.

Recommendations

During Antenatal visits, the significance of IFA Tablets should be repeatedly explained and persuasively communicated by grass root level health workers. Health education refresher sessions could be conducted for pregnant mothers on regular basis and the same implementation has to be percolated to all cadres of health service providers.

Disclaimer

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