ORIGINAL PAPER

DOES HEALTH EDUCATION INCREASE THE COMPLIANCE TO ORAL IRON THERAPY AMONG PREGNANT WOMEN?

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ABSTRACT

Introduction: *Anaemia is a global health problem primarily affecting pregnant women and children .It is found that though there are various programs organized to prevent anaemia the prevalence of anaemia has still not reduced. There are various factors which contribute to anaemia in pregnancy. The role of health education in compliance to oral iron therapy has still not been thoroughly studied. Therefore this study was undertaken*
Objectives: 1). *To study socio demographic factors contributing to compliance oral iron therapy.* **2)** *To study the reasons for noncompliance among the pregnant women.*
Methods: *It is an epidemiological interventional study which was conducted at Cheetah Camp Maternity Hospital .A total of 386 pregnant women, divided in two groups of 193 each (interventional and control) in the second trimester were included in the study. Two health education sessions were conducted. Compliance to oral iron therapy was recorded twice, once before initiation and second at the end of health education session.*
Results: *In this study it was found that age of the pregnant women, occupation, age of first pregnancy and per capita income did not have any significant role to play in compliance to oral iron therapy for both the follow up visits. It is found that education plays an important role in compliance to oral iron therapy during the first follow up visit. The most common reason for noncompliance during both the visits was non availability of the drugs and the patients forgetting to take the iron tablets*
Conclusion: *Health education is an effective tool to improve compliance to oral iron therapy.*

Key Words: *Pregnant women, compliance, health education, oral iron therapy.*

INTRODUCTION

Anaemia affects over 2 billion people all over the world. [1]More than 50% of preschool children and pregnant women are anaemic.[2] According to NFHS 3 (2005-06), in India 58.7% of the pregnant women are anaemic. [3] In the urban area 50.9% and in rural area 57.4%of the women are anaemic.[4]

According to NFHS-2(1998-99), 50% of the pregnant women were found to be anaemic and only 47% of urban pregnant women received iron folic acid tablets for 100 days.[5] IFA coverage is also lower (53%) than in urban areas(76%) . For India as a whole, IFA coverage was slightly improved from 52% in NFHS 1 to 58% in NFHS 2. Not all mothers who received IFA received the recommended three month supply of tablets or syrup. Among mothers who received IFA during pregnancy, 83% of pregnant women received atleast three month supply of IFA and out of which 81% mothers consumed all the supplements given to them. However, some of this improvement may be due to the fact that IFA syrup was included in the measurement of IFA coverage in NFHS 2 but not in NFHS 1[5].

According to NFHS 3 in India as a whole, only 65% of the pregnant women given or have purchased iron folic acid tablets and only 23 % of them consumed the iron folic tablets, among urban women was 34.8% and in rural women was 18.8%. The Iron Folic Acid coverage in rural areas was 61% while in urban areas was 76%.[4]

In India efforts have been made since 1970's to prevent anaemia in pregnant women and children. However, there is no change in the scenario of anaemia among pregnant women .There are several studies undertaken to examine various factors causing anaemia in pregnancy and to assess the prevalence of anaemia. But very few studies have been undertaken regarding the impact of health education on compliance to oral iron therapy.

It is a challenge to meet the gap between anaemia in pregnancy, the distribution of iron folic acid tablets and consumption of the same by pregnant women in urban slum area. Therefore an attempt is made to identify the various factors which affect the compliance to oral iron therapy.

AIMS AND OBJECTIVE

1. To study socio demographic factors contributing to compliance oral iron therapy.
2. To study the reasons for noncompliance among the pregnant women.

METHODS

An epidemiological interventional study was carried out from May 2008 to December 2008 at a Maternity Hospital, facility adjacent to the Urban Health Center located in Cheeta Camp slum area of Mumbai. All the women registered at the antenatal clinic during the 2nd trimester of pregnancy during this period of were included in the study. Total number of women registered was 500. 400 out of 500 women registered were found to be anaemic.14 women had severe anaemia were not included in the study. 386 women included in the study had mild or moderate anaemia. They were interviewed using semi structured pretested preformed interview schedule. These women were divided into 2 groups i.e. interventional and control group. Each with 193 pregnant women they were allotted by simple random method.

In the interventional group 2 sessions of counselling and health education, one month apart were given to the pregnant women with special emphasis on importance of compliance to oral iron therapy. In the control group oral iron therapy was given without any special health education and counselling sessions. Compliance to oral iron therapy was tested by pill counting once at the initiation of treatment and the second at the end of the health education session and haemoglobin estimation at the end of each visit. Regular pill: taken iron tablets everyday or 4-7 days /week .Irregular-haven't taken any tablet or less than 3 times a week.

The various factors contributing to noncompliance were also noted.
Data was analysed using SPSS .Ethics committee approval was obtained.

RESULTS

Table 1: In this study it was found during the first follow up visit , it was revealed that women in the age group of 20-24 years ,47(49%) and 25 to 29 years,22(40.7%) compliant to oral iron therapy in the interventional group. However in the control group it was found that only 20(10.4%) women were compliant to oral iron therapy while majority of the women were noncompliant to oral iron therapy. This association was not statistically significant during the 2nd follow up, in the interventional group women in the age group of 20 to 24 years, 67(69.8%) and 25 to 29 years, 38(70.4%) were compliant to oral iron therapy. However, in the control group only 9.3% were compliant to oral iron therapy. There was no significant association between age group and compliance to oral iron therapy for both the groups.

Table 1: Sociodemographic factors affecting compliance to oral iron therapy

			First follow up				**Second follow up**	
		Interventional		**Control**		**Interventional**		**Control**
	1	**2**	**1**	**2**	**1**	**2**	**1**	**2**
Age(yrs)								
<20	6 (26.1%)	17 (73.9%)	2 (11.8%)	15 (88.2%)	14 (60.9%)	9 (39.1%)	1 (5.9%)	16 (94.1%)
20 to 24	47 (49%)	49 (51%)	8 (89%)	89 (91.8%)	67 (69.8%)	29(30.2%)	8(8.2%)	89(91.8%)
25 to 29	22 (40.7%)	32 (59.3%)	9 (14.3%)	54 (85.7%)	38 (70.4%)	16(29.6%)	7(11.1%)	56(88.9%)
30 to 34	7 (35%)	13 (65%)	1 (7.1%)	13 (92.9%)	9(45%)	11(55%)	2(14.3%)	12(85.7%)
35 to 39	0	0	0	2	0	0	0	2(100%)

				(100%)				
Total	82(42.5%)	111(57.5%)	20(10.4%)	173(89.6%)	128(66.3%)	65(33.7%)	18(9.3%)	175(90.7%)

1st visit I (value 4.703,p0.195) C(value-1.934,p0.748)
2nd visit I(value4.703,p0.195)C(value1.222 p0.874)

Occupation								
Housewives	71(41.3%)	101(58.7%)	15(9.1%)	150(90.9%)	109(63.4%)	63(36.6%)	15(9.1%)	150(90.9%)
Working	11(52.4%)	10(47.6%)	5(17.9%)	23(82.1%)	19(90.5%)	2(9.5%)	3(10.7%)	25(89.3%)

1st visit I (Value 0.944,p0.331) C(value 1.980, p0.159)
2nd visit I(value6.155,p-0.13*) C(value0.075, p0.785)

Education								
Illiterate	6(33.3%)	12(66.7%)	2(6.1%%)	31(93.9%)	9(50%)	9(50%)	1(3%)	32(97%)
Primary	20(29%)	49(71%)	0	66(100%)	46(66.7%)	23(33.3%)	7(10.6%)0	59(89.4%)
Secondary	20(69%)	9(31%)	4(25%)	12(75%)	24(82.8%0	5(17.2%)	1(6.3%)	15(93.8%)
Higher secondary	5(62.5%)	3(37.5%)	1(20%)	4(80%)	7(87.5%)	1(12.5%)	8(100%	0
Total	82(42.5%)	111(57.5%)	20(10.4%)	173(89.6%)	128(66.3%)	65(33.7%)	18(9.3%)	175(90.7%)

1st visit I(value15.565,p.004*) C(value 16.835,p0.002*)
2nd visit I(value 8.183 ,p0.085) C(value 3.146 ,p 0.534)

Per Capita Income								
Class I	0	0	2(20%)	8(80%)	0	0	1(10%)	9(90%)
Class II	17(81%)	4(19%)	4(13.3%)	26(86.7%)	18(85.7%)	3(14.3%)	5(16.7%)	25(83.3%)
Class III	51(67.1%)	25(32.9%)	5(7.1%)	65(92.9%)	55(72.4%)	21(27.6%)	4(5.7%)	66(94.3%)
Class IV	14(17.5%)	66(82.5%)	8(11.3%)	63(88.7%)	47(58.8%)	33(41.3%)	7(9.9%)	64(90.1%)
Class V	0	16(100%)	1(8.3%)	11(91.7%)	8(50%)	8(50%)	1(8.3%)	11(91.7%)
Total	82(42.5%)	111(57.5%)	20(10.4%)	173(89.6%)	128(66.3%)	65(33.7%)	18(9.3%)	175(90.7%)

1ST Visit I(value 63.826,p 0.000*) C (value 2.182 ,p0.702)
2ND visit I(value 3.035,p 0.552) C (value 3.035, p0.552)

Age at marriage								
<20yrs	63(41.7%0	88(58.3%)	8(9%)	81(91%)	97(64.2%)	54(35.8%)	9(10.1%)	80(89.9%)
20 to24	19(50%)	19(50%)	12(11.9%)	89(88.1%)	29(76.3%)	9(23.7%)	9(8.9%)	92(91.1%)
25 to 29	0	4(100%)	0	3(100%)	2(50%)	2(50%)	0	3(100%)
Total	82(42.5%)	111(57.5%)	20(10.4%)	173(89.6%)	128(66.3%)	65(33.7%)	18(9.3%)	175(90.7%)

1St visit I(value 3.869, p0.145) C(value 0.778,p 0.678)
2nd visit I (value 2.470, p0.291)   C(value 0.394 ,p 0.821)

Age of 1st pregnancy								
<20	18(30%)	42(70%)	8(9%)	81(91%)	37(61.7%)	23(38.3%)	9(10.1%)	80(89.9%)
20 to 24	61(49.6%)	62(50.4%)	10(11.5%)	77(88.5%)	84(68.3%)	39(31.7%)	7(8%)	80(92%)
25 to 29	3(30%)	7(70%)	2(11.8%)	15(88.2%)	7(70%)	3(30%)	2(11.8%)	15(88.2%)
Total	82(42.5%)	111(57.5%)	20(10.4%)	173(89.6%)	128(66.3%)	65(33.7%)	18(11.8%)	175(88.2%)

1st visit I(value.009,p0.030*) C (value 0.337 , p 0.845)
2nd visit I(value 2.470 , p 0.291) C(Value 0.353, p-0.838)

Note: 1: regular treatment
2: Irregular treatment
I: Interventional group
C: Control group
*: significant

During the first follow up visit, in the interventional group, 71(41.3%) housewives were compliant to oral iron and in the control group 15(9.1%) were compliant to oral iron therapy. This association was not significant. During the second follow up, in the interventional group it was found that 109(63.4%) housewives were compliant to oral iron therapy .In the control group 15(9.1%) housewives were compliant to oral iron therapy. The association between housewives and compliance to oral iron therapy was significant in the interventional group.

During the 1st follow up visit , in the interventional group as the level of education increased the compliance to oral iron therapy has also increased i.e secondary education compliance was 20(69%) as well as higher secondary education compliance was 5(62.5%). In the control group, it was found that 178(89.6%) of the women were noncompliant to oral iron therapy. The association was significant.

During the 2nd follow up visit, in the interventional group it was found that the women having secondary education, 24 (82.8%) and higher education 7(87.5%) were compliant to oral iron therapy compared to women who were illiterate, primary or middle education. The association was not significant.

During the first visit, it was revealed that in the interventional group women in socioeconomic class II and class III, 17(81%) and 51(67.1%) were compliant to oral iron therapy than women in class IV and V. This was found to be significant.

During the 2nd follow up visit it was found that the pregnant women in the interventional group irrespective of their socioeconomic status were compliant to oral iron therapy. In the control group 175(90.7%) were not taking oral iron therapy

regularly. The association was significant in the interventional group.

During the first follow up visit in the interventional group women married at <20 years 63(47.1%) and 20 to 24 years 19(50%) were compliant to oral iron therapy. In the control group women married at <20 years 8(9%) and 20 to 24 years, 12(11.9%) were compliant to oral iron therapy. The association was not significant.

During 2nd follow up visit, in the interventional group women who married at less than 20 years, 97(64.2%) and 20 to 24 years, 29(76.3%) were compliant to oral iron therapy. In the control group, women married at < 20 years, 9(10.1%) and 20-24 years, 9(8.9%) were compliant to oral iron therapy .The association was not significant.

During the 1st follow up visit ,the interventional group , women who had their first child less than 20 years 18(30%) and 20 to 24 years ,61(49.6%) were compliant to oral iron therapy. In the control group women who had their 1st child less than 20 years 8(9%) and 20 to 24 years, 10(11.5%) were compliant to oral iron therapy. The association was significant in the interventional group.

During the 2nd follow up, in the interventional group women who had their 1st child between 20 to 24 years, 84(68.3%) and 25 to 29 years 7(70%). In the control group who had their 1st child between 20 to 24 years, 7(8%) and 25 to 29 years, 2(11%) were compliant to oral iron therapy. The association in the interventional group was found to be significant.

Table 2: During the first follow up visit, in the interventional group and control group the major reason for noncompliance was irregularity in the supply of drugs at Maternity Hospital while during the second follow up visit the women in the

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interventional group the most common reason for noncompliance was that iron folic acid was not available regularly and forgetfulness was also deterrent for

compliance to oral iron therapy. In the control group the most common reason for noncompliance was that tablet were not available regularly

Table 2: Reasons for noncompliance to oral iron therapy

Sr No	Reasons	First follow up		Second follow up	
		interventional	control	Interventional	Control
1.	Irregularities in supply of iron tablets	28(25.2%)	33(19.1%)	16(24.6%)	43(24.5%)
2	Forgetfulness	17(15.3%)	24(13.8%)	15(23%)	28(16%)
3	Inconvenient timings	16(14.4%)	21(12.2%)	14(21.5%)	13(7.5%)
4	Misconception	16(14.4%)	25(14.5%)	9(13.8%)	25(14.3%)
5	Unable to come regularly	14(12.6%)	22(12.8%)	5(7.7%)	24(13.7%)
6	Side effects	12(10.8%)	19(10.9%)	5(7.7%)	14(8%)
7	Expensive to buy from outside	8(7.3%)	29(16.7%)	1(1.7%)	28(16%)
	Total	111(100%)	173(100%)	65(100%)	175(100%)

DISCUSSION

In this study there was no association found between age of the pregnant women, occupation and age at marriage to compliance to oral iron therapy. The findings of this study were similar to a study in Vientiane Municipality, Lao DPR by Phasouk Vongvichit [6] where age and occupation did not have any association with compliance to oral iron therapy. In this study majority of the women were in the age group of 20-30 years, more than were housewives. These findings were controversial to the findings by Boonserm K.[7] Which revealed that as age increases there was increase in the compliance to oral iron therapy.

In this study compliance to oral iron therapy was significantly associated with the level of education and family income, as both the level of education and income increases the compliance to oral iron therapy increases. The findings of this study were similar to the findings by Phasouk Vongvichit et.al. [6]which revealed that majority of the pregnant women had secondary level of education hence as education increases compliance also increases.

In this study it was found that the major reason for noncompliance were that the oral iron tablets were not available on a regular basis at the Maternity Hospital, while in the study by Phasouk Vongvichit

et.al. [6] stated that forgetfulness and side effects were the major reasons for noncompliance. In the Thai study good compliance was retained when the pregnant women were assured of the benefits and were mentally prepared about the side effects.

The present study found that the major reasons for irregularity in taking iron Supplementation in the interventional and control group during the first visit were non availability of iron folic tablets on a regular basis followed by misconception about the medication and forgetfulness. similar findings were found in the study undertaken in West Bengal where the major reason for irregular or partial consumption was inability to purchase iron tablets (52.6%) and the other reasons were that iron tablets were not prescribed on the day of the study (43.18%) and iron tablets were not prescribed to the mothers in spite of being registered (36.23%).[8]

CONCLUSION

In this study was found that compliance to oral iron therapy was dependent on the availability of oral iron therapy at the Maternity Hospital. In order to improve compliance to oral iron therapy among pregnant women the age of the pregnant women, education, occupation, socioeconomic status and age at marriage plays an important role.

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