



Prevalence of Anaemia and Iron and Folic Acid intake among beneficiaries of Janani Suraksha Yojana and Janani Shishu Suraksha Karyakram in Punjab

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Abstract

Anaemia is a public health concern widely prevalent in developing countries. It is associated with poor maternal and infant health outcomes and an increased risk of maternal and infant mortality. The objective of this paper is to examine the prevalence of anaemia among the beneficiaries of Janani Suraksha Yojana (JSY) and Janani Shishu Suraksha Karyakram (JSSK) and the provision to and intake of Iron and Folic Acid (IFA) by these women. It also aims to explore various reasons given by the beneficiaries for low intake of IFA despite availability. This study was conducted in two districts of Punjab (Fatehgarh Sahib and Ferozepur) selected based on their performance on various indicators of reproductive health in the two consecutive surveys of District Level Household and Facility Survey i.e., DLHS-3 and DLHS-4. Multistage and stratified sampling was used to select the Community Health Centres (CHCs) and Primary Health Centres (PHCs). Data were collected from women beneficiaries of the two Schemes using Interview Schedules. Data entries from Mother and Child Protection Cards were also noted. The study highlighted high prevalence of anaemia among the beneficiaries of JSY and JSSK. Despite successful provision of IFA to these women, level of intake was low showing low compliance due to several reasons including lack of awareness, the biology of women (physiological), socio-cultural factors such as child marriage and gender discrimination and lack of recommendation by the health care providers.

Keywords: *Anaemia, Iron and Folic Acid; Pregnant Women; Janani Suraksha Yojana; Janani Shishu Suraksha Karyakram; Maternal Mortality*

Introduction

Anaemia is defined as a low haemoglobin concentration in the red blood cells which reduces the oxygen-carrying capacity of cells [1]. Pregnant women with a haemoglobin concentration of less than 110g/L and non-pregnant and lactating women with less than 120g/L are categorised as anaemic [2]. Globally, 29.9% women of reproductive age (15-49 years) are affected by anaemia, equivalent to over

half a billion women [3]. Prevalence of anaemia among pregnant women is at 36.5% [3] and is associated with an increased risk of maternal and infant mortality [4]. It can also lead to poor maternal and infant health outcomes including preterm birth, low-birth weight infants, delayed growth, poor cognitive and motor development in children [3,5,6,7]

Anaemia is widely prevalent among pregnant women in developing countries and is considered as a public health concern [8,9]. In India, more than 50% of the pregnant women are anaemic which means that every second pregnant woman has anaemia as per the NFHS-5 [10]. In addition, it is also one of the leading causes of maternal mortality in India [11,12]. One in every five maternal deaths in the country is directly related to anaemia [13]. High Maternal Mortality Ratio (MMR) is prevalent in India [14]. It has already failed to achieve the Millennium Development Goal (MDG) of bringing down the Maternal Mortality Ratio (MMR) by three quarters despite concerted efforts [15]. However, the next target is achieving the Sustainable Development Goal (SDG) of reducing the MMR to 70 per 100,000 live births by 2030 which has already been thwarted by COVID-19.

To address the issue of anaemia and consequently, maternal mortality, interventions such as JSY, JSSK, and Anemia Mukht Bharat that provide IFA supplementation to pregnant women have been implemented in India [16]. All pregnant women registered under JSY and JSSK and/or who come in contact with a health service provider, their haemoglobin is to be estimated and IFA tablets are to be provided. However, despite interventions, the incidence of anaemia among pregnant women has increased both in India and Punjab. Data released by NFHS-5 shows that the anaemia among pregnant women has increased from 50.4% in NFHS-4 (2015-16) to 52.2% in NFHS-5 (2019-21) in India and from 42% in NFHS-4 to 51.7% in NFHS-5 in Punjab [10,17]. This study aimed to examine the prevalence of anaemia among the beneficiaries of JSY and JSSK in rural Punjab. It also intended to study the provision and level of intake of IFA among these women. In addition, the reasons behind low intake were also examined.

Material & Methods

This paper is a part of doctoral research at Panjab University, Chandigarh conducted in two districts of Punjab based upon an evaluation of two government-run schemes implemented to address the issue of maternal mortality in India namely, Janani Suraksha Yojana (JSY) and Janani Shishu Suraksha Karyakram (JSSK).

a. Selection of Field Area

Fatehgarh Sahib and Ferozepur were selected as the best performing and worst-performing districts of Punjab, respectively, on some selected indicators of reproductive health in the two consecutive surveys of District Level Household and Facility Survey i.e., DLHS-3 and DLHS-4. Two Community Health Centres (CHCs) and two Block Primary Health Centres (PHCs), one from each district were selected using multistage and stratified sampling. CHC at village Khera and Block PHC village Chanarthal Kalan were selected from Fatehgarh Sahib and CHC at village Ferozeshah and Block PHC at village Kassoana were selected from Ferozepur.

b. Selection of Women Respondents (Beneficiaries)

For identifying the women respondents, lists of beneficiaries of JSY and JSSK were procured from the selected CHCs and PHCs. These lists served as the sampling frames. 50 women respondents were randomly selected from each of the PHCs and CHCs. A total of 200 women respondents were interviewed. Informed verbal consent was obtained from each participant and the complete anonymity of the respondents was maintained. Interviews were conducted with the help of a semi-structured interview schedule and questions regarding the consumption of IFA and reasons for non-consumption were asked.

The levels of haemoglobin on the Mother and Child Protection (MCP) card were noted to examine the services provided and the prevalence of anaemia. The collected data were coded, tabulated, analyzed, and interpreted. Statistical Package for Social Science (SPSS) was used for data entry and analysis.

Results

c. Characteristics of Participants

Results on the demographic profile of women beneficiaries (see Table 1) show that 49% and 38.5% were between the age of 18-25 years and 26-30 years, respectively. Data on age at marriage show that 34.5% were married before the legal age of marriage in India i.e., 18 years. The prevalence of child marriage was much higher in Ferozepur (52%) as compared to Fatehgarh Sahib (17%). In addition, 31.5% were married between the age of 18-20 years while 29.5% were between the age of 21-25 years in both districts. Majority of the respondents were Sikhs (84%) followed by Hindus (13%) and Muslims (2%). There was a preponderance of women belonging to marginalized sections of society both socially and economically as 70.5% were from Scheduled Castes (SC) and 13% from Other Backward Castes (OBC) whereas 81% were living Below Poverty Line (BPL). In terms of education, 16.5% were illiterate, 76% were below senior secondary and only 7.5% were graduates or above. An overwhelming majority of women (93.5%) were homemakers living in joint families (79.5%) with no personal income.

Table 1: Socio-Demographic Indicators

	Fatehgarh Sahib	Ferozepur	Total
	Number/ Percentage	Number/ Percentage	Number (Percentage)
Age (in years)			
Less than 18	0	1	1 (0.5%)
18-25	37	61	98 (49.0%)
26-30	45	32	77 (38.5%)
31-35	14	5	19 (9.5%)
36 and above	4	1	5 (2.5%)
Total	100	100	200 (100.0%)
Age at marriage (in years)			
Less than 18	17	52	69 (34.5%)
18-20	31	32	63 (31.5%)
21-25	45	14	59 (29.5%)
26 and above	7	2	9 (4.5%)
Total	100	100	200 (100.0%)
Religion			
Sikh	76	92	168 (84.0%)
Hindu	20	6	26 (13.0%)
Muslim	4	0	4 (2.0%)
Any other	0	2	2 (1.0%)
Total	100	100	200 (100.0%)
Caste			

General	18	15	33 (16.5%)
SC	61	80	141 (70.5%)
OBC	21	5	26 (13.0%)
Total	100	100	200 (100.0%)
Level of Poverty			
APL	25	13	38 (19.0%)
BPL	75	87	162 (81.0%)
Total	100	100	200 (100.0%)
Educational Qualifications			
Illiterate	11	22	33 (16.5%)
Primary	15	30	45 (22.5%)
Middle	24	21	45 (22.5%)
Matriculation	21	14	35 (17.5%)
Senior Secondary	18	9	27 (13.5%)
Graduation	11	3	15 (7.0%)
Total	100	100	200 (100.0%)
Employment Status			
Homemaker	91	96	187 (93.5%)
Gainfully employed	9	4	13 (7.5%)
Total	100	100	200 (100.0%)
Personal Monthly Income (in Rupees)			
No income	91	96	187 (93.5%)
1000-2000	3	1	4 (2.0%)
Above 2000	6	3	9 (4.5%)
Total	100	100	200 (100.0%)

d.Prevalence of Anaemia

Data collected on the level of haemoglobin as mentioned on the MCP cards of women beneficiaries (see Table 2) show that 87.5%, 51.5% and 33% of women had either mild, moderate, or severe anaemia during the first, second and third trimesters of their pregnancy, respectively. Only 8% of women in the first trimester and 4.5% each in the second and third trimesters had no anemia. It was also noted that the level of haemoglobin was not mentioned on 4.5%, 44% and 62.5% of MCP cards of women beneficiaries during the first, second and third trimesters, respectively. The proportion of MCP cards on which the level of haemoglobin was not mentioned was significantly higher in Ferozepur than in Fatehgarh Sahib during the second trimester at 29% and 59% and in the third trimester at 38% and 87%, respectively. Out of those whose level of haemoglobin was mentioned on their MCP cards, nearly 90% of the women in Fatehgarh Sahib and more than 96% in Ferozepur were found anaemic during their pregnancies. On average, 92.3% of women were anaemic during their pregnancies.

Table 2: Ante-Natal Care (Tests of Haemoglobin During the Three Trimesters- T1, T2 and T3 as mentioned on MCP card)

Level of Haemoglobin	Fatehgarh Sahib			Ferozepur			Total		
	Number/Percentage			Number/Percentage			Number (Percentage)		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
Not mentioned on card	7	29	38	2	59	87	9 (4.5%)	88 (44.0%)	125 (62.5%)
Less than 7 (Severe)	2	2	3	16	4	0	18 (9.0%)	6 (3.0%)	3 (1.5%)
7-9.9 (Moderate)	52	43	38	70	32	12	122 (61.0%)	75 (37.5%)	50 (25.0%)
10-10.9 (Mild)	28	19	12	7	3	1	35 (17.5%)	22 (11.0%)	13 (6.5%)
11 and above (No Anaemia)	11	7	9	5	2	0	16 (8.0%)	9 (4.5%)	9 (4.5%)
Total	100	100	100	100	100	100	200 (100.0%)	200 (100.0%)	200 (100.0%)

e. Provision and intake of IFA

Under the JSY and JSSK, pregnant women are provided 90 days of Iron and Folic Acid (IFA) tablets/syrup free of cost to address the issue of anaemia during pregnancy. The majority (90.5%) of women beneficiaries in both districts received at least 90 days of free IFA tablets/syrup at the government facility (Table 3). Almost all the women were advised by a government Health Care Professional (HCP) to consumption of IFA. However, despite the provision of IFA tablets/syrup to a majority of women, IFA intake for the recommended 90 or more days was 68% in Fatehgarh Sahib and 47% in Ferozepur. As many as 32% in Fatehgarh Sahib and 53% in Ferozepur did not consume IFA for at least 90 days showing low compliance (Table 3).

Table 3: Provision and Consumption of IFA

	Fatehgarh Sahib	Ferozepur	Total
	Number/Percentage	Number/Percentage	Number
Number of IFA received/purchased			
Less than 90	3	12	15 (7.5%)
90-100	81	81	162 (81.0%)
101-200	15	3	18 (9.0%)
Don't know	1	0	1 (0.5%)
IFA syrup	0	4	4 (2.0%)
Total	100	100	200 (100.0%)
Number of IFA tablets consumed			
1-50	20	43	63 (31.5%)

51-89	8	4	12 (6.0%)
90-100	57	39	96 (48.0%)
101 and above	11	3	14 (7.0%)
Not consumed	4	6	10 (5.0%)
Consumed syrup	0	5	5 (2.5%)
Total	100	100	200 (100.0%)

f. Reasons for Non-consumption of IFA

Despite the provision of IFA to more than 90% of pregnant women, intake of IFA among them was quite low. There were various reasons given by these women for not consuming IFA. The most common reason cited by participants was that they did not feel the need to consume IFA. The second most common reason was that they discontinued the consumption due to nausea, feeling of uneasiness or not liking the taste. Many reported that they forgot to consume IFA due to their domestic responsibilities. A significant proportion revealed that they purchased the IFA tablets/syrup as the one provided by Accredited Social Health Activist (ASHA) did not suit them. However, they discontinued the intake since they could not afford to purchase them. In addition, a lack of awareness among these women about the benefits of IFA to the mother and her child also led to a low intake of IFA. None of these women were able to explain the importance of consuming and/or the adverse effects of not consuming IFA supplements.

(I did not like them, so I stopped consuming them. [JSSK beneficiary])

(My haemoglobin level was low, I had to consume IFA but did not like the one given by ASHA. We purchased it from a private medical store. I discontinued it since we could not afford them. [JSY beneficiary])

(These tablets (IFA) are of no good. They are just mud. [JSY beneficiary])

g. Awareness among ASHAs

As reported by ASHAs, little awareness was found among them about the ideal level of haemoglobin in pregnant women and during delivery. However, majority of ASHAs counselled pregnant women for consumption of IFA, which was also confirmed by women beneficiaries. But once the pregnant discontinued the IFA intake, she was not counselled to continue the intake despite the health risks involved due to anaemia.

Discussion

This study examined the prevalence of anaemia and intake of IFA among the women beneficiaries of JSY and JSSK in rural Indian settings. Knowledge of and attitudes toward the benefits of IFA intake and reasons for non-consumption were also explored. The study revealed a high prevalence of anaemia among these women. It is important to note that the sample included women beneficiaries of JSY and JSSK who were overwhelmingly from the marginalized section of society. As such, the reported prevalence of anaemia was high among these women. However, such a high prevalence of anaemia among the beneficiaries of JSY and JSSK is concerning since these schemes aim to address the issue of anaemia among pregnant women by providing free IFA tablets/syrup.

Pregnancy results in increased iron demand and its deficiency can lead to anaemia. Anaemia among pregnant women can result in an increased risk of maternal and fetal morbidity and mortality. In this study, most of the women with a record of hemoglobin level mentioned in their MCP cards were anaemic. Such high prevalence can be attributed to an interplay between a number of factors.

Physiological factors such as blood loss during menstruation contribute to anaemia among women. Therefore, the intake of proper diet and supplements is important. On the contrary, in the Indian settings certain socio-cultural practices are followed in patriarchal families where men eat first, followed by children, and women eating the leftovers result in poor nutritional intake by women. Most of our respondents reportedly followed vegetarian diets which may result in nutritional anaemia.

To address this concern, IFA supplements are provided under these health schemes to pregnant women. Despite the successful provision of IFA tablets/syrup to a majority of pregnant women, the intake was found to be suboptimal, which may be attributed to several factors. First, a lack of awareness was found among the beneficiaries about the importance of IFA and the consequences of anaemia on maternal and fetal health. This can be because the participants of this study were overwhelmingly from the marginalized section of society with little or no education. Factors including class, caste and education are positively associated with awareness and uptake of services. Another reason for the lack of awareness can be the high prevalence of child marriage. Young girls are more likely to have little or no knowledge of their maternal health thus, putting them at higher risk. Second, though counselling was provided to women regarding benefits of IFA, it was largely ineffective as most of the women were unaware of the importance of IFA. Women often discontinued IFA as per their wishes and no recurrent counselling was provided by Health Care Professionals (HCP) to persuade them to continue consuming IFA. Third, women did not prioritize their health and take a casual approach resulting in missed doses. Fourth, affordability turned out to be an issue for these women. A single brand/type of IFA tablet was available and in case the mother experienced adverse effects, she had to purchase it. Since these women came from poor families, they were unable to afford them resulting in discontinuing the intake.

In addition, ASHAs were also found to be unaware of the ideal haemoglobin requirements of women during various stages of pregnancy. Moreover, the MCP cards were not updated by ASHAs with the level of haemoglobin even though blood tests for the majority of pregnant women were conducted at every ANC visit. This can act as a barrier to tracking the progress of the pregnancy. It is important to note that ASHAs play a key role in bringing these women to health facilities and providing antenatal, natal, and postnatal services. ASHAs admittedly did not counsel the women who discontinued IFA intake. Therefore, it is crucial to provide adequate training to ASHAs regarding various aspects of pregnancy to have the desired results.

h. Policy and Practice Implications

This study has important implications for policies and programs on anaemia among women and maternal mortality in India. JSY and JSSK are key interventions to address the issue of maternal mortality by providing free antenatal, natal, and postnatal care to pregnant women. Since anaemia among women is a major cause of maternal deaths, addressing this issue can help bring down maternal mortality and achieve the SDG of lowering the MMR to 70. The high prevalence of anaemia and low intake of IFA supplements despite successful provision due to lack of awareness among women about the outcomes of anaemia on maternal and child health and failure of health care providers in counselling needs attention. High prevalence of child marriage warrants concern. The issue of the high occurrence of anaemia leading to higher incidence of maternal deaths cannot be tackled without addressing the socio-cultural influences including gender discrimination leading to nutritional anaemia and child marriage.

Conclusion

The prevalence of anaemia among the beneficiaries of JSY and JSSK was high. The consumption of IFA among these women was low despite the successful provision of IFA supplements. Several factors such as age at marriage, lack of awareness and casual approach of women towards their health

cumulatively act as an impediment to consumption of IFA to check the prevalence of anaemia and consequently lower maternal morbidity and mortality. Adequate training for Health Care Providers such as ASHAs can play a key role in increasing the intake of IFA and lowering anaemia among pregnant women, consequently lowering the maternal mortality ratio.

Limitations of The Study

The limitation of this study is that only those women were included in the sample who availed the services under JSY and JSSK. Women who did not avail the services were left out of the purview of this study.

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