



OPERATIONAL STATUS OF IRON FOLIC ACID TABLETS SUPPLEMENTATION TO ADOLESCENT GIRLS – A CROSS SECTIONAL STUDY IN A RURAL DISTRICT OF INDIA

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ABSTRACT

In India, prevalence of anemia in adolescent girls is around 56%, ranging from 33% in Andhra Pradesh to 98% in Rajasthan. This study was undertaken to assess the operational status of weekly iron and folic acid supplementation programme. It was a community based cross-sectional study in the rural villages of Khordha district of Odisha. 30 villages were selected by cluster sampling technique and 10 girls of 10-19 years age from each village/cluster were included in the study. A total of 299 adolescent girls were interviewed, anthropometric measurements were done and haemoglobin was estimated by Sahli's method. The prevalence of anemia was found to be 83.95% and associated with mother's education, socio-economic status of the family, excessive menstrual bleeding, iron intake, nutritional status and worm infestation. 73% of adolescent girls had taken IFA (iron & folic acid) tablet at some time. There is a need for periodic screening of adolescents along with counselling of adolescents and capacity building of the stake holders.

KEY WORDS: IFA Tablets, anemia, teenagers



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INTRODUCTION

With the beginning International year of youth in 1985 and the World Health Assembly in 1989, World's interest in adolescent health issues has grown dramatically.¹ Among adolescents, girls constitute a vulnerable group particularly in developing countries owing to their early marriage and exposure to risk of reproductive morbidity and mortality. Adolescent girls are an opportunity to make a difference.² Iron deficiency anemia is a serious public health concern in most developing countries. In India the prevalence of anemia among adolescent girls is 56%.³ In India, variations in the prevalence rate of anemia are seen ranging from 33% reported from Andhra Pradesh to 98% in Rajasthan.⁴ In the past decade, the widespread prevalence of anemia in adolescent girls in India is gaining increasing recognition. Adolescent girls are stated as an important beneficiary group in nutritional policy at national and state level. In view of the scale of problem, Government of India, with technical support by UNICEF and partners has been implementing over a decade the Adolescent Girls Anemia Control Programme. The main objective of the programme is to reduce the prevalence and severity of anemia in school-going adolescent girls using schools as delivery channel and in out-of-school adolescent girls using the community anganwadi centre of India's ICDS programme as the delivery platform through regular consumption of iron folic acid supplements which is essential for the prevention of iron deficiency anemia in adolescent girls.⁵ Though different studies show the prevalence of anemia among adolescents, there are very few studies on the operational status of the ongoing programme. Therefore this study was carried out to assess the operational status of IFA tablets supplementation to adolescent girls in Khordha district of Odisha and to find the prevalence of anemia and associated socio-demographic factors among adolescent girls.

MATERIALS & METHODS

A Community based cross sectional study was conducted in Khordha district of Odisha from October 2013 to February 2014 among adolescent girls in the age group of 10 -19

years. The population of Khordha district is 2,246,341 (2011 census) with 1309 number of anganwadi centers functioning under ICDS. IFA distribution under Kishori Shakti Yojana was started in the year 2007. According to the report of NFHS-3, prevalence of anemia among the adolescent girls in the age group of 11-19 years is higher i.e. 61.4% in Odisha as compared to India figure of 55.8%.³ Taking into consideration of variation due to the place of study, 300 adolescent girls were included. By cluster sampling technique, 30 villages in the Khordha district were selected and 10 girls of 10-19 years age from each village/cluster were selected with the help of local anganwadi workers. As anganwadi workers are involved in the distribution of IFA tablets and imparting health education to adolescent girls, their help was availed to get a list of adolescent girls of their area. Finally we were able to interview 299 adolescent girls. A pre-designed, pre-tested schedule was used to collect the information about the participants. Information regarding socio-demographic characteristics like age, educational status, family size, per-capita monthly income, dietary habits, age at menarche, history of worm infestation, excessive menstrual bleeding and episodes of sickness were collected. Their knowledge regarding anemia, its causes and prevention was also tested. It was also enquired whether they were aware about the availability of free IFA tablets and albendazole tablets and whether they were utilizing the opportunity. A brief relevant clinical examination was also carried out that included measurement of height, weight and haemoglobin estimation. Anemia was diagnosed by clinical examination and subsequent estimation of Haemoglobin level (Sahli's method). A cut off level of 12g/dl (as per WHO) was taken to diagnose anemia among adolescent girls.

RESULTS

In the present study, the prevalence of anemia was found to be 83.95% Out of all the anaemic girls 43.43% were having mild anemia, 52.19% were having moderate anemia and 4.38% were severely anaemic. Prevalence of anemia is 93.10% in mid-adolescent age group where it was 83.64% in late adolescents and 69.83% in early adolescents, which was found to be statistically significant.

Table 1
Socio-demographic factors associated with Anemia in adolescent girls

Factors	Total girls	Anaemic girls	Prevalence	Remarks	
Age	10-13 years	73	51	69.86%	$X^2=17.96$ P=0.000
	14-15 years	116	108	93.10%	
	16-19 years	110	92	83.64%	
Mother's education	Primary or less	149	148	99.33%	$X^2=52.14$ P=0.000
	Secondary or more	150	103	68.66%	
Father's education	Primary or less	118	102	84.44%	$X^2=0.898$ P=0.343
	Secondary or more	181	149	82.32%	
Father's occupation	Unskilled worker	128	114	89.06%	$X^2=4.65$ P=0.098
	Skilled worker	72	59	81.94%	
	Service holder(clerical) .etc	99	78	78.79%	
Type of family	Nuclear	183	151	82.51%	$X^2=0.718$ P=0.396
	Joint	116	100	86.2%	
Social class	Upper	8	2	25%	$X^2=29.82$ P=0.000
	Middle	173	139	80.34%	
	Low	118	110	93.22%	
No .of siblings	2 or less	212	182	85.84%	$X^2=1.957$ P=0.162
	>2	87	69	79.31%	

Presence of anemia among adolescent girls was significantly different in early, mid and late adolescents and associated with mother's education and social class.

Table 2
Personal characteristics associated with anemia in adolescent girls

Characteristics	Total girls	Anaemic girls	prevalence	Remarks	
Dietary habit	Vegetarian	35	28	80%	$X^2=0.458$ P=0.499
	Non-vegetarian	264	223	84.5%	
H/O Worm infestation	Present	86	71	82.6%	$X^2=49.62$ P=0.000
	Absent	213	80	37.6%	
IFA taken	Yes	111	81	72.97%	$X^2=15.77$ P=0.000
	No	188	170	90.42%	
Menarche	Attained	244	211	86.48%	$X^2=6.29$ P=0.012
	Not attained	55	40	72.73%	
Menstrual flow	Normal	130	113	86.9%	$X^2=17.23$ P=0.0002
	Scanty	26	16	61.5%	
	Heavy	88	82	93.18%	
Nutritional status	Underweight	144	137	95.14%	$X^2=50.71$ P=0.000
	Normal	130	104	80%	
	Overweight	25	10	40%	

Prevalence of anemia was significantly associated with H/O worm infestation, intake IFA tablets in last 6 months, attainment of menarche, heavy menstrual flow and nutritional status.

Table 3
Distribution of adolescent girls as per their knowledge regarding anemia

Knowledge	Response	Number (Percentage)
Heard about Anemia	Yes	178 (59.5)
Knowledge regarding prevention	Present	140 (46.8)
Heard about IFA	Yes	254 (84.9)
Source of Information	AWW	240 (94.5)
	HW/ANM	8 (3.2)
	Family and relatives	6 (2.3)

Out of all the Adolescent girls, 59.5% of girls told that they had heard about anemia and 46.8% had some knowledge regarding prevention of anemia. 84.9% of them had heard about IFA tablets while 15.1% were ignorant about it. The main source of Information was AWWs (94.5%).

Table 4
Operational status of IFA supplementation

Response of AWWs	Number (Percentage)
Receiving IFA in sufficient amount	27 (90%)
Receiving IFA in time	26 (86.7%)
Distribution of IFA to adolescent girls	24 (80%)
Giving IFA in proper dosage scedule	15 (50%)
Counselling regarding prevention of anaemia	23 (76.67%)
Counselling regarding benefits of IFA tablets	7 (23.3%)

We observed that 80% of the anganwadi workers agreed that, they were distributing the IFA tablets to the Adolescent girls. 90% of workers were receiving the tablets in sufficient amount and 86% were receiving it in time. Regarding counselling of the adolescent girls 76% of them were counselling the girls about prevention of anaemia but only 23% said that they explain about the benefits of IFA tablets to them. About the distribution of IFA tablets, only 50% of them were distributing it in a correct schedule.

DISCUSSION

In the present study the prevalence of anaemia was found to be 83.95%, while only 16.05% of girls were having a normal range of haemoglobin. Rana et al⁷ and Seshadri et al⁸ reported a prevalence of 60% and 65% respectively. Chaturvedi et al⁹ and Agarwal et al¹⁰ had reported prevalence of 73.7%, and 47.6% respectively. Swati Dixit et al have reported an alarming prevalence rate of 100% in rural girls, 99.3% in girls from slums and 66% in urban girls.¹¹ Pattanaik S et al found a prevalence of 78.8% in a recent study in Odisha.¹² Toteja et al have shown a prevalence of 90% among adolescent girls of 16 districts of India, which is much more than our findings.⁶ This difference in the prevalence of anaemia may be due to difference in the study area and local differences in dietary habits. WHO/UNICEF have suggested that the problem of anaemia is of very high magnitude in a community when prevalence rate exceeds 40%.¹³ The prevalence of severe, moderate and mild anaemia was 3.68%, 43.81% and 36.45% respectively. The prevalence was high among late adolescents as compared to early adolescents. Sanjeev et al¹⁴ and Rawat CMS et al¹⁵ also reported that the prevalence of anaemia was high among late adolescents as

compared to early and mid adolescents. There was a statistically significant association. In the present study, presence of anaemia in adolescent girls was associated with mother's education, socio-economic status of the family, excessive menstrual bleeding, iron intake, nutritional status and worm infestation. Singh R et al¹⁶ have reported similar findings that a significantly higher prevalence of anaemia in adolescent girls of illiterate or just literate mothers, which indicates better awareness among literate mothers. Sanjeev M¹⁴ and Jolly Rajaratnam¹⁷ have also found out significant association of presence of anaemia with parent's educational status, particularly mother's education. In the present study higher prevalence of anemia was found in lower Socio-economic group where it was significantly higher. Similar findings were also seen in the study by Kaur S et al¹⁸ and Singh R et al¹⁶. BMI, mother's education, socio-economic factors are important determinants of anemia as per Sudhagandhi B et al.¹⁹ Heath et al²⁰ have also found out significant association of anemia with excessive menstrual bleeding as found in our study. Prevalence of anemia is more in girls who were having history of worm infestation as were the findings of Kaur S et al⁴ and Singh R et al¹⁸. In our study prevalence of anemia is low in girls with history of intake of Iron tablets and the association was highly significant ($p < 0.001$). Hashizume et al²¹ also found that the iron intake was significantly associated with decrease prevalence of anemia. In our study we have found that prevalence of anemia was significantly higher among underweight adolescent girls ($p < 0.001$). Sudhagandhi B et al²² and Sharda Sidhu et al²³ also reported a similar association between anemia and BMI. Regarding knowledge of prevention of anemia among adolescent girls, about half of them had heard about anemia and had some knowledge of its

prevention. 85% of girls had heard about IFA tablets, but only 73% were taking. Most commonly the source of information was found to be the AWWs. We observed that 80% of the anganwadi workers agreed upon distributing the IFA tablets to the adolescent girls. 90% of workers were receiving the tablets in sufficient amount, but only 86% were receiving it in time. Regarding counselling of the adolescent girls 76% of them were counselling the girls about prevention of anaemia but only 23% told that they explain about the benefits of IFA tablets to them. About the distribution of IFA tablets, only 50% of them were giving it in a correct schedule.

CONCLUSION

Prevalence of anemia (83.95%) in adolescent girls is a public health concern. WHO/UNICEF has suggested that the problem of anemia is of very high magnitude in a community when prevalence rate exceeds 40%. Under the Adolescent Girls Anemia Control Programme, the key persons involved at the community level to carry out the services are the Anganwadi Workers under ICDS, but on the

contrary as an important stake holder of the programme most of them are ignorant regarding anemia preventive measures, the complications if not treated in time and even the benefits of Iron and Folic Acid tablets, which is a major drawback in the implementation of the programme at the community level. There is a need for capacity building of the ICDS workers to advice and counsel adolescent girls on anemia control. Supervised weekly iron folic acid supplementation (WIFS) and recording of programme adherence in school registers, anganwadi centre registers and girl's self reporting cards is essential. Enhancing overall awareness about the programme through mass media will further enhance anemia control during adolescence.

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