



A study of access and compliance of iron and folic acid tablets for prevention and cure of anaemia among adolescent age group females in Ahmedabad district of India surveyed under multi indicator cluster survey 2011

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ABSTRACT

Objective The knowledge and utilization of Iron and folic acid tablets supplementation of the adolescent girls in Ahmedabad district.

Setting The study was conducted over a time span of 20 weeks period, from April 2011 till Aug 2011 in selected areas of Ahmedabad district, which has an approximate population of 15,94,010 as per census 2001.

Study design Cross sectional observational study.

Participants All the adolescent girls in the population surveyed by MICS 2011.

Methodology 30 clusters sampling method based on PPS (Probability Proportional to Size) for cluster selection.

Results 431 adolescent girls were included in the survey of total population of 6076. The result showed that 51.5% (222) girls went to school and only 36.2% (156) received IFA tablets. Out of them 66% (103) girls stopped taking these tablets due to one or other side effects of the tablets. Nearly 47.4% (74) girls were unaware of the positive effects of these tablets on their health.

Keywords: anemia, UNICEF, anganwadi workers, IFA tablets

INTRODUCTION

Adolescence is the period of age between 11 to 19 years. It is the period of crucial physical as well as psychological growth of the body with higher than normal nutritional requirements. The adolescent girls today will become mothers in coming few years and the health of future children depends upon the nutritional status of these girls.

Nutritional anemia caused by iron deficiency is one of the most common conditions in the adolescent girls of India. This results into decreased concentration,

weakness, menstrual irregularities affecting their physical and mental health. The most common causes of iron deficiency are the wrong dietary habits, menstrual loss of blood and helminthic infections. Thus, this deficiency can be prevented by deworming, iron supplementation and proper dietary education. The most efficient way of improving iron status among them is by providing weekly Iron and folic acid tablets to all the adolescent girls.

The Indian national and state governments with the help of UNICEF have started Adolescent Girls Anemia

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Control Program since 2000. This program uses schools to deliver the tablets to girls along with *anganwadi* centers under ICDS (Integrated Child Development Services) program to provide benefits to as many adolescent girls as possible. The number of adolescent girls benefiting from the program increased from 8.8 million by the end of 2005 to 14.5 million by the end of 2010. In 2011, the Government of India launched the Rajiv Gandhi Scheme for the Empowerment of Adolescent Girls, also known as SABLA. The program was reaching 27.6 million adolescent girls in 13 states using schools, *anganwadi* centres and SABLA as the delivery platforms. The average cost of implementing this program is INR 25 (USD 0.58) per girl per year⁹.

The MICS (Multi Indicator Cluster Survey) was conducted during 2009-2011 for Ahmedabad district. The awareness and utilization of the provision of IFA tablets among the adolescents were surveyed during this MICS.

MATERIALS AND METHODS

The MICS was conducted in Ahmedabad district with 10 blocks and 569 villages. 30 clusters sampling method was used based on Probability Proportional to Size (PPS) for their selection. The clusters were divided into quadrants. Then data collection was done on house to house basis till the desired sample size was achieved. House to house data collection was continued till 2 children of 12-23 months whose mother was respondent and 2 women who delivered

in last year (1/7/2010 to 30/6/2011) were surveyed in each quadrant. So at the end of each cluster, 8 children of 12-23 months whose mothers were respondent and 8 women who delivered in last year (1/7/2010 to 30/6/2011) were surveyed. During this survey process, adolescent girls among those families were interviewed. Data regarding the number of girls going to school and whether they were married or not were collected. These girls were asked about their knowledge regarding the benefits of iron and folic acid tablets, the availability and source of the tablets and their compliance. Also the reasons for discontinuation of the tablets were asked and recorded.

RESULTS

Among 431 adolescent girls surveyed, 33 (7.7%) girls were illiterate, 154 (35.7%) girls had received education up to primary level and only 5 (1.2%) girls were attending the college.

In this survey, 59 (13.7%) adolescent girls were married and out of them 35 (59.3%) girls were married before their age of 18 years. This information requires attention because the legal age of marriage in India is 18 years⁶. This leads to increased dropout rates from schools which deprive them from education.

At the time of the survey, 222 (51.5%) girls were attending school.

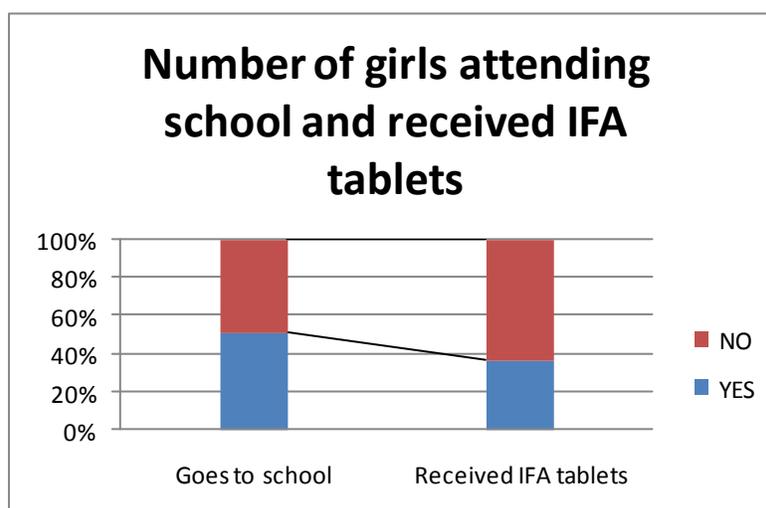


Figure 1 Number of adolescent girls attending school and received iron and folic acid (IFA) tablets

Figure 1 shows that only 222 (51.5%) girls go to school and out of total number of 431 girls, only 156 (36.2%) girls have ever received IFA tablets supplied

by the government. This proves that the IFA tablets have not been provided to all the girls even to those who attend the schools.

Table 1 Source of the Iron and folic acid (IFA) tablets and frequency of their consumption. (n=156)

Source of IFA tablets	Number of girls	Frequency of tablets consumption	Number of girls
School teachers	84 (53.8%)	Daily	41 (26.3%)
Anganwadi workers	66 (42.3%)	Weekly	56 (35.9%)
Self	2 (1.3%)	Monthly	8 (5.1%)
Others	4 (2.6%)	Occasionally	41 (26.3%)
		Never consumed	10 (6.4%)
Total	156 (100%)	Total	156 (100%)

The data from Table 1 show that a maximum of 53.8% girls received the tablets from their school teachers and 42.3% received from anganwadi workers. The frequency of consumption of tablets was decided 1 tablet weekly, but the data suggests that only 35.9% girls are consuming tablets weekly. 26.3% girls are consuming them daily and 26.3% girls

are consuming occasionally. It also shows that the percentage of girls who never consumed the tablets despite receiving them is 6.4% which shows that there is lack of education and motivation regarding the consumption of these tablets during their distribution.

Table 2 Knowledge regarding effects of IFA tablets among the adolescent girls (n=156)

Effects of IFA tablets on health	Number of adolescent girls
Decrease weakness	61 (39.1%)
Feel cheerful and active	3 (1.9%)
Vomiting	13 (8.3%)
Giddiness	1 (0.6%)
Don't Know	74 (47.4%)
Other*	4 (2.6%)

*Constipation, black stool etc.

The data in Table 2 shows that majority of girls (47.4%) have no idea about the effects of the tablets on their health. Total of 41% girls have experienced the benefits of the tablets in form of increased energy levels and feeling cheerful. Nearly 9% of girls have experienced side effects in form of vomiting and giddiness.

Figure 2 shows that out of the 156 girls who received IFA tablets, 103 (66%) adolescent girls discontinued taking tablets. Thus, the compliance is extremely low

and the probable cause of non-compliance is lack of motivation.

Table 3 gives information regarding the various reasons of discontinuation of the IFA tablets among the surveyed adolescent girls. The major reason for discontinuation was due to the side effects of the tablets (32%) such as vomiting, gastric problems and giddiness. Nearly 11% girls stopped the tablets because of their sickness. About 10% girls discontinued the tablets because of the irregularity of

the program in providing the tablets or the tablets being out of stock.

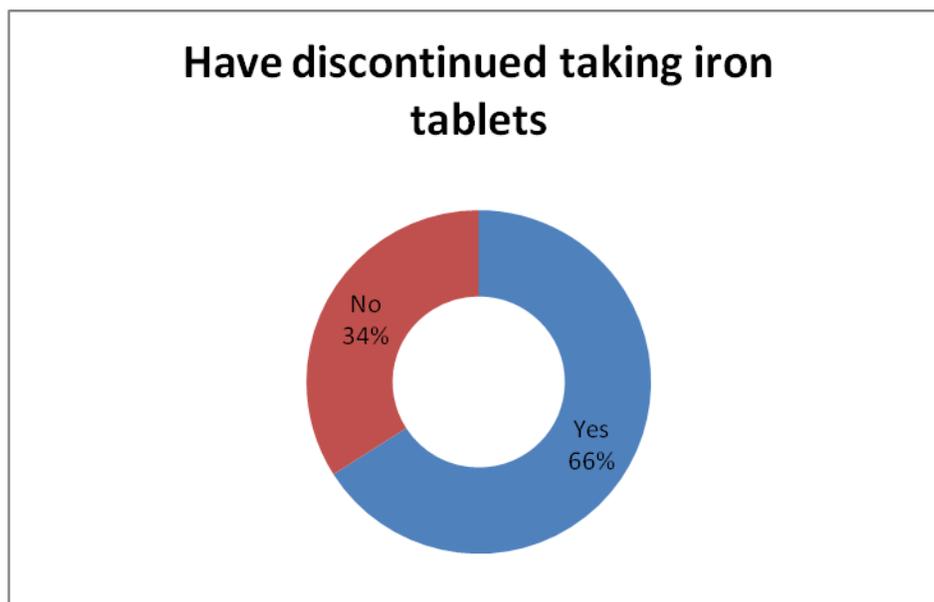


Figure 2 Compliance of adolescent girls in taking IFA tablets

Table 3 Reasons for discontinuing IFA tablets consumption (n=103)

Reasons for discontinuing tablets	Number of adolescent girls
Due to side effects	33 (32%)
Sickness	11 (10.7%)
Tablets were out of stock	7 (6.8%)
Holidays/leaves	8 (7.8%)
Program stopped	1 (1.0%)
No program	2 (1.9%)
Others	41 (39.8%)

DISCUSSION

As a part of MICS, 1060 household were surveyed in 30 clusters of Ahmedabad district. The average family size was 6.752 with overall sex ratio of 990. It was found that 23.1% of females from reproductive age group were between the ages of 15 to 20 years and average age of marriage was 18.5 years, which was in contrast with the average age of 19.6 years found during District level household and facility survey 2007-08². Out of the 431 adolescent girls included in the survey, 59 (13.7%) were married with

59.3% got married before turning 18, which is the legal age of marriage in India. This also affects education of the girls, as 33 (7.7%) girls were illiterate, 159 (36.9%) girls had received education at different level.

During survey it was found that 398 (92.34%) adolescent girls were attending educational institutes at different level. The Indian national and state governments with the help of UNICEF have started Adolescent Girls Anemia Control Program since 2000



in which, the Iron and Folic acid tablets are provided weekly to all the school going adolescent girls and also by the anganwadi workers for the girls not attending schools. The estimated prevalence of anemia is 56% in the adolescent girls of India⁹. Considering the magnitude of problem, this is the cheapest and most effective method of intervention to decrease prevalence of anemia in this age group.

Out of total adolescent girls, 51.5% were recently attending schools and among them 156 (36.2%) were receiving iron folic acid tablets from different sources. Among those who received tablets 26.3% had it daily and 35.9% had it weekly.

There were many experimental studies conducted to measure the hemoglobin and ferritin values in the adolescent girls after supplementing daily and weekly Iron and folic acid tablets. One study was conducted in Vadodara supported by UNICEF regarding the IFA tablets supplementation. The impact evaluation showed reduction in anemia prevalence by 21.5% after IFA supplementation⁵.

In one project in Raipur, Chhattisgarh, there was a significant increase in blood hemoglobin levels of all the three groups of mild, moderate and severe categories of anemia in the experiment. It was found that from all the three types of supplementation twice a week supplementation has proved to be more effective and economical as compared to once a week and thrice a week supplementation⁸.

In the research carried out at government school of New Delhi, it was found that Weekly administration of IFA took longer time to raise hemoglobin as compared to daily administration but it was effective as well as practical⁴.

The study in Nashik, Maharashtra showed the overall prevalence of anemia came down significantly to 54.3% from 65.3% with IFA tablet supplementation. The decline was statistically significant ($p < 0.001$) in tribal girls (48.6% from 68.9%) and among rural girls (51.6% from 62.8%). But the decline was not statistically significant among urban slum girls⁷.

Such studies were also conducted in Nepal and Malaysia, both had the conclusion that weekly supplementation of Iron and folic acid tablets is the easiest and most effective way of decreasing the prevalence of anemia in adolescent girls^{1,3}.

As per our survey data 33 (7.7%) adolescent girls had never attended any school. Among those who have attended, 275 (63.8%) had never received IFA from school and those girls who had received IFA, 10 (6.4%) never consumed it. This proves that the IFA tablets have not been provided to all the girls even to those who attend the schools. The information by the UNICEF states that the number of girls attending schools benefitting from the Adolescent girls Anemia control program by December, 2011 is 1,120,789 and the number of girls out of school benefitting is 506,777 in Gujarat state with average cost of 12.3 INR (0.28 USD) per girl per year⁹. There has been very less data collection regarding the actual status of utilization of the services of IFA tablets provided to the adolescent girls.

The maximum 53.8% girls received the tablets from their school teachers as expected and 42.3% received from anganwadi workers. Proper training should be arranged for the teachers and anganwadi and other health workers regarding the IFA tablets, their advantages and appropriate schedule of supplementation. The frequency of provision of tablets was decided 1 tablet weekly, but the data suggests that only 35.9% girls are consuming tablets weekly. 26.3% girls are consuming them daily and 26.3% girls are consuming occasionally. Majority of the girls (47.4%) had no idea about the effects of the tablets on their health. The improvement in this situation can only be brought by the providers by motivating and educating the girls.

The other obstacle is the compliance of the girls. Out of the 156 girls who received IFA tablets, 103 (66%) adolescent girls discontinued taking tablets because of the various reasons stated above in the table 3, major reason being the side effects of the tablets such as vomiting, gastric problems and giddiness (32%). About 10% girls discontinued the tablets because of the irregularity of the program in

providing the tablets and the tablets being out of stock which questions the efficiency of the program.

CONCLUSION

As it was a multi indicator cluster survey, we were unable to assess the prevalence of anemia by acquiring the actual hemoglobin values of these adolescent girls. Moreover we could not contact the school teachers and local health workers regarding

their knowledge and attitude towards this program and suggestions for improvement. This data results clearly state that serious training and educations is required to the service providers to convey the knowledge to the girls to acquire the benefits of this wonderfully effective program for the improvement in the prevalence of anemia in adolescent females of India.

REFERENCES

1. Binay Kumar Shah, Piyush Gupta (2002). Weekly vs daily iron and folic acid supplementation in adolescent Nepalese girls. *Arch Pediatr Adolesc Med.* 156(2): 131-135
2. District level household and facility survey/ Ministry of Health and Family Welfare, 2007-08.
3. E- Siong Tee et al. (1999). School administered weekly iron-folate supplements improve hemoglobin and ferritin concentrations in Malaysian adolescent girls. *The American Journal of Clinical Nutrition.* June 69(6): 1249-1256.
4. K.N. Agarwal, S. Gomber, H. Bisht, M. Som (2003). Anemia Prophylaxis in Adolescent School Girls by weekly or daily Iron – folate supplementation. *Indian Pediatrics.* Apr; 40: 296-301.
5. Kotecha PV, Nirupam S, Karkar PD (2009). Adolescent Girls' Anaemia Control Programme, Gujarat, India. *Indian J Med Res.* Nov; 130(5): 584-589.
6. NI/PC/SAP/132/2000/908 dated July 31, 2000, National Institute for Public Cooperation and Child Development, Government of India (GOI)
7. P.R. Deshmukh, B.S. Garg, M.S. Bharambe (2008). Effectiveness of weekly supplementation of iron to control anaemia among adolescent girls of Nashik, Maharashtra, India. *J Health Popul Nutr* March 26(1): 74-78.
8. Pooja Trivedi, Dr. Aruna Palta (2007). Prevalence of Anaemia and impact of iron supplementation on anaemic adolescent school girls. *Health and Population – Perspectives and Issue* 30 (1): 45-55
9. The United Nations Children's Fund (UNICEF), (2011), Briefing paper series: Innovations, lessons and good practices, "The Adolescent Girls Anaemia Control Programme".