ORIGINAL ARTICLE

A Study on Weekly Iron Folic Acid Supplementation and Regular Deworming Programme in Rural Schools of Mathura District

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ABSTRACT

Background: Adolescent anemia is a major health problem in India. An estimated 56% adolescent girls and 24% adolescent boys in India are anemic, According to the fourth National Family Health Survey, Weekly iron supplementation programme has been quite effective in the control of nutritional anemia in various research settings of India.

Objectives: To determine the current status of WIFS and deworming Programme implementation in the schools of Chaumuhan, western UP, India.

Methods: A Cross Sectional Study was conducted in Chaumuhan block of Mathura district. Chaumuhan block was randomly selected out of ten developmental blocks. There are 10 clusters in Chaumuhan block out of which 3 clusters were randomly chosen. One school each from 3 clusters was chosen by simple random sampling for study. Structured study instrumemts (questionnaires, In-Depth Interviews (IDIs) were developed, and were used to generate data. Modifications were made to suit local requirement and generate data.

Results: Out of total 312 students, there were 104 boys and 208 girls. The mean age of students was 12.36+_1.13. Majority of participants (61.7%) were consuming IFA Tablets once a week and deworming tablet were consumed by 71.2% of students regularly i.e. once in 6 months. 24.0% of children said that they were afraid of side effects like nausea and vomiting as a reason for non-compliance followed by 6.7% who stated that they didn't like the taste of tablet. When the consumption of IFA tablets was correlated with symptoms of anemia with control variable (Gender, type of family, Parents education and Occupation) there was positive correlation with r value of 0.934 between consumption of IFA tablets and status of anemia in school children

Conclusion: It was observed that there was good compliance to Weekly iron and folic acid supplementation and Deworming programme. To further improve the impact health education sessions about the benefits of these tablets are necessary.

Key words: Anemia, Weekly Iron and Folic Acid Supplementation, Adolescent, Deworming.

INTRODUCTION

Adolescent anemia is major public health problem in India.[1] According to NFHS-4, 56% of adolescent girls and 24% adolescent boys in India are anemic.[2] To combat this health problem efficiency of weekly iron and folic acid supplementation has been demonstrated in various research settings.[3]

In 2013, Ministry of Health and Family Welfare, Government of India, has launched the Weekly Iron and Folic Acid Supplementation (WIFS) Programme. WIFS is an evidence-based answer to the current situation of anemia. It includes weekly supervised administration of IFA supplementation and bi-annual helminthic control. Along with the drugs, health Education is provided to raise awareness and to improve knowledge about the disease.[4]

This Programme was planned and implemented for the following two target groups in both rural and urban areas:

A) Adolescent Girls and boys enrolled in government/government aided/municipal schools from 6th to 12th class.

B) Adolescent girls who are not in School

Under this programme Married, Pregnant and lactating adolescent girls are also given IFA supplements.

These supplements are given according to current guidelines for antenatal and postnatal care through the health system of NRHM which already exists.[5]

The main stakeholders of the programme are MoH and MoE. Every Thursday during the school calendar year is declared as "Iron day", and every student is provided with IFA supplement and schools would practice supervised consumption of the tablet. In addition to IFA supplements, Albendazole tablets for deworming are administered twice a year to the same target groups.[6] So present study aims to explore and establish the factors affecting the implementation of programme in community.

Objective of the study was to determine the current status regular deworming programme (WIFS) implementation in the schools of Chaumuhan, western UP, India.

METHODS

This cross-sectional study was conducted in the government schools of Chaumuhan block by the Department of Community Medicine, KD Medical College from September 2019 to November 2019. Chaumuhan block was randomly selected out of ten developmental blocks. There are 10 clusters in Chaumuhan block out of which 3 clusters were randomly chosen. One school each from 3 clusters was chosen by simple random sampling for study. After random selection of schools, all the students who were present on the day of interview will be selected for the study. The interviewer will visit schools maximum upto 3 times to include maximum no of absenties.

Structured study instrumemts (questionnaires, In-Depth Interviews (IDIs) were developed, and were used to generate data. Modifications were made to suit local requirement and generate data. The ethical clearance from the Institutional Ethics Committee, K D Medical College, was taken. Permission was taken from the respective school's principals and prior appointment was taken from the class teachers for the survey. After taking informed consent from students and informed consent from the teachers, pretested, semistructured, self-administered questionnaire will be administered for those who were willing to participate in the study. The filled-in questionnaires will be checked for their completeness at the time of their collection.

Data was entered in SPSS software and Anthro Plus software (Version 3.2.2, January 2011). Descriptive statistics and associations were analyzed. The data is expressed in numbers, distribution and percentages. A p- value of less than 0.05 was considered as statistically significant.

RESULTS

Total number of students in three schools was 320. Out of total 320 students, 312 participated in study after three visits to each school. Out of total 312 students, there were 104 boys and 208 girls. The mean age of students was 12.36+_1.13. About 49.2% of mothers and 40.2% of fathers were educated till 5th class and 83.2% of student's parents had agriculture as their occupation. It was seen that gender, literacy status of parents and occupation did not affect consumption of IFA tablets.

As table 2 depicts girls had higher knowledge about symptoms of anemia (p=0.039) than boys. 66.8% of girls and 53.9% of Boys reported symptoms of anemia as easy tiredness, breathlessness and loss of appetite. Majority of participants (61.7%) were consuming IFA Tablets and deworming tablet were consumed by 71.2% of students regularly i.e. once in 6 months.

Majority of School children i.e. 73.10% and 86.50% stated that there was regular supply of IFA and Deworming Tablets respectively (Figure-1). 24.0% of children said that they were afraid of side effects like nausea and vomiting as a reason for non-compliance followed by 6.7% who stated that they didn't like the taste of tablet (Table-3).

During in-depth interview of School teachers investigators found that the most common reason for non-compliance is Bad taste and fear of side effects (41.0%) and 2nd most common cause is no contact details in case of short supply of tablets (34.0%) (Figure-2).When the consumption of IFA tablets was correlated with symptoms of anemia with control variable (Gender, type of family, Parents education and Occupation) there was positive correlation with r value of 0.934 between consumption of IFA tablets and status of anemia in school children (table-4).

Table 1: Characteristics of students (n=312)

Variables	Cases (%)
Age group	
<12 years	54 (17.3)
12-14 years	250 (80.1)
>14 years	8 (2.6)
Gender	
Boys	104 (33.3)
Girls	208 (66.7)
Nutritional Status: Body Mass Index	
Severely malnourished	16 (5.1)
Malnourished	104 (33.3)
Normal	178 (57.1)
Overweight	8 (2.6)
Obese	6 (1.9)
Symptoms & signs of anemia	
Present	118 (37.8)
Absent	194 (62.2)

Table 2: Knowledge about symptoms of anemia and regularity in consumption of tablets

Variables	Boys (%) (n=104)	Girls (%) (n=208)	Total (%) (n=312)	Chi- square value, P value
Knowledge about symptoms of anemia				
Tiredness, breathlessness and loss of appetite	56 (53.9)	139(66.8)	195(62.5)	6.4435, P=0.039
Cold & Cough	10(9.6)	21(10.1)	31(9.9)	
Fever, body pain	38(36.5)	48(23.1)	86(27.6)	
IFA Tablet				
Consuming once a week	46(44.2)	124(59.6)	170(54.6)	8.0502, P=.017861
Consuming irregularly	18(17.3)	34(40.4)	52(16.6)	
IFA- consuming not at all	40(38.5)	50(24.0)	90(28.8)	
Deworming tablets				
Consuming once in 6 months	74(71.2)	140(67.3)	214(68.6)	0.4761, P=0.491
Consuming regularly	30(28.8)	68(32.7)	98(31.4)	

Table 3: Reasons for non-compliance narrated by school children

Reasons	Boys (n=104) (%)	Girls (n=208) (%)	Total (n=312) (%)	P value
Don't like the taste	8(7.7)	13(6.25)	21(6.7)	0.0315
Fear of side effects (nausea, vomiting,etc)	29(27.9)	46(22.1)	75(24.0)	
Any adverse reaction	11(10.6)	6(2.9)	17(5.4)	
Parents pressure	4(3.8)	16(7.7)	20(6.4)	
Peer pressure	6(5.7)	3(1.4)	9 (2.9)	

Table 4: Correlation between consumption of IFA tablets and anemia

Tablets	Presence of Symptom & Sign in children		Total (%) (n=312)
	Yes (%) (n=118)	No (%) (n=194)	
Consuming IFA Tablets	86 (73.0)	136(70.1)	222(71.1)
IFA- not consuming at all	32 (27.0)	58(29.9)	90(28.9)

Statistical test- Spearman correlation; P value =0.07; R value =.934

Table 5: Facilitating factors by teachers (n=28) to support implementation of WIFS

Facilitating factors	No of teachers practicing them (%)
Counseling session by teachers for non-compliance students & parents	21(75.0)
Tablet is given after lunch for consumption under supervision of teacher	26(92.8)
Health officials are invited for counseling session	12(42.8)
No effort was taken	02(7.1)

The teachers played an important role in implementation of WIFS. Majority of the teachers i.e. 92.8% gave tablet to children after lunch for consumption under their supervision and 75% of the teachers took counseling session for non-compliant children & their parents (table-5)

DISCUSSION

During adolescence, iron deficiency aneamia is a major cause of impaired physical growth, poor cognitive development, reduces physical fitness and work performance and lower concentration on daily tasks. Iron deficiency in adolescents girls effects their life cycle. Anemic adolescents girls have a higher risk of preterm delivery and having babies with low birth weight .Regular consumption of iron folic acid tablets along with a diet rich in micro nutrients like iron and folic acid is essential for prevention of iron deficiency anemia in adolescent girls and boys.[7] Helminthic infestations among children further contribute to iron deficiency anaemia. More than one quarter of all the children are at risk of developing heminthic infestation through soil.so India National Deworming Programme aims to reach atleast 75% of the children.[8]

Out of total 312 students, there were 104 boys and 208 girls. The mean age of students was 12.36+_1.13. About 49.2% of mothers and 40.2% of fathers were educated till 5th class and 83.2% of student's parents had agriculture as their occupation. It was seen that gender, literacy status of parents and occupation did not affect consumption of IFA tablets. Similar findings were reported in a study conducted by Priya et al(2016). They stated that Gender, type of family, Parent's education and occupation were not associated with consumption of IFA Tablets.[10]

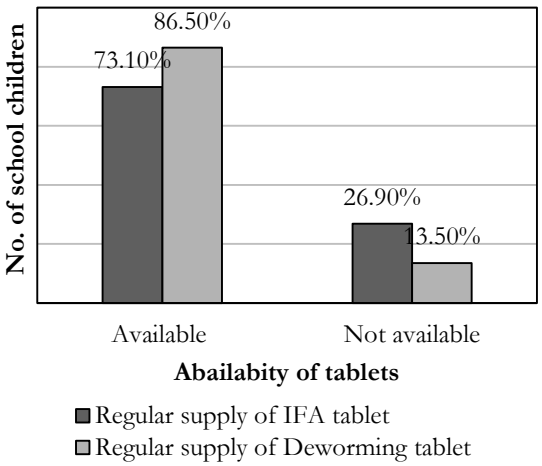

Figure 1: Availability of IFA Tablets

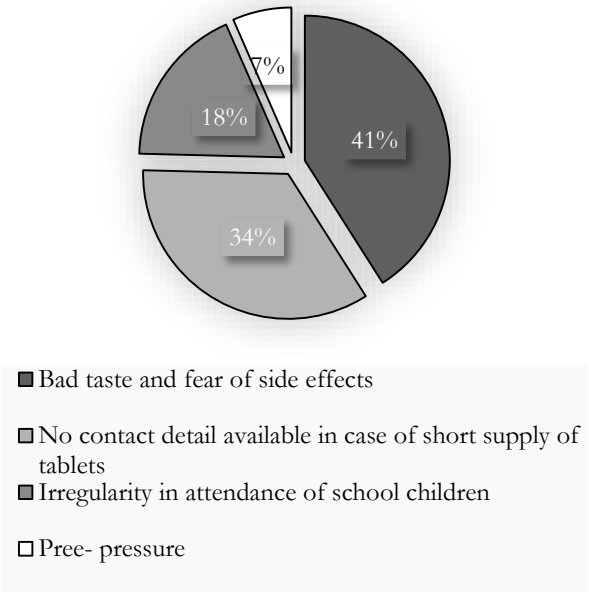

Figure 2: Reasons for noncompliance narrated by School Teachers

In our study among 312 students, 67.1% were consuming IFA tablets out of which 44.5% were consuming them regularly i.e. once a week and deworming tablet were consumed by 71.2% of students regularly i.e. once in 6 months. A study conducted by Dhikale et al (2015) in Pondicherry[11] and Priya etal (2016) in Puducherry[10] showed higher compliance rates(85.8%) with IFA tablets whereas a study in rural central India found compliance rates of 42%. In Our study girls had higher knowledge about symptoms of anemia (p=0.039) than boys. Most common symptom of anaemia stated by school children was tiredness, breathlessness and reduced appetite. Similar findings are reported by Vemuri et al (2019) in Telangana.[12].

In our study we found that the most common reason for non-compliance is Bad taste and fear of side effects (41.0%) and 2nd most common cause is no contact details in case of short supply of tablets (34.0%). In a study conducted by Priya et al (2016) in Puducherry reported that Stomach Pain, nausea and vomiting and disliking of tablets were main reason behind non-compliance. They further reported fear of weight gain, leave days and non availability of tablets as a barrier to IFA consumption.[10] Similar findings were also reported in a study conducted by Bhatt et al (2011) in Ahmedabad.[13] In contrast to our findings study in rural Pondicherry said that the major reason for non-compliance is Absentesim.[11]

When the consumption of IFA tablets was correlated with symptoms of anemia with control variable (Gender, type of family, Parents education and Occupation) there was positive correlation with r value of 0.934 between consumption of IFA tablets and status of anemia in school children. Similar findings are reported by Rakesh et al (2015) in kerela where they stated increased prevalence of anemia among school children who reported poor intake of IFA Tablets.[9] The same reason is one of the rationales behind the launch of evidence based programme, WIFS in India.[1]

The teachers played an important role in implementation of WIFS. Majority of the teachers i.e. 92.8% gave tablet to children after lunch for consumption under their supervision and 75% of the teachers took counseling session for non-compliant children & their parents. Similar facilitating factors were reported by Dhikale et al (2015) in Pondicherry where they highlighted supervision by teachers, distribution of IFA tablets for consumption after lunch, motivation sessions by the teachers and absent students were given tablets next day by teachers as a key factors in successful implementation of programme.[11]

Limitation of study was that we conducted the study in government schools but couldn't cover Anganwadi centre's which are also a part of programme

CONCLUSION

It was observed that there was good compliance to Weekly iron and folic acid supplementation and Deworming programme. To further improve the impact health education sessions about the benefits of these tablets are necessary as one of the major reasons for non-compliance was fear of side effects.

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