Knowledge and Compliance of Weekly Iron and Folic Acid Supplementation among Adolescents in Government Schools of block Baran, Rajasthan

By

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Under the Guidance of

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Vishal Tevatia

PG/19/101

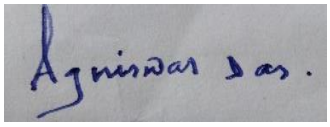
COMPLETION OF DISSERTATION

The certificate is awarded to Dr. Vishal Tevatia in recognition of having successfully completed her 3 months dissertation with effect from February 17, 2021 and has successfully completed his Project on "**Knowledge and compliance of Weekly Iron and Folic Acid supplementation among adolescents in Government schools of Block Baran,Rajasthan"** at Piramal Swasthya. He comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish him all the best for future endeavors.

Organization Mentor

Mr. Agniswar Das



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This is to certify that Vishal Tevatia student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Piramal Swasthya from 17th February 2021 to…...The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical. The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.

Dr. Preetha G.S (Mentor)

IIHMR, New Delhi

Certificate from Dissertation Advisory Committee

This is to certify that Dr. Vishal Tevatia a graduate student of the Post- Graduate Diploma in Healthcare and Hospital Management has worked under our guidance and supervision. He is submitting this dissertation titled "**Knowledge and compliance of Weekly Iron and Folic Acid supplementation among adolescents in Government schools of Block Baran,Rajasthan"** at "Piramal swasthya" in partial fulfillment of the requirements for the award of the Post- Graduate Diploma in Health and Hospital Management. This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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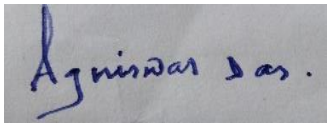

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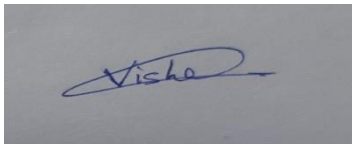

FEEDBACK FORM

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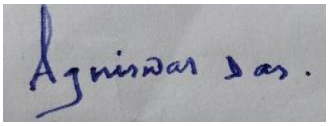

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ABSTRACT

Background: Anemia is a significant public health problem, especially in the adolescent age group. The Ministry of Health and Family Welfare, India launched the weekly iron and folic acid supplementation program for adolescent girls and boys. The objective of the study was to check the knowledge and compliance with the Weekly Iron and Folic Acid Supplementation (WIFS) program among adolescents in government schools.

Methods: A cross-sectional study was carried out in four government schools in block Baran, Rajasthan. A survey questionnaire was given to students from class 6^{th}–12^{th} through their teachers. The study was carried out for a period of 10 days.

Results: The survey questionnaire was sent out to 531 students, and all have responded. Seventy-eight per cent of students agreed to have received any medication from the school. Females had better knowledge than males, with 81% knowing the definition and symptoms of anemia. The benefits of taking iron and folic acid tablets were known to 68 per cent of the students. Most commonly reported side effects were stomach pain, bad taste, constipation, and vomiting. Forty-five per cent of students were aware of the WIFS program.

Conclusions: We concluded that students have basic knowledge and awareness about anemia and tablets that they receive from the school. There is a need for rigorous implementation of WIFS program guidelines across the state. Health education should be provided to students and parents to improve the program's outreach, to reduce the prevalence of anemia in school-going children.

Keywords: anemia, awareness, WIFS

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ABBREVIATIONS

AWW: Anganwadi Worker

BCC: Behavioral Change Communication

DV: Dependent variables

Hb: Haemoglobin

IEC: Information, Education and Communication

IFA: Iron and Folic Acid

IV: Independent variables

KAP: Knowledge, Attitude, and Practice

NFHS: National Family Health Survey

NIPI: National Iron Plus Initiative

RMNCH+A: Reproductive Maternal, Newborn, Child and Adolescent Health

UNICEF: United Nations International Children's Emergency Funds

WIFS: Weekly Iron and Folic Acid Supplementation

1. INTRODUCTION

The United Nations defines an adolescent as an individual aged 10–19 years. This phase of life is considered as the transitional phase from childhood to adulthood. During adolescence, major psychological, behavioral, and physical developments ensue. Due to marked physical activity and rapid growth spurt, adolescents have additional nutritional requirements (1). According to recent statistics, there were about 1.2 billion adolescents worldwide, who constitute one-fifth of the total world's population. Developing countries like India account for more than 253 million adolescents of the total adolescent population, and in India, about 21% of the total population are adolescents (2). The vast majority (88%) of the world's adolescents live in developing countries. Adolescents in developing countries are exposed to nutritional challenges, and adolescent girls are more vulnerable to anemia than boys (3). Studies showed that adolescent anemia was the greatest nutritional problem encountered in developing countries. Iron deficiency anemia is highly prevalent in less developed countries, but also remains a noticeable problem in developed countries, where other forms of malnutrition have already been virtually eliminated. Iron deficiency is not the only cause of anemia; however, anemia is prevalent where; iron deficiency is usually the most common cause. Anemia is a major preventable public health problem. Globally, anemia affects 1.62 billion, which corresponds to 24.8% of the population (4).

Definition: Anemia is a condition in which the number of red blood cells or the hemoglobin concentration within them is lower than normal. Hemoglobin is needed to carry oxygen, and abnormal or low count of red blood cells, or not enough hemoglobin, decrease the capacity of the blood to carry oxygen to the body tissues (5). Iron deficiency in food causes a decrease in the amount of hemoglobin, making the blood thin and less red in color which leads to less supply of oxygen to different body parts; this condition is known as anemia. Alternatively, it may be defined as a condition characterized by a reduction in the number of red blood cells and/or hemoglobin concentration.

Table 1.1 Hemoglobin levels for diagnosis of Anemia

Age/Sex	Hb Gram/dl
Children 6 months to 6 years	11
Children 6 to 14 years	12
Adolescents 15-19 years	12

If the level falls below the cutoff, then the person is diagnosed as having anemia.

Causes of iron deficiency Anemia

- Poor dietary intake of iron resulting in deficiency of iron in the body, thus causing iron deficiency anemia (less intake of iron-rich foods; gender discrimination in food allocation in a family aggravates the situation
- Low bioavailability of iron: Habitual intake of cereal-based diet high in phytate and poor consumption of iron absorption enhancers such as vitamin C result in low availability of iron
- Dietary deficiency of vitamins, such as folic acid, vitamin C, and vitamin B12

Situation in India

In India, adolescents between 10–19 years are mostly anaemic. This includes 28 per cent who are mildly anaemic, 41 per cent who are moderately anaemic, and three per cent who suffer from severe anemia (6). Girls are slightly more likely to have anemia than boys. Children of mothers who have anemia are much more likely to be anaemic. Although anemia levels vary according to the background characteristics, anemia among children is widespread in every group. Two-thirds of children (67%) are anaemic, even if their mother has 12 or more years of schooling. Sixty-three per cent of women in Haryana have anemia, including 43 per cent with mild anemia, 18 per cent with moderate anemia, and one per cent with severe anemia. Anemia is particularly high for women who are breastfeeding, although anemia exceeds 60 per cent for every group of women except those who are pregnant. Anemia among women has increased substantially (by seven percentage points) since NFHS-3. A little over one-fifth (21%) of men are anaemic. Men under age 20 are particularly likely to be anaemic (7).

More than one-third (37%) of women and 31 per cent of men are either too thin or overweight or obese. More men and women are overweight or obese than thin, which is the opposite of the pattern in NFHS-3. Eleven per cent of men and 16 per cent of women in Haryana are too thin, and 20 per cent of men and 21 per cent of women are overweight or obese. About two-thirds of women and men are at a healthy weight for their height (7).

The treatment of anemia in the adolescent age group helps to prevent its intergenerational impact, thus reducing maternal and infant morbidity.

National Iron Plus Initiative (NIPI): Life cycle approach for iron deficiency anemia and weekly iron and folic acid supplementation for adolescent girls and boys were the initiatives

taken by UNICEF to control adolescent anemia in the year 2000 in a phased manner. It includes the components of weekly iron and folic acid (IFA) (100 mg elemental iron and 500μg folic acid round the year) along with biannual deworming (Albendazole 400 mg every six months) and nutrition health education (7).

Weekly Iron and Folic Acid Supplementation Program

In 2013, government of India under the Ministry of Health and Family Welfare launched Weekly Iron and Folic Acid Supplementation (WIFS) Program under RMNCH+A approach to deal with the challenge of high prevalence and incidence of anemia amongst adolescent boys and girls (7).

WIFS is evidence-based programmatic response towards the prevailing anemia situation amongst adolescent girls and boys through supervised weekly ingestion of IFA supplementation and biannual helminthic control. The long-term goal is to break the intergenerational cycle of anemia, the short-term benefits is to have nutritionally improved human capital. The program was implemented across the country both in rural and urban areas.

Salient features of WIFS:

i. Objective of Weekly Iron Folic Acid Supplementation (WIFS) is to reduce the prevalence and severity of anemia in the adolescent population (10–19 years).

ii. Target groups

- School-going adolescent girls and boys in 6^{th} to 12^{th} class enrolled in government/government aided/municipal schools.
- Out-of-school adolescent girls.

iii. Intervention

- Administration of supervised weekly IFA supplements of 100mg elemental iron and 500ug folic acid using a fixed day approach.
- Screening of target groups for moderate/severe anemia and referring these cases to an appropriate health facility.
- Biannual de-worming (Albendazole 400 mg), for controlling helminthic infestation.
- Information and counseling for improving dietary intake and for taking actions for prevention of intestinal worm infestation.

iv. Convergence with key stakeholder ministries like the Ministry of Women and Child Development and Ministry of Human Resource Development is an essential part of implantation plan of the WIFS program. Key convergent areas include joint program planning; capacity building of nodal service providers; including medical officers; Anganwadi Worker (AWW) staff nurses, and school teachers; monitoring; and a comprehensive communication component.

v. Current status: The program has been rolled out in all States/Union Territories. The program covers 11.2 cr beneficiaries including 8.4 cr in school and 2.8 cr out-of-school beneficiaries. (7)

2. REVIEW OF LITERATURE

The published research papers focused on studying the compliance of weekly IFA supplementation among adolescents in government schools of Haryana. The studies evaluated the effectiveness, feasibility, evaluation, compliance, and effects of iron and deworming drugs on the adolescent group.

According to a study conducted in Vadodara, Gujarat in 2002, development of an ethnographic decision was done to understand and improve IFA supplement procurement and based on qualitative data obtained using research tool of pregnant women's compliance-related behavior open-ended, in-depth interviews were conducted with 36 pregnant women (17–32 weeks of gestation) purposively selected from four urban slums. Regular home visits and counselling until delivery helped to improve compliance, which resulted in 95 per cent of the women consuming over ninety per cent of the required dose. The mean haemoglobin level improved from 9.6 to 11.08 g/dl. The study features the need for qualitative ethnographic data to develop such models that would help in the understanding of specific behaviours that influence program acceptance (8).

Another study from Gujarat evaluated anemia burden among adolescents in tribal areas. The study was conducted with 254 adolescents aged 10–19 years. The study showed that the prevalence of anemia reduced from 79.5% to 58% among adolescent girls and from 64% to 39% among boys and a significant association between haemoglobin levels before and after the intervention was observed (9).A study conducted by the Department of Foods and Nutrition in Vadodara included children (4^{th}–7^{th} standard) from three rural schools. One set of school children were given deworming tablets (400 mg albendazole) once in six months, whereas the second school's children received deworming tablet along with a weekly dose of IFA tablet. Anthropometric measurements, haemoglobin, and physical work capacity were estimated. No significant change was noticed in the prevalence of malnutrition or physical work capacity of the children. As compared to only deworming, the IFA + deworming tablet group showed a 17.3 per cent increase in the haemoglobin levels ($P < 0.001$). Thus, weekly IFA, along with deworming, has shown a beneficial effect on the haemoglobin levels of the children (10).

A study conducted on adolescents from a high school in Kolkata evaluated the compliance and non-compliance of IFA tablets among boys and girls and assessed the involvement of teachers. A descriptive observational study was carried out on 285 school students of classes

6^{th} -12^{th}. Both teachers and students were interviewed, and the results showed that 67.7 per cent of students complaint after using IFA tablets. Eighty per cent of teachers had also taken IFA tablets before distribution. The study reported a significant relationship between fear of harm and unpleasant taste (11).

A study in Kerala evaluated the situation of WIFS program implementation in the schools. Two randomly selected schools with a sample of 524 students and 39 teachers through a self-structured and self-administered questionnaire with use of descriptive statistics. Out of the 524 students, 77.3 per cent of them had not consumed IFA tablets regularly as they either felt healthy or experienced resistant from parents. Awareness about anemia and its symptoms was good, but significant differences existed between the schools. Twenty-three per cent had side effects after IFA tablets intake, and a common side effect was stomach pain. All 39 teachers opined that WIFS Program was useful, and 90 per cent of teachers counselled the students. The awareness among students was not regular, and there is a need to strengthen the program by providing proper training to the teachers and health education to the parents and students about the benefits of WIFS (12).

A KAP study from Karnataka on adolescent girls assessed the changes in behaviour regarding anemia after weekly IFA supplementation and intensive health education. As a result, only 34 per cent of girls have heard about anemia and have inadequate knowledge, attitude and practice about anemia. The study concluded that WIFS and health education has an impact on improving knowledge, attitude, practice, and health-seeking behaviour of adolescent girls (13).

Table 2.1 Literature Review

S.no	Year	Authors	Title	I.V	D.V
1	2002	Jai Ghanekar, Shubhada Kanani, Sucheta Patel	Understanding behavior of pregnant women for better compliance of	- Family members - Counselling - IEC material	-Pregnant women behavior -IFA tablet compliance

			IFA		
2	2014	Shobha P Shah , Pankaj Shah , Shrey Desai , Dhiren Modi , Gaytri Desai , and Honey Arora	Effectiveness and feasibility of IFA supplementation to adolescent girls and boys	-Awareness sessions -IFA tablet administration -Training by Peer educator	-Increased IFA compliance -Reduced anemia (increased Hb)
3	2012	Rachana M. Bhoite & Uma M. Iyer	Effect of deworming vs IFA+ deworming on school children	-Deworming tablets -IFA tablets	-Increased height and weight -Reduced burden of anemia
5	2016	Sarada AK, Thilak SA	Evaluation of WIFS	-Evaluation -Parents resistance -Counselling by teachers	-Side effects Stomach pain -Non- compliance
6	2019	Monika Singh, Raghavendra A Honnakamble, Om Prakash Rajoura	KAP changes about Anemia after Intensive Health Education	-Health education -IEC material -Presentations WIFS	-Reduced disease burden -Awareness about anemia -Improved KAP

Table 2.2 Variables in Study

Independent variables	Dependent variables
Health education	Improved KAP
Counseling by teachers	Reduced disease burden

Information education communication (IEC)material	Side effects
Behavioral change communication	Non-compliance
Generating awareness about WIFS	Awareness about anemia
IFA tablet Administration	Behavior change
Knowledge about program	Increased IFA supplementation compliance
Evaluation	
Family members	
Parental resistance	

***** These variables are of two types: independent variables and dependent variables. These variables were included by the researcher's and taken into consideration for the study.

3. METHODOLOGY

3.1 OBJECTIVES

Broad objective

- To check compliance of weekly IFA supplementation in government-school adolescents in the block Baran district of Rajasthan

Specific Objectives

- To assess the knowledge about the weekly IFA supplementation in adolescents (10–19 years)
- To check the compliance rate of weekly IFA supplementation in adolescents (10–19 years)

3.2 RESEARCH METHODOLOGY

3.2.1 Study area

The study was conducted in 4 government schools of baran district, Rajasthan.

3.2.2. Study design

It was a cross sectional study

3.2.3. Study population

Students of government school in the adolescent age group (10–19 years of age; classes 6^{th}–12^{th}) including both males and females

3.2.4. Study sampling

Convenient sampling

3.2.5. Sample size

Total 531 Students of 6 -12^{th} standard in school in Block Baran,Baran. Schools were selected within 10km of organization office and students were randomly selected because of less strength due to Covid19.

3.2.6. Study tool

Through questionnaire which was filled by the students themselves in our presence to check the knowledge about anemia and the WIFS program and compliance of weekly IFA

3.2.7. Data collection method

Permission was taken from school principals and class teachers after informing them about the survey. The data was collected from the school children of classes 6–12 with the help of class teachers and school principals. The survey questionnaire was distributed by the class teachers during teaching sessions.

The questionnaire included closed-ended questions to check the compliance and knowledge of respondents about WIFS. Completeness and responses were checked after distributing the questionnaire.

3.2.8. Data analysis plan

Primary data was collected from the schools from March31–April 9 2021. The collected data included both qualitative and quantitative information regarding anemia. Analysis of primary data was done using MS Excel, based on the parameters of the study, which includes variables like knowledge about the definition, symptoms of anemia. Awareness of the WIFS program and medicine received from the school was assessed.

For better analysis, the qualitative data were converted into quantitative data to know the percentage of student responses toward different variables. Tables and charts were prepared to represent the collected data in the form of bar graphs and pie charts.

3.2.9. Ethical consideration

Each participant was informed about the study and survey responses were taken after obtaining informed consent of the participants and permission by the school principal and class teachers. The questionnaire was administered to those who were willing to participate in the study. The participant entries and the data were completely anonymous and no personal details were collected in the survey.

4. RESULTS

4.1. Descriptive analysis of demographic variables

Table 4.1 summarizes the age and sex distribution of the study participants. There were m females (69.5%) and males(30.5%). 12.4% of student participants were of ages 10-12 years and (33.5%) participants were of age 13-15 years, maximum participants(51.78%) were from the age of 16-18 years and the least participation (9%) was by students above the ages of 18 years.

The survey questionnaire was circulated to 531 adolescents of classes 6–12th and a total of 531 responses were received with completed questionnaires. The collected responses were analyzed based on questions asked in the survey.

Table 4.1. Demographic variables (N = 531)

Variables	Respondents	Frequency	Per cent
A1. Gender	Male	162	30.5%
	Female	369	69.5%
A2. Age	10–12 years	66	12.4%
	13–15 years	178	33.5%
	16–18 years	275	51.78%
	More than 18 years	13	2.44%
A3. School	School1	26	4.8%
	School2	94	17.7%
	School3	180	33.8%
	School4	231	43.5%

The collected data was manually checked for errors and completeness. The study showed that a higher percentage of female students agreed on receiving IFA tablets and had a better compliance rate.

Received tablets	Female	Male	Grand Total
No	85	26	111
Yes	283	135	418
(blank)	1	1	2
Grand Total	**369**	**162**	**531**

Table 4.2. Students received any medication from school (N=531).

Table 4.2 shows the responses of students who agreed to receive any medicine (IFA or Albendazole) from the school. 83.3% of the male students agreed on receiving medicine from the school whereas 16 per cent refused. 76.7% of the female students agree to receive the medication from school. A total of 78.71 % (both male and females) agreed that they received medicine from the school whereas 20.9% refused on getting any medicine.

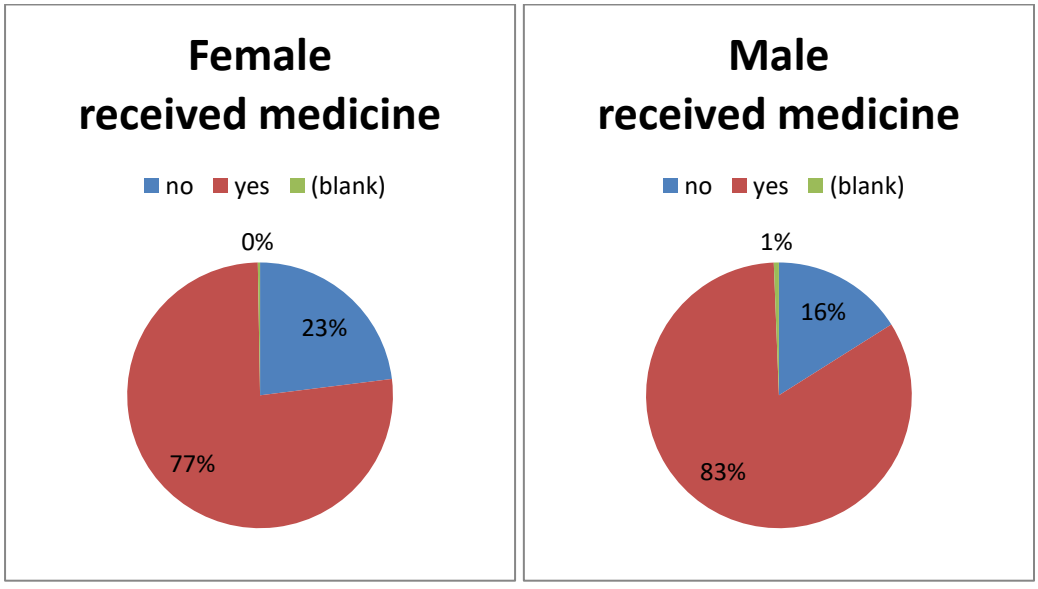

Figure 4.1. (Left) Female students who received any medicine from the school.

Figure 4.2. (Right) Male students who received any medicine from the school.

Table 4.3. Responses about which medicine was provided to the students.

What medicine do they receive?	IFA (Iron and Folic Acid tablets)	Deworming tablet	Both (IFA + deworming tablet)	None	Total
Male	61	36	45	23	165
Female	214	53	55	50	372
Total	275	89	100	73	537

Table 4.3. Shows students' knowledge about the medicine that they received, 37 per cent of the male and 57 per cent of female students said that they received IFA tablets; 21 per cent males and 14 per cent females said they received deworming tablets. Approximately 27 per cent males and 14 per cent females agreed on receiving both IFA and deworming tablets whereas 13 per cent of the total students did not know and disagreed on receiving any of the medicine.

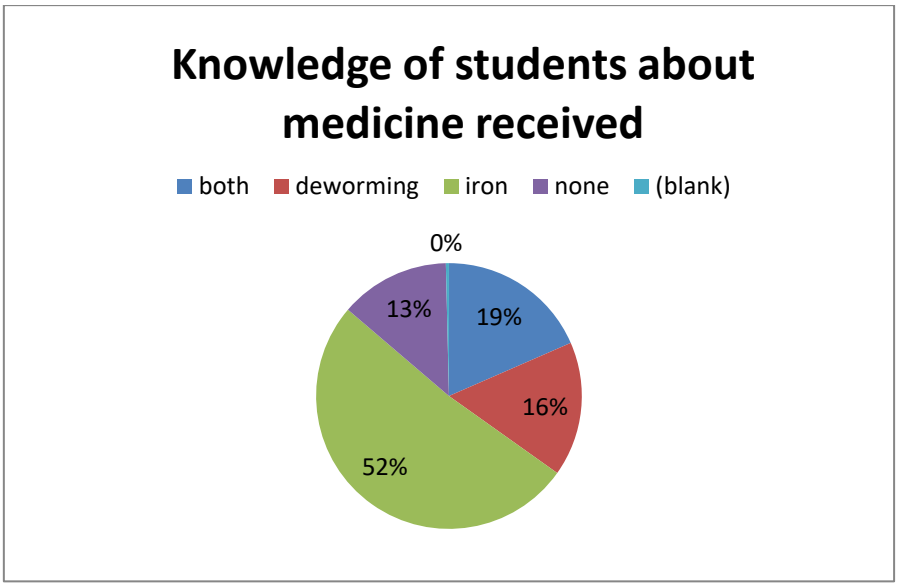

Figure 4.4. Shows knowledge of student about medicine they are receiving.

Table 4.4. Frequency of receiving medicines and the person from whom they receive it (N = 531).

Parameters		Male	%	female	%	Total	%
Frequency of medicine	**Once a week**	113	71%	231	69%	344	70%
	Once a month	46	29%	102	31%	148	30%
Who provides the medicine?	**Class teacher**	137	85%	284	86%	421	85%
	others	25	15%	47	14%	72	15%

Regarding the question about the frequency of receiving medicines; 70 per cent of the total male and female students said that they received the tablets once a week and 30 per cent received once a month. Class teachers (85%) were the major influencers or providers of the tablets whereas 15 per cent students marked others (including other staff members, health workers, and AWW) (Table 4.4).

Table 4.5. Awareness about the definition, symptoms, and basic knowledge of anemia.

Parameters		Male	%	Female	%	Total	%
Reasons for giving IFA tablet	For anemia	104	64%	254	68%	358	67%
	For strength	44	27%	99	26%	143	27%
	Don't know	12	7%	14	3.7%	26	5%
	Blank	2	1.2%	2	0.5%	4	0.7 %
Anemia is?	Low HB	125	77%	299	81%	424	80%
	Lack of strength	1	0.6%	9	2.4%	10	1.8 %
	Lack of blood	1	0.6%	0	0%	1	0.1 %
	Don't Know	34	21%	54	14%	88	16%
	Blank	1	0.6%	7	1.8%	8	1.5 %
Symptoms of anemia	Feeling tired	64	40%	119	32%	183	34%
	Loss of appetite and concentration	62	38%	134	36%	196	37%
	Lack of Strength	22	14%	54	14%	76	14%
	None	9	5%	33	9%	42	8%
	Other	2	1.2%	22	6%	24	4.5 %
	Blank	3	1.8%	7	1.8%	10	1.8 %

Benefits of IFA tablets	know	114	70%	247	67%	361	68%
	Don’t know	47	29%	121	33%	168	32%
	Blank	1	0.6%	1	0.2%	2	0.3 %

Knowledge and awareness about anemia

The knowledge and awareness about anemia definition, symptoms and benefits (preventing low blood levels of iron) was good among female adolescent students than male students of the school (Table 4.5). About 81 per cent females and 77 per cent of males knew about anemia. There was no significant difference observed among other responses between males and females.

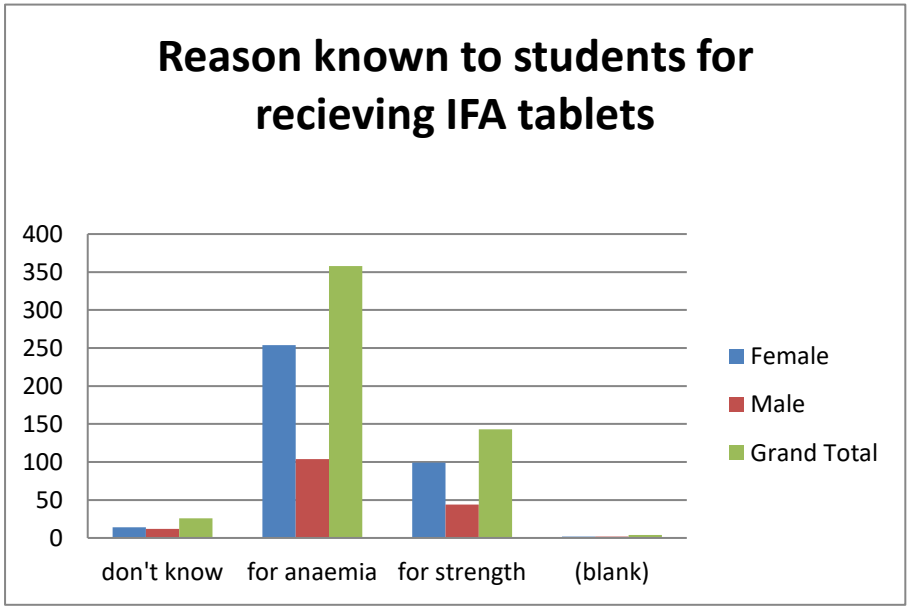

Figure 4.5. Reasons known to male and female students for receiving IFA tablets from the school.

Table 4.6. What students do when they are given IFA tablet.

	Male	%	Female	%	Total	%
Ingest	107	66%	296	80%	403	76%
Throw away	53	32%	69	18%	122	23%
Blank	2	1.2%	4	1%	6	1%

Regarding the question what students do when they receive IFA tablets, approximately 76 per cent of the students ingested the tablets whereas 23 per cent threw them away, contributing to non-compliance to the IFA tablets. More female adolescents (80%) ingested tablets than males (Table 4.6).

Table 4.7. Responses on type of complaint felt after taking IFA tablet (N = 531).

Parameters		**Male**	**%**	**female**	**%**	**Total**	**%**
What complaint felt by the students	**Bad taste**	20	12%	86	23%	106	20%
	Stomach pain	25	15%	48	13%	73	14%
	Constipations	22	14%	14	4%	36	7%
	Vomiting	17	10%	38	10%	55	10%
	Others	13	8%	22	6%	35	6%
	None	51	31%	143	38%	194	36%
	Blank	14	9%	18	5%	32	6%

Table 4.7 and Figure 4.6 show that a similar number of students do not experience any major side effects after taking IFA tablets.36 per cent of the students responded about no side effects. The two major common complaints among male and female students were stomach pain (14%) and bad taste (20%).

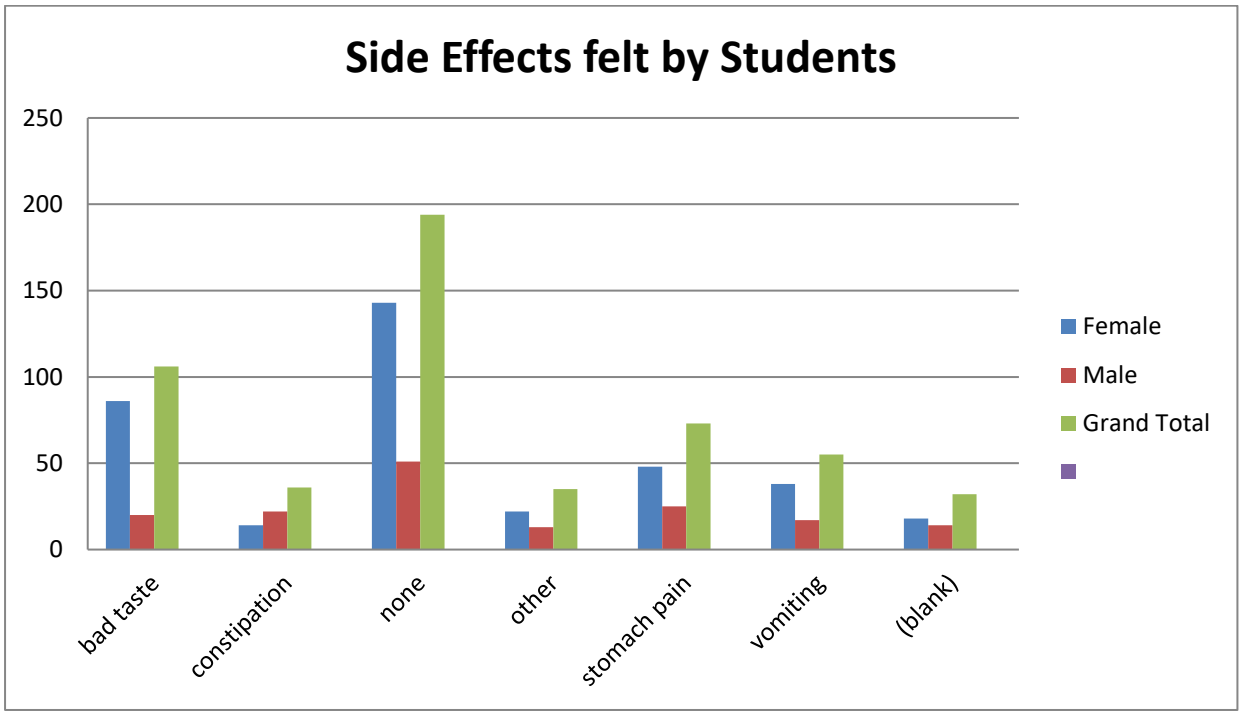

Figure 4.6. Major side effects felt by the students after taking IFA tablets.

Table 4.8. Non-compliance and the reason for non-compliance to IFA tablets among students (N=531).

Parameters		Male	%	Female	%	Total	%
Stopped taking tablet	**Yes**	78	48%	133	36%	211	39%
	No	82	50%	234	63%	316	59%
	Blank	2	1	2	0.5%	4	0.7%
(**N = 78**for male who felt any complaint) and (**N = 133** for females who felt any complaint) and (**N = 211** for total)							
Reason for non-compliance	**Doubt in quality**	32	19%	91	25%	123	23%
	Don't know the effect	61	37%	100	27%	161	30%
	Previous experience of side effects	37	22%	122	33%	159	30%
	Asked to avoid by parents	14	8%	38	10%	52	10%
	Blank	18	11%	18	5%	36	7%

Table 4.8 and Figure 4.7 show the number of students who stopped taking the IFA tablets and the reason for non-compliance of the medicine. Around 48 per cent and 36 per cent of the male and female students, respectively, stopped taking medicine. Approximately 60 per cent of student's non-compliance was because of their previous side effect by the tablet and most of them don't know the effect of the tablet. Almost 23 per cent of the students felt doubt in quality of the tablet. And the least 10 per cent of student's non-compliance was influenced by their parent's decision of not allowing their children to take any tablet from the school premises.

Figure 4.7. Shows the major reasons for non-compliance of tablets among students.

Table 4.9. Responses on awareness of WIFS program among students (N=531).

		Male	%	Female	%	Total	%
Awareness of WIFS program	**Yes**	83	51 %	158	42%	241	45%
	No	77	47 %	206	56%	283	53%
	Blank	2	1 %	5	3%	7	1%

Table 4.9 depicts that a similar number of male and female students were aware of the WIFS program; however, the overall awareness was just 45 per cent which is not sufficient to create an impact to make this program a success among the rural areas of the district.

5. DISCUSSION

The present study evaluated the knowledge about anemia and WIFS program in government school adolescent boys and girls. Iron deficiency anemia is a major concern among adolescents. It results in underdevelopment, lack of concentration, weakness, learning disability, and a weak immune system, leading to more chances of getting seasonal illnesses and diseases.

In this study, about 80 per cent of students had some knowledge about anemia. The key finding was that female students had better compliance and knowledge of IFA tablets that they received at school. A higher proportion of male students stops taking medicines and were less aware of anemia than females.

This study includes knowledge of IDA(Iron deficiency anemia) including adolescent boys and compliance of tablet on which very few studies have been conducted previously. A study in Ethiopia reported that 9.4 per cent of males suffered from anemia, specifically 11.2 per cent suffered from iron deficiency anemia (14).Five hundred and thirty one students responded to the survey during their class in school premises by respective class teachers. Approximately 79 per cent of the students agreed that they received medicine from school. The non-compliance rate due to any side effect or any other factor was more than 60 per cent. The overall knowledge of the definition, symptoms of IFA was approximately 80 per cent. This showed that the students knew about anemia; however, the program started by the government to cure the problem (WIFS) has not reached the desired level to create an impact in reducing the burden of disease.

World health report 2002, identified anemia as one of the top ten major risks for infant mortality rate, maternal mortality rate, and preterm birth. WHO/UNICEF has suggested that the problem is of very high magnitude in a community when the prevalence rate exceeds 40 per cent (15)

Compliance is determined by the student's ability to receive and ingest the medicine given to them by the school staff and motivate them to continue taking the medicines all year. According to a review, the common determinants of compliance to IFA tablets were inadequate knowledge, restriction by parents, and insufficient monitoring and supervision by the distributer and school staff (16).

This study had advantages and limitations. Advantage such as it would help the government in implementing and targeting maximum students to make WIFS program successful and reducing prevalence of anemia among them, another advantage was to have real-time survey response recordings (real-time responses gives more accurate and unbiased data), by visiting the schools and conducting more in-depth interviews with the students for better assessment of their knowledge and awareness. Limitations include, schools were selected randomly and sample from one school was done on the basis of availability of students in school, another limitation was low strength of students coming to school due to Covid19.

6. RECOMMENDATION

- Counseling of both parents and children and make them understand about the benefits of IFA tablet.
- Proper way of taking medicine like, it should be taken after the food to avoid vomiting and stomach pain.

- One to one counseling can be done by AAAs at VHSND sites.

7. CONCLUSION

This evaluation of knowledge and compliance of WIFS among adolescents clearly demonstrates that the majority of students have the basic knowledge and awareness about anemia and tablets which they receive from school. The awareness about the WIFS program running in the school is not enough to make the program a success in the state.

Since the program is implemented nationwide without any exclusive criteria for boys and girls to reduce prevalence of anemia among school children, the compliance rates need to be monitored and assessed. An assured monitoring of ingestion of IFA tablets by students under supervision will help increase the compliance rate of the program.

School-based and gender-based interventions among adolescents will play an important role in creating awareness and help in reducing anemia prevalence. Health education programs about food items and other sources of nutrition to help in the overall development of children should be given to parents and the students. More attention and focus should be given to female adolescents due to the initiation of menses which increases the chances of anemia. Training is required for teachers and health workers to increase awareness about both WIFS and anemia.

APPENDIX 1

Weekly Iron Folic Acid Supplementation Survey Questionnaire

Your consent would be appreciated to participate in a research study to "Check knowledge and compliance of weekly iron and folic acid supplementation among adolescents in government schools of Block Baran,Rajasthan". This study is done by "Vishal Tevatia" a master's student of PGDHM Hospital and Health from IIHMR Delhi as a part of academic dissertation study.
The purpose of this survey is "to know the compliance rate of IFA Tablets and knowledge of WIFS program, among adolescents of government school of Baran, Rajasthan.
Please provide your consent for using this survey information for study it will take only 5 minutes of yours to fill this questionnaire for research study.
*The entries and responses will be considered anonymous. This study will be conducted under supervision of school principal and class teachers and it won't harm any person or family, this is for research purpose only. Primary Data collected from the study will not be shared to anyone without permission.

Questionnaire

Age -

Sex/Gender –

Class-

1. Do you receive some medicine from school?
a. Yes
b. No

2. What medicine do you receive?
a. Iron tablet
b. Deworming
c. Both
d. None

3. How often do you receive medicine?
a. Once a week
b. Once a month
c. Don't get
d. Don't know

4. Who give the medicine?
a. Class teacher
b. Others

5. Why is iron tablet given to you?
a. For Anemia

b. For Strength
c. Don’t know

6. According to you anemia is?
a. Low Hemoglobin
b. Lack of Blood
c. Lack of strength
d. Don’t know

7. Do you know symptoms of anemia?
a. Feeling tired
b. Lack of strength
c. Loss of appetite and concentration
d. Don’t know

8. Do you know benefits of taking iron and folic acid tablets?
a. Yes
b. No

9. Do you know benefits of Albendazole tablets?
a. Yes
b. No

10. What you do with the tablet?
a. Ingest
b. Throw away

11. What complain do you felt after taking the medicine?
a. Bad taste
b. Stomach pain
c. Constipation
d. Vomiting
e. Others
f. None

12. Did you stop taking the medicine after feeling any complaint?
a. Yes
b. No

13. Reasons to stop taking of medicine (more than one is correct)
a. Don’t know the effects
b. Past side effects
c. Doubt in Quality
d. Previous experience of side effects
e. Asked to avoid by parents

14. Did you know about WIFS program?

a. Yes
b. No

APPENDIX 2

साप्ताहिक आयरन फोलिक एसिड अनुपूरक सर्वेक्षण प्रश्नावली

आपकी सहमति " ब्लॉक बारां राजस्थान "के सरकारी स्कूलों में किशोरों के बीच साप्ताहिक लोहा और फोलिक एसिड अनुपूरण के ज्ञान और अनुपालन की जांच" के लिए एक शोध अध्ययन में भाग लेने के लिए सराहना की जाएगी। यह अध्ययन अकादमिक शोध प्रबंध अध्ययन के एक भाग के रूप में IIHMR Delhi के एमबीए अस्पताल एंड हेल्थ के एक परास्नातक छात्र "Vishal Tevatia" द्वारा किया गया है।

इस सर्वेक्षण का उद्देश्य " ब्लॉक बारां राजस्थान" के सरकारी स्कूलों के किशोरों के बीच IFA टैबलेट की अनुपालन दर और WIFS कार्यक्रम के ज्ञान को जानना" है।

कृपया अध्ययन के लिए इस सर्वेक्षण की जानकारी का उपयोग करने के लिए अपनी सहमति प्रदान करें, अनुसंधान अध्ययन के लिए इस प्रश्नावली को भरने में केवल 5 मिनट का समय लगेगा।

* प्रविष्टि**यों** और प्रतिक्रियाओं को गुमनाम माना जाएगा। यह अध्ययन स्कूल के प्रिंसिपल और क्लास शिक्षकों की देखरेख में आयोजित किया जाएगा और इसमें किसी भी व्यक्ति या परिवार को नुकसान नहीं होगा, यह केवल शोध के उद्देश्य से है। अध्ययन से प्राप्त प्राथमिक डेटा बिना अनुमति के किसी को साझा नहीं किया जाएगा।

Questionnaire

आयु -

लिंग –

कक्षा-

1. क्या आपको स्कूल से कोई दवा मिलती है?

- ❑ हां
- ❑ नहीं

2. आपको कौन सी दवा मिलती है?

- ❑ आयरन की गोली
- ❑ डी-वोर्मिंग (कीड़े मारने की दवा)
- ❑ दोनों
- ❑ कोई नहीं

3. कितनी बार आप दवा प्राप्त करते हैं ?

- ❑ सप्ताह में एक बार
- ❑ महीने में एक बार
- ❑ नहीं मिलती
- ❑ पता नहीं

4. कौन दवा लेने के लिए कहता है?

- ❑ क्लास टीचर
- ❑ अन्य

5. आपको आयरन की गोली क्यों दी जाती है ?

- ❑ खून की कमी के लिए
- ❑ ताकत देने के लिए
- ❑ पता नहीं

6. आपके अनुसार अनिंमिया क्या है?

- ❑ कम हीमोग्लोबिन
- ❑ खून की कमी होना
- ❑ ताकत की कमी होना
- ❑ पता नहीं

7. क्या आप अनिंमिया के लक्षणों को जानते हैं

- ❑ थकान महसूस कर ना
- ❑ कमजोरी महसूस होना
- ❑ भूख और एकाग्रता में कमी
- ❑ अन्य
- ❑ नहीं

8. क्या आप आयरन और फोलिक एसिड की गोलियां लेने के फायदे जानते हैं ?

- ❑ हां
- ❑ नहीं

9. क्या आप अल्बेंडाजोल की गोली के फायदे जानते हैं?

- ❑ हां
- ❑ नहीं

10. आप गोली के साथ क्या करते हैं?

- ❑ खा लेते है
- ❑ फेंक देना

11. दवा लेने के बाद आपको क्या शिकायत थी ?

- ❑ खराब स्वाद
- ❑ पेट दर्द
- ❑ कब्ज़
- ❑ उल्टी होना
- ❑ अन्य
- ❑ कोई नहीं

12. क्या आपने कोई शिकायत महसूस करने के बाद दवा लेना बंद कर दिया ?

- ❑ हां
- ❑ नहीं

13. दवा न लेने के कारण (एक से अधिक सही है)

- ❑ गुणवत्ता में संदेह
- ❑ साइड इफेक्ट्स के पिछला अनुभव
- ❑ माता-पिता ने बचने के लिए कहा
- ❑ प्रभाव की जानकारी का अभाव
- ❑ पिछला कोई दुष्प्रभाव

14 .क्या आप WIFS (साप्ताहिक आयरन और फोलिक एसिड सप्लिमेन्टेशन) कार्यक्रम के बारे में जानते हैं?

- ❑ हां
- ❑ नहीं

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