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Prevalence of Anemia, Knowledge, Attitude and Compliance Related to Weekly Iron Folic Acid Supplementation Programme among the Adolescents in Selected School of South East Delhi

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Abstract: *Anaemia is a condition in which the number of red blood cells or the haemoglobin concentration within them is lower than normal. Haemoglobin is needed to carry oxygen and if you have too few or abnormal red blood cells, or not enough haemoglobin, there will be a decreased capacity of the blood to carry oxygen to the body's tissues. This results in symptoms such as fatigue, weakness, dizziness and shortness of breath, among others. The optimal haemoglobin concentration needed to meet physiologic needs varies by age, sex, elevation of residence, smoking habits and pregnancy status.(1) The most common causes of anaemia include nutritional deficiencies, particularly iron deficiency, though deficiencies in folate, vitamins B12 and A are also important causes; haemoglobinopathies; and infectious diseases, such as malaria, tuberculosis, HIV and parasitic infections.1*

Anemia is global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. Anemia affects mainly the women in child bearing age group, young children and adolescents.2

According to World Health Organization (WHO) Adolescents of age between 10- 19 years. Data show that the number of adolescents is 1.2 billion worldwide and in India 243 million. During adolescence, both in boys and girls, second growth spurt of life is seen, which significantly increases nutritional requirements, especially for iron. Anaemia, due to nutritional deficiency disorder, is an important public health problem among adolescent in our country, primarily occurs due to iron deficiency. According to National Family Health Survey (NFHS)-3, more than 55 percent of both adolescent boys and girls are anaemic. 3

Materials and Methods: Descriptive survey design to assess the prevalence of anaemia, knowledge, attitude and compliance related to weekly iron folic acid supplementation programme among the adolescents. The study conducted on 200 samples. Structured questionnaire and record analysis technique were selected for collecting data -related to knowledge, attitude and compliance.

Results: The sample characteristics revealed that the maximum number of subjects were in the age group 17-18 years. Most (60%) of adolescents were male and 40% were females. Majority (62%) belongs to Hindu religion. 27.5% of family income were between Rs 10001-20000. Majority (24%) of adolescent's father were educated up to intermediate level only. Maximum (41.5%) of adolescent's mothers were illiterate. Majority (50%) of father's occupation were private job and 82% mothers were house wife.

The prevalence of anemia among adolescents was found 44.5% and the prevalence was found higher among girls (57.5%) than boys (35.83%). Majority (66.30%) of adolescents had mild anemia. Majority (32.5%) of adolescents were anemic between age group 17-18. Most (56%) of adolescents were fully compliant to WIFS (IFA). Out of which (62.5%) of adolescent's boys and 46.25% girls were fully compliant to WIFS (IFA) consumption. The main reasons for non-compliance and partial compliance were "side effects of tablets" (87.90%), and main reasons for compliance among adolescents was "Advice from teachers" (52.68%).

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The mean knowledge score was 14.37 and attitude mean score was 44.15 shows that adolescents had fair knowledge and had neutral attitude regarding WIFS programme. Data showed a highly positive correlation between the knowledge scores and the attitude scores (r = 0.88) of the adolescents regarding WIFS programme which is found to be statistically significant at 0.05 level of significance. It indicates, higher the level of knowledge, more the favorable attitude the adolescents have towards WIFS programme. The association between compliance and knowledge (24.152), attitude (19.211) and anemic status (24.979) were found statistically significant.

There was a significant association between knowledge, attitude and selected factors such as father's and mothers' educational and occupational status and family income except sex and religion. This indicates that knowledge and attitude was dependent by these variables.

Very significant association was found between compliance status and selected factors such as sex, fathers and mothers' educational and occupational status and family income except religion. This indicates that compliance status was dependent and influenced by these variables.

There was found very significant association between anemic status and selected factors such as sex, religion, fathers and mothers' educational status, mothers' occupational status and family income except fathers' occupational status. This indicates that compliance status was dependent and influenced by these variables.

Conclusion: After the detailed analysis of the study findings showed that prevalence of anemia among adolescents was found more among Girls than the boys. Maximum of them were fully compliant to WIFS (IFA). The mean knowledge score and attitude mean score shows that adolescents had fair knowledge and had neutral attitude regarding WIFS programme. Highly positive correlation between the knowledge scores and the attitude scores (r = 0.88) of the adolescents regarding WIFS programme that also found statistically significant at 0.05 level of significance. It indicates, higher the level of knowledge, more the favorable attitude the adolescents have towards WIFS programme. The association between compliance and knowledge, attitude and anemic status were found statistically significant.

Keywords: prevalence of anemia, knowledge, attitude, compliance, weekly iron folic acid supplementation programme, adolescents.

I. INTRODUCTION

Anaemia is the most prevalent deficiency disease and one among the major nutrition related goals globally. Children, Adolescent and women of reproductive age are the most vulnerable groups for anaemia everywhere. While there are various nutritional and non-nutritional factors causing anaemia, Iron deficiency is the most prominent of them. In India, more than half population of preschool age children and reproductive age women is suffering from anaemia. Indian government had started anaemia prophylaxis efforts a half century ago and still continuing to battle with this ever-prevalent disease to bring down its occurrence.[4]

National Family Health Survey is the large-scale survey conducted in India to provide high-quality data on health and family welfare and related emerging issues. The data provided not only helps in formulation, revision and monitoring of the policies and programs but in situating the development of India globally. Studying the time trend for anaemia prevalence and other related parameters reported in NFHS surveys helps how well India has performed until now and how far is from its goal to become Anaemia free country.[5]

The Ministry of Health and Family Welfare has launched the Weekly Iron and Folic Acid Supplementation (WIFS) Programme to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys. WIFS is evidence based programmatic response to the prevailing anaemia 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 anaemia; the short-term benefits are of a nutritionally improved human capital.[6.] The programme, implemented across country both in rural and urban areas. The Weekly Iron and Folic Acid Supplementation (WIFS) program and the Bi-annual National deworming day were initiated in schools and anganwadis to prevent adolescent anemia in response to the National Family Health Survey (NFHS)-3, which reported that 56%

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girls and 30% boys aged 15–19 in India were anaemic. However, the recent NFHS-4 has indicated no significant decline in the levels of adolescent anaemia.[7]

UNICEF supported MoHFW in conceptualizing and convening for the development of Anaemia Mukta Bharat (Anaemia Free India) operational guidelines and related materials such as the reporting dashboard and communication materials. As the high prevalence in the country, UNICEF and India supported the programme to reduce the prevalence and full-fil the nutrition requirements of the anaemic person. [8]

II. OBJECTIVES OF STUDY

- To assess the prevalence of anaemia among adolescents.
- To assess the compliance, knowledge and attitude related to weekly iron folic acid supplementation programme among adolescents.
- To seek the relationship between knowledge and attitude of adolescents regarding WIFS programme.
- To seek the association of compliance with knowledge, attitude and anaemic status of adolescents regarding WIFS programme.
- To seek association of compliance, knowledge, attitude and anaemic status of adolescents with selected demographic variables.

III. MATERIALS AND METHODS

A quantitative descriptive survey design was used to assess the prevalence of anaemia, knowledge, attitude and compliance related to weekly iron folic acid supplementation programme among the adolescents. The study conducted on 200 samples. Structured questionnaire and record analysis technique were used for collecting data -related to knowledge, attitude and compliance through following tools:

- **Part I: Socio-Demographic Performa -** The first part consists of socio-demographic variables which includes age, sex, religion, educational status and occupational status of fathers and mothers, monthly family income and present illness of adolescents and physical characteristics height, weight, signs and symptoms of anaemia like palmer pallor, color of conjunctiva, tongue and hairs and nail's shape and record Performa to assess the compliance status.
- **Part II: Structured Knowledge Questionnaire -** The second part consists of the structured knowledge questionnaire which was developed by the investigator to assess the knowledge questionnaire to ascertain of adolescent's knowledge regarding WIFS and anaemia.
- **Part III: Structured Knowledge Questionnaire -** The third part consists of the structured attitude scale which was developed by the investigator to assess the attitude regarding WIFS.

3.1 Scoring and Interpretation

The items were phrased in a multiple choice form with three options as distractors and with one correct response. The correct response is given a score of one mark and the wrong response is given a score of zero. Thus, the maximum possible score is 24.

The resulting knowledge is graded as follows:

Categories And Scoring Criteria for Compliance Status in Adolescents

No.	Categories	Scoring Criteria
1.	Full Compliance	Consuming IFA tablets 20-26
2.	Partial Compliance	Consuming IFA tablets 14-19
3.	Non-Compliance	Consuming IFA tablets 13 or lessthan
Consuming IFA (Iron folic acid) tablets in 26 weeks. Each week one tablet.		

Categories and Scoring Criteria for Structured KnowledgeQuestionnaire

S No.	Categories	Scoring criteria
1	Poor knowledge	0-8
2	Fair knowledge	9-16

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3	Good knowledge	17-24
Maximum score – 24		

This self-rating scale consists of 16 statements related to WIFS programme and anaemia. There were 8 negatives and 8 positive statements on a five-point scale as strongly agree, agree, undecided, disagree and strongly disagree. The total score rangedbetween16-80. The following table 3.5 gives categories of attitude scale. The attitude of adolescents has been categorized in terms of Favorable, Neutral and Un- favorable.

Categories And Scoring Criteria for Structured Attitude Scale

S No.	**Categories**	**Scoring Criteria**
1.	Favorable Attitude	52-80
2.	Neutral Attitude	28-51
3.	Un-Favorable Attitude	16-27
Maximum score- 80		

Content validity of the tool was ensured by a team of 11 experts. The experts included 2 Obstetrics and Gynaecological specialists and seven nursing experts specialized in Obstetrics and Gynaecological nursing. The reliability of the knowledge questionnaire was established by using split half method. In order to establish reliability, the tool was administered to 15 samples who fulfilled the inclusion criteria. These samples were excluded from the main study. The reliability was established by Inter-observer and Karl Pearson's product moment correlation formula and the tool was found to be reliable with a reliability coefficient 'r' =>0.85.

Final study was conducted on 200 samples. The sample for the study comprised of adolescent, who met the designated criteria were selected through probability random sampling technique. Objectives of study was discussed and obtained consent for participation in study. Base line data was assessed by structured knowledge questionnaire. Based on the objective and the hypothesis the data was analysed by using various statistical tests i.e. percentage, mean, paired t test and chi square test.

3.2 Statistical Methods

The data collected from the participants was planned to be analysed on the basis of the objectives of the study using descriptive and inferential statistics. Data was organized data in a master data sheet. Data analysis is the systematic organization of research data and the testing of research hypothesis using that data. The plan of data analysis was as follows:

- The data obtained will be analysed using both descriptive and inferential statistics on the basis of objective and hypothesis of the study.
- Socio demographic data containing sample characteristics would be analysed using frequencies and percentage.
- Frequency and percentage distribution of characteristics of parents of Adolescents.
- Frequency and percentage distribution of anaemic and non-anaemic, severity of anaemia, severity of anaemia, compliance status regarding WIFS programme, reasons for non-compliance status (consuming IFA supplements), reasons for compliance status (consuming IFA supplements), knowledge score regarding WIFS, attitude score regarding WIFS programme among Adolescents.
- Karl Pearson's coefficient of correlation computed between knowledge score and attitude score of Adolescents regarding WIFS programme.
- Chi-square between knowledge score and compliance status, attitude score and compliance status, anaemic status and compliance status of Adolescents regarding WIFS programme.
- Chi- square between knowledge scores and attitude scale with selected variables age, sex, education of father and mother, occupation status of father and mother and family income.
- Chi- square between compliance status and anaemia status with selected variables age, sex, education of father and mother, occupation status of father and mother and family income.

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IV. RESULTS

Section I: Findings related to description of the sample characteristics

Table 4.1: Frequency and Percentage Distribution of Adolescents as per (Age, Sex, Religionand Family- Income) N=200

S. No.	Sample characteristics	Frequency	Percentage (%)
1.	Age		
1.1	15-16 years	28	14
1.2	17-18 years	146	73
1.3	19 years and above	26	13
2.	Sex		
2.1	Male	120	60
2.2	Female	80	40
3.	Religion		
3.1	Hindu	124	62
3.2	Muslim	70	35
3.3	Christian	04	02
3.4	Sikh	02	01
4	Family income per month		
4.1	Below 10000	51	25.5
4.2	10001-20000	55	27.5
4.3	20001-30000	46	23
4.4	30000 and above	48	24

Data presented in Table 4.1 shows the distribution of adolescents according to age, sex, religion and family income. Majority (73%) of adolescents were in the age group 17-18 years where 13% were in age group 19 years and above. Most (60%) of adolescents were from male category and 40% were females. Majority (62%) belongs to Hindu religion, 35% of Muslim and 2% were Christian whereas 1% belongs to Sikh religion. 27.5% of adolescents were having family income per month was between Rs 10001-20000 and 25.5% had below Rs. 10000 whereas 24% were having Rs. 30000 and above.

Table 4.2: Frequency and Percentage Distribution of Adolescents as per their Father's andmother's Education status & Occupation status N=200

SNo.	Sample characteristics	Frequency	Percentage
1.	Father's Education		
1.1	Illiterate	21	10.5
1.2	Primary	36	18
1.3	Middle School	28	14
1.4	High School	44	22
1.5	Intermediate	48	24
1.6	UG and above	23	11.5
2	Mother's Education		
2.1	Illiterate	83	41.50
2.2	Primary	20	10
2.3	Middle school	37	18.50
2.4	High school	44	22
2.5	Intermediate	16	08
3.	Father's occupation		
3.1	Unemployed	01	0.50

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3.2	Government	03	1.50
3.3	Private	100	50
3.4	Business	96	48
4.	Mother's occupation		
4.1	Government	01	0.5
4.2	Private	07	3.5
4.3	Business	28	14
4.4	House wife	164	82

Data given in the Table 4.2 and figure 4.5 to 4.8 shows, that majority (24%) of adolescent's father were educated up to intermediate level only, 22% were having education up to high school, 18% were having primary and 11.5% were educated till UG level and above. Maximum (41.5%) of adolescent's mothers were illiterate, whereas only 8% mothers educated till intermediate level. Majority (50%) of father's occupation were employed in private job and 48% were have their own business. As far as the mother's occupation is concerned, 82% mothers were house wife and 0.5% was in govt. job only.

Table 4.3: Frequency and Percentage Distribution of Adolescents according the Symptoms **N=200**

SNo.	**Present Illness**	**Boys(n=120)**		**Girls(n=80)**	
		Frequency	**%**	**Frequency**	**%**
1.	Fever with chills	5	4.10	3	3.75
2.	Passes worms with stool	4	3.33	6	7.5
3	Weakness, weight loss, fatigue	28	23.33	29	36.25
4	Others problem (Constipation)	12	10	8	10
5.	None	68	56.67	37	46.25

The data presented in table 4.3 and figure 4.9 shows the majority (56.67%) of adolescent's boys (46.25%) girls did not have any illness but weakness, weight loss and fatigue were present in 36.25% and 23.33%. among girls and boys respectively. The data shows the 10% of boys and girls each have the problem of constipation.

Hence the data reveals that as fatigue, weight loss and weakness were present among adolescents as a symptom of anaemia.

SECTION II: Finding related to prevalence of anaemia among adolescents

Table 4.4: Frequency and percentage distribution of adolescents according to their anaemic status N=200

SNO.	**Categories**	**Frequency**	**Percentage(%)**
1.	Anaemic (Hb level < 12 gm)	89	44.5
2.	Non-Anaemic (Hb level > 12gm)	111	55.5

Data presented in Table no. 4.4 and figure no. 4.10 indicates the prevalence of anaemia The data shows that majority 55.5% of adolescent's were non-anaemic whereas 44.5% of adolescents were found to be anaemic.

Table-4.5: Frequency And Percentage Distribution of Adolescent's Anaemic Status Accordingto their Age- N=200

SR	**Categories**	**Age- Group**			**Total**
		15-16 years	**17-18 years**	**19 yearsandabove**	
1.	Anaemic (Hb <12gm)	12 (6%)	65 (32.5%)	12 (6%)	89 (44.5%)
2.	Non- Anaemic(Hb >12gm)	16 (8%)	81 (40.5%)	14 (7%)	111 (55.5%)

Data depicted in table 4.5 and figure 4.11 shows the anaemic status based on their age. Majority (32.5%) of adolescents were anaemic between age group 17- 18 years and 6% each anaemic adolescents were in 15-16 years and 19 years andabove. Hence, the data revealed that anaemia is more prevalent in age group 17- 18 years i.e. 32.5%.

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Table-4.6: Frequency and percentage distribution of adolescent's anaemic status as per their sex N=200

S No.	Anaemic-Status	Sex				Total	
		Boy (n=120)		Girl (n=80)			
		F	%	F	%	F	%
1	Anaemic	43	35.83	46	57.5	89	44.5
2	Non- Anaemic	77	64.17	34	42.5	111	55.5

Data depicted in table 4.6 and figure 4.12 shows the anaemic and non - anaemic status according to their sex. Majority (57.5%) of girls were anaemic and 35.83% boys were anaemic. Hence, the data revealed, that anaemia **(57.5%)** was more prevalent among girls than boys.

Table -4.7: Frequency and Percentage Distribution of Adolescents according to Severity of Anaemia N=89

Severity of Anaemia	Girls (n=46)		Boys (n=43)		Total	
	Freq	%	Freq	%	Freq	%
Mild Anaemia (10- 11.9 gm)	31	67.40	28	65.12	59	66.30
Moderate Anaemia (7- 9.9gm)	12	26.08	14	32.56	26	29.20
Severe Anaemia (<7 gm)	3	6.52	1	2.32	4	4.50
Total	46	100	43	100	89	100

Data presented in Table 4.7 and figure 4.13 indicates the severity of anaemia prevalent among adolescents. The data revealed that the majority (66.30%) of adolescents had mild anaemia, 29.20% had moderate anaemia and 4.50% adolescents had severe anaemia. Data also reveals that 67.40% of girls had mild anaemia, 26.08 had moderate and 6.52% had severe anaemia and 65.12% of boys had mild anaemia, 32.56% had moderate anaemia. Hence, the data indicates that the majority of adolescents had mild anaemia and the severe anaemia was more prevalent among girls.

Table- 4.8: Frequency and Percentage Distribution of Adolescents According to Signs ofAnaemia N=200

S. No.	Signs of Anaemia	Boys (n=120)		Girls (n=80)	
		Frequency	%	Frequency	%
1.	**Colour of Tongue**				
1.1	Pink	88	73.33	55	68.75
1.2	Whitish	21	17.50	20	25
1.3	Pale	11	9.17	05	6.25
2.	**Colour of Conjunctiva**				
2.1	Pink	90	75	54	67.50
2.2	Whitish	22	18.33	21	26.25
2.3	Pale	08	6.67	05	6.25
3.	**Palmer Pallor**				
3.1	Pink	89	74.16	60	75
3.2	Pale	21	17.50	16	16
3.3	Very Pale	10	8.33	04	05
4.	**Colour of Nails**				
4.1	Pink	92	76.67	55	68.75
4.2	Whitish and spotted	20	16.67	21	26.25
4.3	Pale	08	6.66	04	05
5.	**Nails Shape**				
5.1	Oval Shape	88	73.33	52	65
5.2	Almond Shape	21	17.50	20	25
5.3	Spoon & Depressed	11	9.17	08	10
6.	**Colour of Hairs**				
6.1	Black $ Shiny	92	76.67	55	68.75
6.2	Thin $ Brown	18	15	20	25

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6.3	Brittle $ Brown	10	8.33	05	6.25

The data presented in table 4.8, depicts the signs of anaemia according to physical assessment among the adolescents. The finding was based on different signs as Colour of tongue, nails and conjunctiva, hair and palmer pallor.

Majority of (73.33%) data reveals boys and (68.75%) girls were having pink colour of tongue, 75% boys and 67.50% girls had pink conjunctiva whereas 76.67% boys and 68.75% girls were pink colour nails. Further the data classified as their shape of nails, majority of 73.33% boys and 65% girls were oval shape nails followed by 17.50% boysand 25% girls had almond shape. And 76.67% boys and 67.75% girls' hair black and shiny whereas 8.33% boys and 6.25% girls had brittle and brown hairs. Hence theabove data revealed majority of boys had pink colour of conjunctiva, lips and nails thangirls.so the finding's showed girls were more anaemic than boys.

Data reveals that signs of anaemia were present among adolescents such as 31.25% hadwhitish and pale colour tongue, 32.5% had pale and whitish colour of conjunctiva, 21%had pale and very pale.

Data reveals that the common signs present were pale tongue 15.42%, whitish and pale colour nails 55.92%, whitish and pale tongue 57.92%, pale and very pale palmer pallor 46.83%.

Pale and whitish nails 54.58%, thin &brown and brittle and brown hairs 54.58%.

SECTION -III: FINDINGS RELATED TO COMPLIANCE STATUS OF ADOLESCENTS REGARDING WEEKLY IRON FOLIC ACID SUPPLEMENTATION (WIFS)PROGRAMME

Table- 4.9: Frequency and Percentage Distribution of Adolescents as per their Compliancestatus with Weekly Iron Folic Acid Supplementation programme N=200

SNo.	Compliance Status	Frequency	Percentage
1.	**Full compliance**	112	56%
2.	**Partial compliance**	55	27.50%
3.	**Non-compliance**	33	16.5%

The data given in Table 4.9 and figure 4.14 depicts the compliance status of adolescentswith WIFS (IFA tablets). Data reveals that the majority (56%) of adolescents were fully compliant to WIFS (IFA) whereas 27.5% had partial compliance and only 16.5% did notcomply with WIFS (IFA) programme. Hence, it indicates moderate compliance to WIFS programme.

Table-4.10: Frequency and Percentage Distribution of Adolescents compliance status with WIFS (IFA) according to their sex N=200

S No.	Compliance Status	Boys (n=120)		Girls (n=80)	
		Frequency	%	Frequency	%
1.	Full compliance	75	62.5	37	46.25
2.	Partial compliance	24	20	31	38.80
3.	Non compliance	21	17.5	12	15

The data presented in Table 4.10 shows that most (62.5%) of adolescent's boys and 46.25% girls were fully compliant to WIFS (IFA) programme. 20% boys and 38.80% girls were partially compliant to WIFS (IFA) programme. Whereas 17.5% boys and 33% girls did not non-comply to WIFS (IFA) programme. The above data revealed the compliance level was higher among the boys (62.5%) than girls (46.25).

Table- 4.11: Frequency and Percentage distribution of Causes of non-compliance according totheir sex N=88

SR	REASONS OF NON-COMPLIANCE					TOTAL	
	Reasons	Boys(n=40)		Girls (n= 48)			
		Freq	%	Freq	%	Freq	%
1	Side effects of tablets	37	92.5	40	83.30	77	87.90
2	Parents ask'don't take'	0	0	01	2.1	01	1.16
3	Feel healthydo not require	03	7.5	07	14.6	10	11.36

The data given in Table 4.11 and figure 4.16 shows the causes of non- compliance (partial compliance and non-compliance) in adolescents. Most (92.5%) of boys and 83.30 % girls, were non -compliant due to "reasons were side effects of tablets", 2.1% girls were non-compliant as there 'parents asked don't take IFA tablets. 7.5% boys and 14.6%

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girls were felt healthy so didn't require. So, major factor for partial and non- compliance were side effects of tablets and "Do not feel need of taking IFA tablets."

Table- 4.12: Frequency and Percentage distribution of Adolescents reasons of complianceaccording their compliance status N=112

S. No.	REEASONS FOR COMPLIANCE					TOTAL	
	REASONS	Boys (n=75)		Girls (n=37)			
		Frequency	%	Frequency	%	Frequency	%
1	Advice from teacher	40	53.33	19	51.36	59	52.68
2	It is free	04	5.33	02	5.41	06	5.36
3	Friends are taking	16	21.34	09	24.33	25	22.32
4.	It prevents anaemia	15	20	07	18.9	22	19.64

The data depicted in table 4.12 and figure 4.17 indicates that the reasons for compliance among adolescent. Most (53.33%) of the boys and (51.36) girls were compliant due to 'Advice from teacher' and 5.33% boys and 5.41% girls were compliant as tablets were free. 21.34% boys and 24.33% girls were compliant as- "Friends are taking" and 20% boys and 18.09% girls were compliant as- "It prevents anaemia.". Hence, most of the boys and girls were compliant because of advice from teacher and friends are taking. The teacher advice plays an important role to enhance (students) adolescents' compliance to IFA programme.

SECTION-IV: FINDING RELATED TO KNOWLEDGE AND ATTITUDE OF ADOLESCENTSREGARDING THE WIFS PROGRAMME

Table-4.13: Frequency and Percentage Distribution of Adolescents according to theirknowledge scores regarding the WIFS programme. N=200

S No.	KNOWLEDGE CATEGORY	FREQUENCY	PERCENTAGE
1	Poor knowledge	43	21.5 %
2	Fair knowledge	67	33.5%
3	Good knowledge	90	45%

Maximum score-24

The data given in Table 4.13 and figure 4.18 shows that 45% of adolescents have good knowledge regarding the WIFS programme, 33.5% had fair knowledge whereas 21.5% had poor knowledge regarding the WIFS programme. The data also shows that majority55% of adolescents had fair and poor knowledge regarding the WIFS programme. Hence, the data reveals that there is a lack of knowledge regarding WIFS programme and Anaemia among adolescents.

Table -4.14: Mean, Median, Mode and Standard deviation of Knowledge score of Adolescentsregarding WIFS Programme. N=200

Mean	Median	Standard Deviation
14.37	16	5.75

Maximum score-24

Table 4.1 and figure 4.19 shows, that Data presented in table shows that mean knowledge score of adolescents were (14.37) with a standard deviation of (5.75). it indicates that 50% of adolescents have knowledge score above 14.37. Hence, the data reveals that adolescents have fair knowledge regarding the WIFS programme.

Table 4.15: Area Wise Mean Knowledge Score, Mean Percentage and Rank Order ofKnowledge Areas of Adolescents N=200

S No.	AREA	MAX. SCORE	MEAN SCORE	MEAN %	RANK
1.	Meaning of anaemia andWIFS Programme	6	4.13	68.83 %	2
2.	Sign and Symptoms	5	3.57	71.4 %	1
3.	Prevention of Anaemia	3	1.38	46 %	4
4.	Deworming related	2	0.905	45.25 %	5
5.	WIFS Programme and itsbenefits	8	4.26	53.83%	3

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Data presented in table 4.15 And figure 4.19, indicates that lowest (45.25%) mean scorewas in the area of deworming related to worm infestation and 46% mean score was in area of prevention of anaemia followed by (53.83%) were benefits of WIFS programme. It suggests the adolescents have lack of knowledge in these areas whereas the high in two areas. The knowledge scores were higher in the above areas.

Sign and symptoms, meaning of anaemia and benefits of WIFS programme were ranked I and II. These indicates that the adolescents had more knowledge in these areas, whereas benefits of WIFS programme prevention of anaemia and deworming were ranked III, IVth and Vth which shows that they have deficit of knowledge in these areas.

Table -4.16: Frequency and Percentage Distribution of Adolescents according to their attitudescores regarding the WIFS programme N=200

S No.	ATTITUDE	FREQUENCY	PERCENTAGE
1.	Favourable (52-80)	88	44
2.	Neutral (28-51)	66	33
3.	Un- favorable (16-27)	46	23
Total		200	100%

Maximum score-80

The data given in Table 4.16 and figure 4.20 shows that most of the adolescents (44%) had favorable attitude regarding the WIFS programme, 33% had Neutral favorable attitude whereas 23% had unfavorable attitude. The data shows the most of theadolescents had favorable attitude and neutral towards the WIFS programme.

Hence it indicates that only half of adolescents had favourable attitude regarding the WIFS programme.

Table- 4.17: Mean, Median and Standard deviation of Attitude score of Adolescents regardingWIFS Programme N=200

MEAN	MEDIAN	STANDARD DEVIATION
44.15	49	17.92

Maximum score-80

The data presented in Table 4.17 and figure 4.21 shows that the mean attitude score of adolescents regarding WIFS programme were (44.15) with a standard deviation of (17.92). The median score (49), indicating that 50% of adolescents have attitude score above (49). Hence the data reveals that adolescents had neutral attitude regarding WIFS programme.

SECTION- V: FINDINGS RELATED TO THE RELATIONSHIP BETWEEN KNOWLEDGE SCORE AND ATTITUDE SCORE OF ADOLESCENTS REGARDING WIFS PROGRAMME

Table – 4.18: Findings Related to Relationship Between knowledge Score and Attitude Scores ofAdolescents Regarding WIFS Programme N=200

VARIABLES	MEAN	SD	COEFFICIENT CORRELATION 'r'
Knowledge Scores	**14.37**	**5.73**	**0.88**
Attitude Scores	**44.50**	**17.92**	

'r' value for df (198) "r" = 0.139

The data presented in the Table 4.18 shows a highly positive correlation between the knowledge scores and the attitude scores (r = 0.88) of the adolescents regarding WIFS programme which is found to be statistically significant at 0.05 level of significance.

Therefore, the null hypothesis $\mathbf{H_{01}}$ was rejected and the research hypothesis $\mathbf{H_1}$ was accepted. Hence it indicates that, higher the level of knowledge, more favourableattitude the adolescents have towards WIFS programme.

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SECTION-VI: FINDINGS RELATED TO ASSOCIATION BETWEEN KNOWLEDGE SCORE AND COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME

Table- 4.19: Chi-square Values showing Association Between Knowledge scores andCompliance status among Adolescents N=200

SNo.	COMPLIANCE STATUS	KNOWLEDGE SCORES			df	Chi- square value	Table value	NS/S
		POOR	FAIR	GOOD				
	Full-Compliance	8	24	80	4	24.152	9.488	*s
2	Partial- Compliance	20	27	8				
3	Non-Compliance	15	20	3				
Total		43	66	91				

*** Significant at 0.05 level, df (4), table value= 9.488**

The data presented in the above Table 4.19 shows the computed chi square value (24.152) between knowledge score of adolescents and compliance status among adolescents regarding WIFS programme. According to the data given in above table, it can be seen that the computed chi- square value (24.152) between knowledge scoresand compliance status was found to be statistically significant at 0.05 level of significance.

Thus, the null hypothesis $\mathbf{H_{02}}$ was rejected and research hypothesis H_2 was accepted. Hence, compliance status was influenced by their knowledge. Thus, it indicates thatcompliance status was influence by their knowledge. So higher level of knowledgeregarding WIFS enhance compliance to the WIFS programme.

SECTION-VII: FINDINGS RELATED TO ASSOCIATION BETWEEN ATTITUDE SCORE AND COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME

According to the data it is observed that the computed chi- square value (19.211) between attitude scores and compliance status was found to be statically significant at 0.05 level of significance.

Thus, the null hypothesis $\mathbf{H_{03}}$ was rejected and research hypothesis H_3 was accepted.

Hence, compliance of adolescents was influenced by their attitude. It suggests that favourable attitude towards WIFS programme leads to more compliance towards WIFS.

SECTION-VIII: FINDINGS RELATED TO ASSOCIATION BETWEEN ANAEMIC STATUS AND COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME

According to the data it is observed that computed chi- square value (24.979) between compliance status and anaemia status was found to be significant at 0.05 level of significance. Thus, the null hypothesis $\mathbf{H_{04}}$ was rejected and research hypothesis H_4 was accepted. Hence, the Anaemic status of adolescents was influenced by their compliance status. The data reveals that the compliance with WIFS programme help to decrease the prevalence of anaemia among adolescents.

SECTION-IX: FINDINGS RELATED TO ASSOCIATION BETWEEN THE KNOWLEDGE SCORE OF ADOLESCENTS REGARDING WEEKLY IRON FOLIC ACID PROGRAMME WITH SELECTED VARIABLES

According to the data computed chi-square with the selected variables like father's education (14.438), mother's education (17.950), father's occupation (17.186), mother's occupation (20.242) and family income (17.036) were found to be statistically significant at 0.05 level of significant, whereas for the variables like age (3.660) and sex (7.809) were not found to be statistically significant at 0.05 level of significance.

Thus, the researcher rejects null hypothesis H_{04} and the research hypothesis H_4 was accepted except for the variables sex and religion.

Hence, it indicates that knowledge was dependent on fathers and mothers' education,occupation and family income and was independent of sex and religion.

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SECTION- X: FINDINGS RELATED TO ASSOCIATION BETWEEN THE ATTITUDE SCORE OF ADOLESCENTS REGARDING WEEKLY IRON FOLIC ACID PROGRAMME WITH SELECTED VARIABLES

According to the data computed chi--square value with selected variable such as occupation of father's (10.163) and occupation of mother's (10.625) and Education of fathers (13.667) and mothers (17.648) and family income (13.836) were found to be statistically significant at0.05 level of significance. Whereas sex (0.083) and religion (1.381) were not found to be statistically significant at 0.05 level of significance.

Thus, the researcher rejected the null hypothesis (H_{O5}) and accepted the research hypothesis (H_5) except for the variables sex and religion. Hence, it indicates the attitude was dependent on occupation and education of father's and mother's and family income and was independent of variables sex and religion.

SECTION-XI: FINDINGS RELATED TO ASSOCIATION BETWEEN COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME WITH SELECTED FACTORS

The data computed Chi-square values between compliance status and selected variables. According to the data given in above table it can be seen the computed chi-square value with selected variables, sex (8.582), education of father (42.737), education of mother (36.651), occupation of fathers (24.131), mothers (18.748) and family income (25.248) were found to be statistically significant at 0.05 level of significance as their computed value were higher than table value except religion (9.913). Therefore, the researcher rejected null hypothesis (H_{06}) and accepted the research hypothesis H_6 except for religion. Hence, it indicates that compliance status of adolescents regarding WIFS programme was dependent on sex, education of father's and mother's, occupation of father's and mother's and family income. The compliance status of adolescents was not affected by their religion.

SECTION-XII: FINDINGS RELATED TO ASSOCIATION BETWEEEN ANAEMIC STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMMME WITH SELECTEDFACTORS

The data computed Chi-square values between Anaemic- status and selected variables. According to the data given in above table it can be seen the computed chi-square value with selected variables, sex (9.427), religion (18.076) education of father (89.433), education of mother (36.651), occupation of mothers (22.443) and family income (21.351) were found to be statistically significant at 0.05 level of significance as their computed value were higher than table value except father occupation (15.814). Therefore, the researcher rejected null hypothesis (H_{07}) and accepted the research hypothesis H_7 except for father's occupation. Hence, it indicates that anaemic status of adolescents regarding WIFS programme was dependent on sex, education of fathers and mothers, occupation of fathers and mothers and family income. The anaemic status of adolescents is not affected by fathers' occupation.

Discussion

SECTION I: FINDINGS RELATED TO DESCRIPTION OF THE SAMPLE CHARACTERISTICS

Frequency and Percentage Distribution of Adolescents as per (Age, Sex, Religionand Family- Income)

Majority (73%) of adolescents were in the age group 17-18 years, Most (60%) of adolescents were from male category, Majority (62%) belongs to Hindu religion and 27.5% of adolescents were having family income per month was between Rs 10001-20000

Frequency and Percentage Distribution of Adolescents as per their Father's and mother's Education status & Occupation status

Data given in the Data shows that majority (24%) of adolescent's father were educated up to intermediate level only, Maximum (41.5%) of adolescent's mothers were illiterate, Majority (50%) of father's occupation were employed in private job. As far as the mother's occupation is concerned, 82% mothers were house wife.

Frequency and Percentage Distribution of Adolescents according the Symptoms

Findings shows the majority (56.67%) of adolescent's were boys (46.25%) girls did not have any illness but weakness, weight loss and fatigue were present in 36.25% and 23.33%. among girls and boys respectively. The data shows the 10% of boys and girls each have the problem of constipation.

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Hence the data reveals that as fatigue, weight loss and weakness were present among adolescents as a symptom of anaemia.

SECTION II: FINDING RELATED TO PREVALENCE OF ANAEMIA AMONG ADOLESCENTS

Frequency and percentage distribution of adolescents according to their anaemic status

Findings indicates the prevalence of anaemia The data shows that majority 55.5% of adolescent's were non-anaemic whereas 44.5% of adolescents were found to be anaemic.

Frequency And Percentage Distribution of Adolescent's Anaemic Status Accordingto their Age- Data depicted that the anaemic status based on their age. Majority (32.5%) of adolescents were anaemic between age group 17- 18 years. Hence, the data revealed that anaemia is more prevalent in age group 17- 18 years i.e. 32.5%.

Frequency and percentage distribution of adolescent's anaemic status as per their sex

Findings of the anaemic and non - anaemic status according to their sex. Majority (57.5%) of girls were anaemic and 35.83% boys were anaemic. Hence, the data revealed, that anaemia **(57.5%)** wasmore prevalent among girls than boys.

Frequency and Percentage Distribution of Adolescents according to Severity ofAnaemia

Findings indicates the severity of anaemia prevalent among adolescents. The data revealed that the majority (66.30%) of adolescents had mild anaemia, Data also reveals that 67.40% of girls had mild anaemia. Hence, the data indicates that the majority of adolescents had mild anaemia and the severe anaemia was more prevalent among girls.

Frequency and Percentage Distribution of Adolescents According to Signs ofAnaemia

The data depicts the signs of anaemia according to physical assessment among the adolescents. The finding was based on different signs as Colour of tongue, nails and conjunctiva, hair and palmer pallor.

Majority of (73.33%) data reveals boys were having pink colour of tongue, 75% boys had pink conjunctiva whereas 76.67% boys and 68.75% girls were pink colour nails. Further the data classified as their shape of nails, majority of 73.33% boys were oval shape nails followed by 17.50% boys and 25% girls had almond shape. And 76.67% boys and 67.75% girls' hair black and shiny whereas 8.33% boys and 6.25% girls had brittle and brown hairs. Hence theabove data revealed majority of boys had pink colour of conjunctiva, lips and nails thangirls.so the finding's showed girls were more anaemic than boys.

Data reveals that signs of anaemia were present among adolescents such as 31.25% hadwhitish and pale colour tongue, 32.5% had pale and whitish colour of conjunctiva, 21%had pale and very pale.

Data reveals that the common signs present were pale tongue 15.42%, whitish and pale colour nails 55.92%, whitish and pale tongue 57.92%, pale and very pale palmer pallor 46.83%.

Pale and whitish nails 54.58%, thin &brown and brittle and brown hairs 54.58%.

SECTION -III

FINDINGS RELATED TO COMPLIANCE STATUS OF ADOLESCENTS REGARDING WEEKLY IRON FOLIC ACID SUPPLEMENTATION (WIFS)PROGRAMME

Frequency and Percentage Distribution of Adolescents as per their Compliance status with Weekly Iron Folic Acid Supplementation programme

As per findings compliance status of adolescents with WIFS (IFA tablets). Data reveals that the majority (56%) of adolescents were fullycompliant to WIFS (IFA) whereas 27.5% had partial compliance and only 16.5% did notcomply with WIFS (IFA) programme. Hence, it indicates moderate compliance to WIFSprogramme.

Frequency and Percentage Distribution of Adolescents compliance status with WIFS (IFA) according to their sex

Findings shows that most (62.5%) of adolescent's boys were fully compliant to WIFS (IFA) programme. 38.80% girls were partially compliant to WIFS (IFA) programme. Whereas 17.5% boys and 33% girls did not non-comply to WIFS (IFA) programme. The above data revealed the compliance level was higher among the boys (62.5%) than girls (46.25).

Frequency and Percentage distribution of Causes of non-compliance according totheir sex

The causes of non- compliance (partial compliance and non- compliance) in adolescents. Most (92.5%) of boys and 83.30 % girls, were non -compliant due to "reasons were side effects of tablets", 2.1% girls were non-compliant as there 'parents asked don't take IFA tablets. 7.5% boys and 14.6% girls were felt healthy so didn't require. So, major factor for partial and non- compliance were side effects of tablets and "Do not feel need of taking IFA tablets."

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Frequency and Percentage distribution of Adolescents reasons of compliance according their compliance status

The reasons for compliance among adolescent. Most (53.33%) of the boys and (51.36) girls were compliant due to 'Advice from teacher' and 5.33% boys and 5.41% girls were compliant as tablets were free. 21.34% boys and 24.33% girls were compliant as- "Friends are taking" and 20% boys and 18.09% girls were compliant as- "It prevents anaemia.". Hence, most of the boys and girls were compliant because of advice from teacher and friends are taking. The teacher advice plays an important role to enhance (students) adolescents' compliance to IFA programme.

SECTION-IV

FINDING RELATED TO KNOWLEDGE AND ATTITUDE OF ADOLESCENTS REGARDING THE WIFS PROGRAMME

Frequency and Percentage Distribution of Adolescents according to their knowledge scores regarding the WIFS programme.

Findings shows that 45% of adolescents have good knowledge regarding the WIFS programme, The data also shows that majority 55% of adolescents had fair and poor knowledge regarding the WIFS programme. Hence, the data reveals that there is a lack of knowledge regarding WIFS programme and Anaemia among adolescents.

Mean, Median, Mode and Standard deviation of Knowledge score of Adolescents regarding WIFS Programme.

The mean knowledge score of adolescents were (14.37) with a standard deviation of (5.75). it indicates that 50% of adolescents have knowledge score above 14.37. Hence, the data reveals that adolescents have fair knowledge regarding the WIFS programme.

Area Wise Mean Knowledge Score, Mean Percentage and Rank Order of Knowledge Areas of Adolescents

Lowest (45.25%) mean score was in the area of deworming related to worm infestation and 46% mean score was in area of prevention of anaemia followed by (53.83%) were benefits of WIFS programme. It suggests the adolescents have lack of knowledge in these areas whereas the high in two areas. The knowledge scores were higher in the above areas.

Sign and symptoms, meaning of anaemia and benefits of WIFS programme were ranked I and II. These indicates that the adolescents had more knowledge in these areas, whereas benefits of WIFS programme prevention of anaemia and deworming were ranked 3rd, 4th and 5th which shows that they have deficit of knowledge in these areas.

Frequency and Percentage Distribution of Adolescents according to their attitude scores regarding the WIFS programme

Most of the adolescents (44%) had favorable attitude regarding the WIFS programme, 33% had Neutral favorable attitude whereas 23% had unfavorable attitude. The data shows the most of the adolescents had favorable attitude and neutral towards the WIFS programme. Hence it indicates that only half of adolescents had favorable attitude regarding the WIFS programme.

Mean, Median and Standard deviation of Attitude score of Adolescents regarding WIFS Programme

Mean attitude score of adolescents regarding WIFS programme were (44.15) with a standard deviation of (17.92). The median score (49), indicating that 50% of adolescents have attitude score above (49). Hence the data reveals that adolescents had neutral attitude regarding WIFS programme.

SECTION- V

FINDINGS RELATED TO THE RELATIONSHIP BETWEEN KNOWLEDGE SCORE AND ATTITUDE SCORE OF ADOLESCENTS REGARDING WIFS PROGRAMME

Findings Related to Relationship Between knowledge Score and Attitude Scores of Adolescents Regarding WIFS Programme

Highly positive correlation between the knowledge scores and the attitude scores (r = 0.88) of the adolescents regarding WIFS programme which is found to be statistically significant at 0.05 level of significance. Therefore, the null hypothesis $\mathbf{H_{01}}$ was rejected and the research hypothesis $\mathbf{H_1}$ was accepted. Hence it indicates that, higher the level of knowledge, more favorable attitude the adolescents have towards WIFS programme.

SECTION-VI

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FINDINGS RELATED TO ASSOCIATION BETWEEN KNOWLEDGE SCOREAND COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME

Chi-square Values showing Association between Knowledge scores andCompliance status among Adolescents

Computed chi square value (24.152) between knowledge score of adolescents and compliance status among adolescents regarding WIFS programme. According to the data given in above table, it can be seen that the computed chi- square value (24.152) between knowledge scoresand compliance status was found to be statistically significant at 0.05 level of significance. Thus, the null hypothesis $\mathbf{H_{02}}$ was rejected and research hypothesis H_2 was accepted. Hence, compliance status was influenced by their knowledge. Thus, it indicates thatcompliance status was influence by their knowledge. So higher level of knowledgeregarding WIFS enhance compliance to the WIFS programme.

SECTION-VII

FINDINGS RELATED TO ASSOCIATION BETWEEN ATTITUDESCORE AND COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME

According to the data it is observed that the computed chi- square value (19.211) between attitude scores and compliance status was found to be statically significant at 0.05 level of significance. Thus, the null hypothesis $\mathbf{H_{03}}$ was rejected and research hypothesis H_3 was accepted. Hence, compliance of adolescents was influenced by their attitude. It suggests that favourable attitude towards WIFS programme leads to more compliance towards WIFS.

SECTION-VIII

FINDINGS RELATED TO ASSOCIATION BETWEEN ANAEMIC STATUSAND COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME

According to the data it is observed that computed chi- square value (24.979) between compliance status and anaemia status was found to be significant at 0.05 level of significance. Thus, the null hypothesis $\mathbf{H_{04}}$ was rejected and research hypothesis H_4 was accepted. Hence, the anaemic status of adolescents was influenced by their compliance status. The data reveals that the compliance with WIFS programme help to decrease the prevalence of anaemia among adolescents.

SECTION-IX

FINDINGS RELATED TO ASSOCIATION BETWEEN THE KNOWLEDGE SCORE OF ADOLESCENTS REGARDING WEEKLY IRON FOLIC ACID PROGRAMME WITH SELECTED VARIABLES

According to the data computed chi-square with the selected variables like father's education (14.438), mother's education (17.950), father's occupation (17.186), mother's occupation (20.242) and family income (17.036) were found to be statistically significant at 0.05 level of significant, whereas for the variables like age (3.660) and sex (7.809) were not found to be statistically significant at 0.05 level of significance. Thus, the researcher rejects null hypothesis H_{04} and the research hypothesis H_4 was accepted except for the variables sex and religion. Hence, it indicates that knowledge was dependent on fathers and mothers' education, occupation and family income and was independent of sex and religion.

SECTION- X

FINDINGS RELATED TO ASSOCIATION BETWEEN THE ATTITUDE SCORE OF ADOLESCENTS REGARDING WEEKLY IRON FOLIC ACIDPROGRAMME WITH SELECTED VARIABLES

According to the data computed chi--square value with selected variable such as occupation of father's (10.163) and occupation of mother's (10.625) and Education of fathers (13.667) and mothers (17.648) and family income (13.836) were found to be statistically significant at0.05 level of significance. Whereas sex (0.083) and religion (1.381) were not found to be statistically significant at 0.05 level of significance.

Thus, the researcher rejected the null hypothesis (H_{O5}) and accepted the research hypothesis (H_5) except for the variables sex and religion. Hence, it indicates the attitudewas dependent on occupation and education of father's and mother's and family income and was independent of variables sex and religion.

SECTION-XI

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FINDINGS RELATED TO ASSOCIATION BETWEEN COMPLIANCE STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMME WITH SELECTED FACTORS

The data computed Chi-square values between compliance status and selected variables. According to the data given in above table it can be seen the computed chi-square value with selected variables, sex (8.582), education of father (42.737), education of mother (36.651), occupation of fathers (24.131), mothers (18.748) and family income (25.248) were found to be statistically significant at 0.05 level of significance as their computed value were higher than table value except religion (9.913).

Therefore, the researcher rejected null hypothesis (H_{06}) and accepted the research hypothesis H_6 except for religion. Hence, it indicates that compliance status of adolescents regarding WIFS programme was dependent on sex, education of father's and mother's, occupation of father's and mother's and family income. The compliance status of adolescents was not affected by their religion.

SECTION-XII

FINDINGS RELATED TO ASSOCIATION BETWEEEN ANAEMIC STATUS OF ADOLESCENTS REGARDING WIFS PROGRAMMME WITH SELECTEDFACTORS

The data computed Chi-square values between Anaemic- status and selected variables. According to the data given in above table it can be seen the computed chi-square value with selected variables, sex (9.427), religion (18.076) education of father (89.433), education of mother (36.651), occupation of mothers (22.443) and family income (21.351) were found to be statistically significant at 0.05 level of significance as their computed value were higher than table value except father occupation (15.814).

Therefore, the researcher rejected null hypothesis (H_{07}) and accepted the research hypothesis H_7 except for father's occupation. Hence, it indicates that anaemic status of adolescents regarding WIFS programme was dependent on sex, education of fathers and mothers, occupation of fathers and mothers and family income. The anaemic status of adolescents is not affected by fathers' occupation.

V. CONCLUSION

The conclusions were drawn on the basis of the findings of the study that the prevalence of anaemia was found higher among girls than boys. It indicates the magnitude of anaemia is higher among girls. Most of adolescents were anaemic between age group 17-18, it reveals that rapid growth spurt and physical developmental ensue during adolescent period need additional nutritional requirements and supplements. Most of adolescents had mild anaemia, it indicates that consumption of Iron and folic acid tablets will prevent anaemia to a greater extent among adolescents. Majority of adolescents had moderate compliance to the WIFS programme. The compliance level was higher among the boys. It indicates that awareness and positive attitude among the girls towards WIFS must be emphasized and also efforts should be taken for strengthening the existing Weekly Iron and Folic Supplementation programme. Most common causes of partial and noncompliance were side effects of IFA tablets and most of the boys and girls were compliant due to 'Advice from teacher.' So, the teacher's play a vital role to meet the goal of the WIFS programme. Most of the adolescents had fair and poor knowledge about the programme, there is a need to enhance knowledge about WIFS programme. Majority of adolescents had neutral attitude towards the WIFS programme. About half of adolescents had favorable attitude about WIFS programme. Hence, IEC and BCC strategies are still needed. A positive significant correlation was found between the knowledge and attitude of adolescents related to WIFS programme. This concludes that increase in knowledge improves the attitude of adolescents regarding WIFS programme and anaemia. There was significant association between the compliance status and the knowledge, attitude of adolescents regarding WIFS programme. Hence, it reveals that adolescents with good knowledge and favourable attitude were more compliant to the WIFS programme. There was significant association found between the compliance status and anaemic status of adolescents regarding WIFS programme. There was a significant association between anaemic status of adolescents with sex, religion, educational status of father's and mother's, occupational status of mother's, family income and it is not associated with occupational status of fathers. There was a significant association between compliance statuses of adolescents with sex, educational and occupational status of father's and mother's, family income and it was not associated with religion. There was a significant association between knowledge score and attitude score of adolescents

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with educational and occupational status of father's and mother's, family income and it was not associated with sex and religion. It reveals that family environment influences the knowledge, attitude and compliance of adolescents towards WIFS programme.

IMPLICATIONS

NURSING EDUCATION

The nursing students should be given opportunity through field history taking and observation in the community to assess of severity of anaemia and its management by supplementation of iron and good nutrition. Nurses must be educationally prepared to increase awareness in community regarding Anaemia and its impact. And must be taught to the community, adolescents and the pregnant women about anaemia.

Nursing education must be reoriented to primary health care approach, thus enabling prospective nurses to be well prepared to assist clients and community at large to develop their self-care potentials. This will help in achieving the goal of "Health for All". Nursing curriculum should provide the opportunities to the students to plan and conduct health education programs for adolescents in a variety of settings, viz. school, family, community, industry, hospital and other health care agencies. Holistic health care approach should be emphasized more during the training period of nursing students.

Nursing education must give priority to prepare school health nurses who would play a key role in the school health programs. School health nurse should be able to assess micronutrient deficiency by periodical physical examination and she should perform some simple lab testing procedures e.g., Hb testing.

In the revised curriculum of basic nursing education, much emphasis should be laid down on preventive and promotive aspect of health. In obstetric nursing, better health not only during pregnancy but also before conception should be the focus. Nursing students must learn to promote the health and prevent the illness of future parents and provide them require iron and folic acid.

NURSING RESEARCH

Nurse researcher may conduct studies in clinical and community setting to evaluate the effectiveness of the nursing interventions and control of anaemia in adolescents. Nurses' researcher, in clinical area, school and community as a whole for taking preventive measures to reduce the risk of anaemia and utilizing the Govt. initiative programme such as WIFS programme.

Discussion with stakeholders highlighted the limited evidence in some areas, meriting further research on intermittent iron supplementation in preschool and school-age children, in particular, in the following areas:

NURSING PRACTICE

There should be health education programme given by hospital nurses, public health nurses and school health nurses in hospital, communities and schools respectively/. Nurses can help the community in organizing and strengthening community support system for preventing anaemia. Adolescents' health has emerged as a focus issue in the recent years, after the introduction of reproductive and child health programme and WIFS programme.

School health services are an essential components of community health nursing. The findings of the study indicate that there is a need for regular and well-planned school health services, so that school children can be identified for occurrence of anaemia or any such problem at an early age.

For providing timely help to the school children, their parents and teachers. Nurses' roleis very vital in educating the adolescents for prevention and control of anaemia. Nurses can reach and teach the masses by educating school children regarding prevention and control of anaemia.

Community health nurse should be well equipped with knowledge and possess a favorable attitude towards prevention and control of anaemia while dealing withvulnerable groups (i.e., adolescents) and educate them to know about WIFS programmeand other initiatives.

In-service education programs must be conducted to sensitize nurses for adolescent health issues.

Nutrition education should be taught in the school and can include topics such as avoiding eating junk and fast food. Wholesome food should be made available to the adolescents under the school meal programme. Emphasis must be

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placed on preventing food wastage, saving the maximum value of food by observing proper method of food preservation, cutting, cooking and serving.

Community health nurse can help the community in organizing and strengthening community support system for prevention and control of anaemia among adolescents. Health education programme can be conducted using different A.V. aids i.e., charts, posters, leaflets/pamphlets, film show or puppet show emphasizing the ill effects of anaemia on adolescents. Healthy ways and means for improving haemoglobin statusare useful methods of educating public.

NURSING ADMINISTRATION

Nursing profession should be able to render services according to the changing needs of the society, The nurse administrator must provide opportunities for in service education programme based on identifies areas of knowledge, practice andattitude to update their knowledge to preventive and curative services.

While planning health care services for community at large, nurse administrators (such as D.P.H.N.O.) must keep in mind the population at risk, practice of society. Economic status of group and literacy level of population etc. Nurse administrators must also learn to develop rapport with inter-sectorial collaboration, because effective health care services need support of school authorities, community leaders, social service organizations, water supply and public work department etc.

Planners of health services should also look into the importance of regionalization of health care services which demands a good referral system.

Adolescents should be involved in planning and implementation of health services as partners. Nurses must be encouraged to participate in school health programs actively. Cost effective health care services can be developed for adolescents by nursing personnel, which will help in promoting their health. Top level managers should provide financial support for conducting adolescent health programs in different settings. National level organizations such as C.H.E.B. has developed a useful training guide for teachers on adolescent health, which must be utilized to train the teachers.

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