



**INSTITUTE OF HEALTH SCIENCE**

**SCHOOL OF PUBLIC HEALTH**

**COMPLIANCE TO WEEKLY IRON FOLIC ACID SUPPLEMENTATION  
AND ASSOCIATED FACTORS AMONG SCHOOL ADOLESCENT GIRLS  
IN HARU WOREDA, WESTERN OROMIA: CROSS-SECTIONAL STUDY**

**BY: -CHALTU BEKELE (BSc)**

**A THESIS TO BE SUBMITTED TO WALLAGA UNIVERSITY  
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**NEKEMTE, ETHIOPIA**

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**INSTITUTE OF HEALTH SCIENCES**  
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**Compliance to Weekly Iron Folic Acid Supplementation and Associated Factors among  
School Adolescent Girls in Haru Woreda, Western Oromia**

**STATEMENT OF THE AUTHOR**

I Mr. /Miss/Mrs. **Chaltu Bekele Negero** hereby declare and affirm that the thesis entitled **“Compliance To Weekly Iron Folic Acid Supplementation And Associated Factors Among School Adolescent Girls In Haru Woreda, Western Oromia ”** is my own work conducted under the supervision of \_\_\_\_\_. I have followed all the ethical principles of scholarship in the preparation, data collection, data analysis and completion of this thesis. All scholarly matter that is included in the thesis has been given recognition through citation. I have adequately cited and referenced all the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and I have not misrepresented, fabricated, or falsified any idea / data / fact / source in my submission. This thesis is submitted in partial fulfillment of the requirement for a degree from the Post Graduate Studies at Wallaga University. I further declare that this thesis has not been submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

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As members of the Board of Examining of the Final M.Sc. thesis open defense, we certify that we have read and evaluated the thesis prepared by **Chaltu Bekele Negero** under the title “**Compliance to Weekly Iron Folic Acid Supplementation and Associated Factors among School Adolescent Girls in Haru Woreda, Western Oromia**” and recommend that the thesis be accepted as fulfilling the thesis requirement for the **Degree of Master of Public Health in Reproductive Health**

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**Certification of the Final Thesis**

I hereby certify that all the correction and recommendation suggested by the board of examiners are incorporated into the final thesis entitled “**Compliance to Weekly Iron Folic Acid Supplementation and Associated Factors among School Adolescent Girls in Haru Woreda, Western Oromia**” by **Chaltu Bekele Negero**

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## LIST OF ABBREVIATIONS/ACRONYMS

BCC: -----Behavioral Change Communication

EDHS: -----Ethiopian Demographic and Health Survey

IFAS: ----- Iron and Folic Acid Supplementation

IDA: ----- Iron Deficiency Anemia

IFA: ----- Iron and Folic Acid

LMICS: ----- Low- And Middle-Income Countries

MOH: ----- Ministry of Health

NTD: ----- Neural Tube Defect

NNP: ----- National Nutrition Program

SBCC: ----- Social Behavioral Change Communications

SSA: ----- Sub-Saharan Africa

WHO: ----- World Health Organization

WIFAS: ----- Weekly Iron Folic Acid Supplementation

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## ABSTRACT

**Background:** Iron deficiency anemia remains a significant public health concern among adolescents, particularly in low- and middle-income countries including Ethiopia. The World Health Organization (WHO) recommends weekly iron and folic acid supplementation (WIFAS) for menstruating women to reduce the risk of anemia. Despite these guidelines, adherence to WIFAS programs is challenging specifically in my study area.

**Objective:** To assess weekly iron and folic acid supplementation compliance and identify associated factors among in school adolescent girls in Haru Woreda, Oromia, 2025.

**Methods:** Institution-based cross-sectional study was conducted among 418 adolescent girls selected by systematic sampling technique in Haru Woreda from March 1–14, 2025. Data was collected using interviewer-administered questionnaires, entered into EpiD-ata version 4.4.3.1, and analyzed with SPSS version 24. Descriptive statistics such as mean, standard deviation, and frequency tables and graphs were used to for indicated variables. Multicollinearity was checked by using Variance inflation factor (VIF), and model fitness was checked by Hosmer-Lemeshow goodness of fit test. Variables with  $p < 0.25$  in bivariate analysis were included in multivariable logistic regression. AORs with 95% CIs were used to assess the strength of association, finally significance was declared at  $p \leq 0.05$ .

**Results:** The study reported a high response rate of 99%. The level of weekly iron and folic acid supplementation compliance was 54.3% (95% CI: 49.5%–59.1%). After adjusting for confounders, students in grades 7–8 (AOR = 3.44; 95% CI: 1.33–8.92 availability of drinking water at school (AOR = 3.42; 95% CI: 1.10–10.79), no stock-outs of IFA tablet (AOR = 3.04; 95% CI: 1.03–8.93), and having good knowledge (AOR = 4.23; 95% CI: 1.84–9.70).) were factors associated with compliance.

**Conclusions:** About half of the adolescent girls in Haru Woreda regularly took the Iron Folic Acid Supplementation as recommended. Key factors influencing adherence include grade level, availability of drinking water at schools, consistent supply of IFA tablets, and the level of knowledge about supplementation. Interventions aiming to improve adherence should focus on ensuring consistent tablet supply, enhancing school infrastructure, and providing comprehensive education about the benefits of iron and folic acid supplementation.

**Keywords:** Adolescent girls, Iron and Folic Acid Supplementation, WIFAS, Compliance, Haru

# **1. INTRODUCTION**

## **1.1. Background**

Adherence to iron and folic acid (IFA) supplementation among in-school adolescent girls remains a significant public health concern, especially in areas with high anemia prevalence. Iron deficiency anemia (IDA) is common during adolescence due to increased nutritional demands, inadequate dietary intake, and socio-economic challenges. Poor adherence to IFA programs can worsen health outcomes, leading to reduced academic performance, higher infection risk, and potential pregnancy-related complications later in life(1).

Adolescence, defined by the WHO as the age range of 10 to 19 years, is marked by rapid physical and psychological changes. During this stage, girls face increased nutritional needs, particularly due to menstruation, making them more susceptible to IDA(2).

Compliance to Weekly Iron and Folic Acid Supplementation (WIFAS) refers to the extent to which individuals adhere to the recommended intake of iron and folic acid tablets, typically one tablet per week, as part of anemia prevention strategies. In the context of public health programs, compliance is crucial for achieving intended health outcomes, particularly in populations at high risk of micronutrient deficiencies (3).

Adolescent girls, especially in low- and middle-income countries, are at high risk for iron and folate deficiencies due to poor dietary diversity, gender-related disparities, and increased nutritional needs. These deficiencies can impair cognitive development, academic performance, and future maternal health, increasing risks during pregnancy and childbirth(4,5).

School-based IFA supplementation programs offer a practical platform for reaching adolescent girls. However, their effectiveness is often limited by issues such as irregular supply, lack of training for school staff, and sociocultural barriers. Integration with behavior change communication and community involvement has been shown to improve adherence(6).

The World Health Organization (WHO) recommends that adolescent girls receive iron and folic acid supplementation to prevent anemia and support overall health. The WHO guidelines suggest

a weekly dose of 60 mg of elemental iron combined with 400 µg of folic acid for girls aged 10-19 years (7).

Iron is a vital mineral found in many foods, supplements, and added to some food products. It is crucial for the metabolism of all living organisms, particularly in humans, where it forms part of proteins and enzymes. Iron is essential for hemoglobin, the protein in red blood cells that carries oxygen throughout the body. It also supports red blood cell production, oxygen transport, energy metabolism, immune function, cognition, and cell division. Extra iron is stored in the liver, bone marrow, spleen, and muscles (8,9).

Iron deficiency, affecting about one-third of the global population, can lead to anemia, reducing oxygen transport in the body. Causes include blood loss from menstruation, ulcers, trauma, surgery, or tumors, as well as pregnancy, inadequate dietary iron, poor absorption, and rapid growth during infancy, childhood, and adolescence. Iron is lost through sweat, intestinal cell shedding, and blood loss, with menstruating women at higher risk than men and postmenopausal women(10,11).

Folate is a naturally occurring essential vitamin mainly found in green leafy vegetables and Legumes. Folic acid is a B vitamin that helps the human body to make red blood cells. Folate-deficiency anemia is the lack of folic acid in the blood. Folate deficiency is caused primarily by inadequate dietary intake and partly by medical and physiological conditions that increase the need or excretion of folate. Folate intake is suboptimal in the diets of many Women of reproductive age and exacerbated by overcooking foods and poor bioavailability, estimated to be from 50% to 82%. A lack of folate during pregnancy is linked to major birth defects that affect the brain, spinal cord, and spine (neural tube defects). Low levels of folic acid can cause megaloblastic anemia (12).

Anemia in women of reproductive age can be prevented with low-cost interventions like weekly iron and folic acid (IFA) supplements, which reduce anemia risk by an average of 27%. The WHO recommends weekly IFA supplementation in areas where anemia prevalence exceeds 20%, improving hemoglobin levels, iron status, and reducing anemia risk (13).

## **1.2 STATEMENT OF THE PROBLEM**

Iron deficiency anemia (IDA) remains a significant public health concern among adolescent girls globally, particularly in low- and middle-income countries (LMICs) (14). The World Health Organization (WHO) recommends weekly iron and folic acid supplementation (WIFAS) as a cost-effective strategy to prevent IDA and improve folate status among adolescent girls aged 10–19 years. Despite these recommendations, adherence to WIFAS programs varies widely across different settings. For instance, a study in Ghana reported a compliance rate of 26.2% among adolescent girls(15).

Worldwide, anemia in adolescent girls is still in an alarming trend. Studies indicate that a significant percentage of adolescent girls skip their IFA pills because of a number of barriers, such as sociocultural reasons, lack of access, and inadequate information regarding the significance of supplementing (16,17).

In Ghana, a study showed that while 81% of respondents were taking IFA tablets, adherence levels varied significantly, with many consuming fewer than the recommended amounts(18,19).Moreover, the prevalence of anemia among schoolgirls in Ghana decreased from 25.1% to 19.6% over a school year with IFA supplementation, indicating that while programs exist, adherence remains a challenge(20).

In Ethiopia, the Ministry of Health has implemented WIFAS programs targeting in-school adolescent girls. However, compliance rates remain suboptimal. A study conducted in the Debu Achefer district found that only 66.1% of adolescent girls had good compliance with the weekly IFAS program (21). Similarly, research in the Jimma Arjo district reported a compliance rate of 29.3% (22).

Non-compliance with WIFAS programs can exacerbate the prevalence of IDA among adolescent girls, leading to adverse health outcomes such as impaired cognitive development, reduced academic performance, and increased susceptibility to infections. Furthermore, IDA during adolescence can have long-term consequences, including complications during future pregnancies and childbirth. The lack of adequate folic acid intake is also associated with an increased risk of neural tube defects in offspring. This issue is more severe for school-age girls who are at a higher

risk of iron deficiency anemia, a condition that folic acid supplementation can help mitigate (15,23).

Several factors contribute to the low compliance rates observed in WIFAS programs. Studies have identified personal, familial, and educational determinants influencing adherence. For example, limited knowledge about the benefits of iron and folic acid supplementation, fear of side effects, and misconceptions about the supplements have been reported as barriers to compliance. Additionally, school-related factors such as absenteeism, lack of teacher involvement, and unavailability of water during supplementation sessions have been associated with non-compliance(15,22,24,25).

To address these challenges, the Ethiopian government, in collaboration with various stakeholders, has initiated programs aimed at enhancing WIFAS compliance among adolescent girls. These initiatives include integrating WIFAS into school health programs, providing training for teachers, and developing social and behavioral change communication (SBCC) materials to raise awareness about the importance of iron and folic acid supplementation. Despite these efforts, compliance rates remain below the desired levels, indicating the need for further research and targeted interventions(21,26,27).

While previous studies have assessed WIFAS compliance based on partial compliance metrics (estimated compliance levels based on 80% consumption of IFA over a 7-week period), which may overestimate actual adherence(25), there is a paucity of research evaluating compliance using a more stringent criterion of 100% consumption over a 12-week period. Moreover, there is limited evidence on the behavioral, educational, and socioeconomic factors influencing adherence among in-school adolescent girls in Ethiopia, particularly in the study area. This study aims to fill this gap by assessing the level of compliance with WIFAS and identifying the determinants affecting adherence, thereby informing the development of more effective strategies to enhance compliance rates among this vulnerable population.

### **1.3 SIGNIFICANCE OF THE STUDY**

This study investigates factors influencing level of compliance to weekly iron and folic acid supplementation (WIFAS) in school adolescent girls, despite the proven importance of supplementation in preventing iron deficiency anemia (IDA), compliance remains low in many areas. By focusing on a specific school setting in Ethiopia, the study aims to identify localized solutions to improve compliance and inform future interventions.

School-based health initiatives offer potential to enhance adolescent nutrition, but challenges such as inconsistent distribution and limited participation from teachers and students often hinder their success. This study examines how factors like school infrastructure, teacher involvement, and peer influence affect adherence to iron-folic acid supplementation. By analyzing these factors, the research provides valuable insights to guide future interventions aimed at reducing anemia in teenage girls. The findings will help strengthen school-based programs, support global nutrition goals, expand existing research, and shape policies to combat iron deficiency anemia (IDA) in adolescents, offering essential guidance for future studies in adolescent health and nutrition.

## 2. LITERATURE REVIEW

Adherence to weekly iron and folic acid supplementation (WIFAS) among school-going adolescent girls refers to the degree to which individuals follow the recommended weekly intake of iron-folic acid tablets as prescribed by public health programs. This adherence is typically assessed by the proportion of the recommended doses actually consumed over a given time period, serving as an indicator of program effectiveness in enhancing iron and folic acid intake (28).

Iron and folic acid deficiencies remain significant public health issues, especially among adolescent girls, who experience increased physiological demands due to rapid growth and menstruation. Anemia, largely attributed to iron deficiency, affects nearly one-third of adolescents globally, with adverse effects on their physical development, cognitive abilities, and academic performance (29).

Weekly iron and folic acid supplementation have been widely endorsed as a cost-effective and evidence-based intervention to prevent and manage anemia in this population. The World Health Organization (WHO) and other international health agencies recommend the provision of WIFAS—specifically, a weekly dose of 60 mg elemental iron and 2.8 mg folic acid—to menstruating adolescents (aged 10–19) and women of reproductive age (20–49 years) in regions where anemia prevalence exceeds 20%. Many countries have adopted WIFAS programs as part of broader strategies to address micronutrient deficiencies and improve adolescent health outcomes. Enhancing adherence to supplementation protocols is crucial to maximizing the benefits of such interventions, particularly in improving iron status and preventing anemia (30).

### **2.1 Weekly Iron-Folic Acid supplementation compliance**

Adherence to WIFAS programs is crucial for the intervention's success. Studies in some regions of Indonesia expressed that the prevalence of anemia among female students in Islamic boarding school was high and ranged from 52.25% to 68.30%. The level of compliance to the intake of iron-folic acid tablets is one of the factors contributing to this problem, which only 1.4% of adolescent girls adhere to the consumption of 52 iron-folic acid (IFA) tablets during 1 school year (31).

A cross-sectional Study in Thrissur corporation of India indicated as compliance or adherence to the drugs (IFA) is more important for the effectiveness of the intervention and showed as the adherence level seen in the study was only 15% (32). A study on coverage and adherence of WIFAS among school going student Girls in Indonesia revealed as only 1.2% of girls in East Java received WIFAS according to the recommended scheme that was at least 24 tablets within 6 months (33). Another study in Gahana stated that the entire IFAS compliance rate was 26.2%. Of the adolescent girls, around 82.5% continued to take the IFA tablet at school, while the remaining had ceased doing so. The majority of those taking the IFA tablets in school (48.3%) said they were taking it to avoid anemia, and another 41.1% said their instructor had advised them to do so (16).

In Debub Achefer district, Northwest of Ethiopia, where the national weekly IFAS was piloted, a study that sought to evaluate the factors related to compliance with weekly iron and folic acid supplementation among school-age adolescent girls found a higher rate of noncompliance (33.9%), which may limit the effectiveness of the program in reducing the burden of anemia(21). Another Study in Western Ethiopia reported compliance rate of 29.3 %(26).

## **2.2. FACTORS ASSOCIATED WITH WIFAS COMPLIANCE**

### **2.2.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY PARTICIPANTS**

Study in Ghana found that maternal education and occupation significantly influenced adolescent girls' compliance with iron and folic acid supplementation (IFAS). Girls whose mothers had secondary education were more likely to adhere to IFAS compared to those whose mothers had no formal education. Additionally, compliance was notably lower among girls whose mothers were traders compared to those with unemployed mothers.(16). Another study revealed that poor compliance with weekly IFAS was associated with girls who were married, in lower grades (1–4), and from families employed in non-government jobs(21).

### **2.2.2. BEHAVIORAL AND PSYCHOSOCIAL FACTORS**

Research in Ethiopia highlighted that, adolescent girls who received anemia-related health education had significantly higher adherence rates compared to their counterparts who lacked such information(21,26).

A study conducted in Jimma Arjo District, West Ethiopia, revealed that adolescent girls' compliance with weekly iron-folic acid supplementation (WIFAS) was significantly linked to their level of knowledge and awareness about anemia. Additionally, understanding the WIFAS program itself positively influenced adherence rates. The research also identified several barriers to compliance, including issues related to the tablets themselves, forgetfulness, and misconceptions about supplementation—such as fears of potential side effects—as significant factors affecting adherence (26). Negative perceptions surrounding anemia and iron-folic acid (IFA) supplements, often shaped by misinformation spread within social groups, significantly impact compliance(34). Overcoming these psychosocial barriers requires for focused awareness campaigns aimed at promoting positive attitudes toward IFA supplements in schools and communities (35).

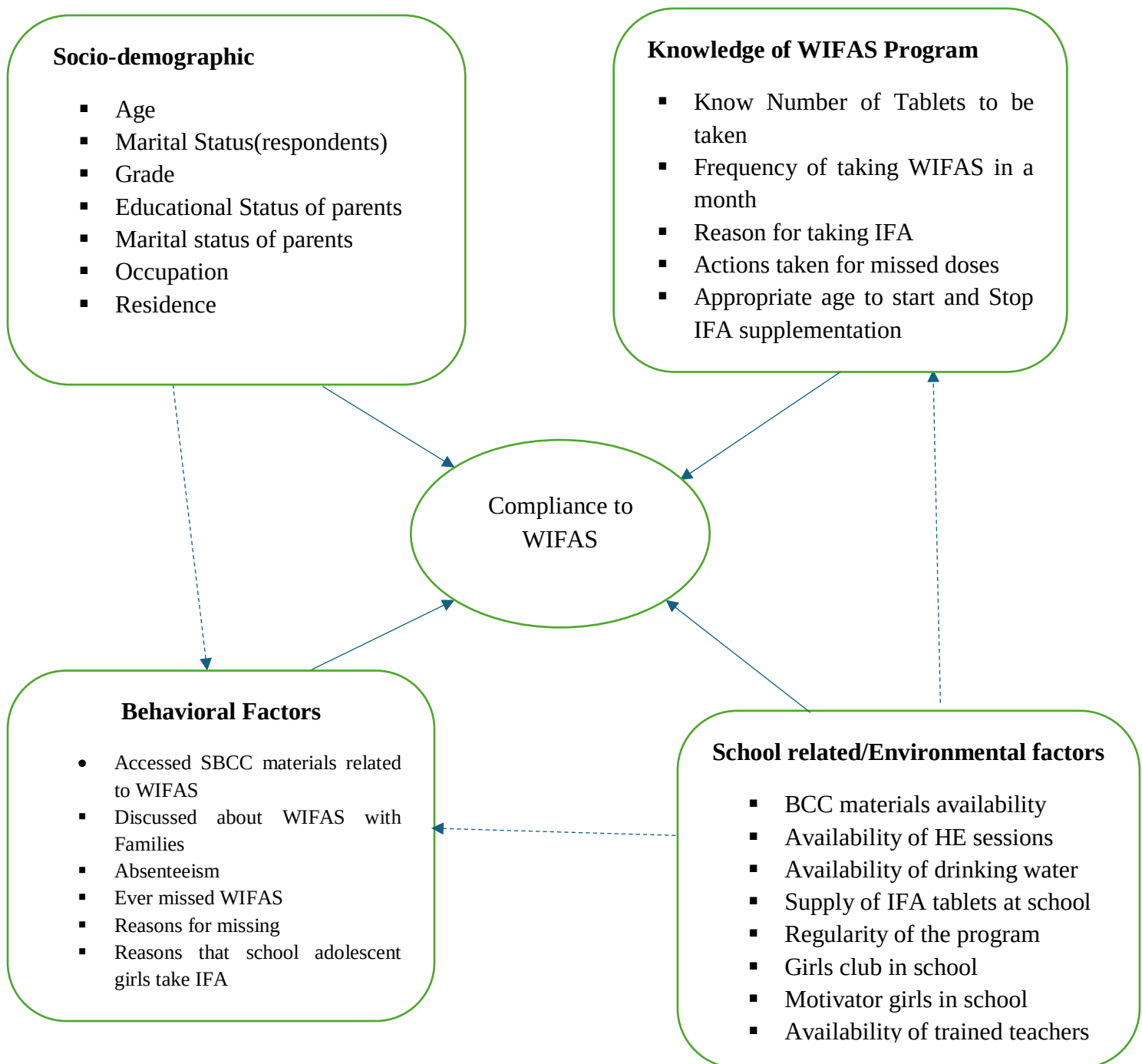
Adolescent girls' absenteeism and lack of communication with family members about the IFAS program impacted their compliance with iron-folic acid supplementation(21).

### **2.2.3. PROGRAMMATIC AND ENVIRONMENTAL FACTORS**

The success of WIFAS programs depends heavily on their implementation and delivery mechanisms. Studies have emphasized the importance of consistent and timely supplement distribution. A review from Nepal identified gaps in the supply chain and irregular distribution as major barriers to compliance (36).

A qualitative study conducted in Indonesia and Ghana identified limited access to drinking water and inconsistent scheduling of weekly iron-folic acid supplementation days as key barriers to compliance among adolescent girls. Additional challenges included IFA tablet stock-outs and delays by teachers in distributing the tablets on time(16,17,26). A discouraging home environment was another factor affecting compliance with the IFAS program, with poor adherence significantly higher among adolescent girls lacking access to health education materials(21). Additional barriers included the absence or non-functionality of schoolgirls' clubs, inadequate teaching aids for the iron-folic acid supplementation program, irregular weekly supplementation days, and the lack of health education programs within the school setting.(26).

### 2.3. Conceptual Framework



**FIGURE 1: -CONCEPTUAL FRAMEWORK OF COMPLIANCE AND ASSOCIATED FACTORS WITH WIFAS AMONG IN SCHOOL ADOLESCENT GIRLS IN HARU WOREDA(16,21,26,33)**

### **3. OBJECTIVES**

#### **3.1 GENERAL OBJECTIVE**

To assess level of Compliance with weekly iron folic acid supplementation and associated factors among School adolescent girls in Haru Woreda, Western Oromia, 2025

#### **3.2 SPECIFIC OBJECTIVES**

- 1) To determine the level of compliance with weekly iron folic acid supplementation among School adolescent girls in Haru Woreda, Western Oromia, 2025
- 2) To identify factors associated with compliance with weekly iron folic acid supplementation among School adolescent girls in Haru Woreda, Western Oromia, 2025

## **4. METHODS**

### **4.1 STUDY AREA AND PERIOD**

The Study was conducted in Haru Woreda, which is found in Oromia regional state, West Wollega zone, located 25 kms from Gimbi town and 465 kms from Addis Ababa. Haru Woreda has a total population of 96472. Out of this, 47,754 are males and 48,718 are Females. In this woreda there are different ethnic groups and different governmental and non-governmental institutions. The existing health institutions are three-health centers, 27 health posts, 4 medium clinics (private), 13 primary clinics and 3 drug stores. The existing educational institutions are thirty-four primary Schools and four secondary schools. Out of the thirty-eight schools in the Woreda, fourteen schools (comprising four secondary schools and ten primary schools) are currently implementing the WIFAS program (37). Data was collected from the study participants from 1-14 March 2025.

### **4.2 STUDY DESIGN**

Institution based cross-sectional study design was conducted

### **4.3 POPULATION**

#### **4.3.1 SOURCE POPULATION**

All adolescent girls attending regular Schools in WIFAS implementing schools at Haru woreda were the source population.

#### **4.3.2 STUDY POPULATION:**

All adolescent girls attending regular schools in randomly selected schools, who are on weekly iron-folic acid supplementation programs and participated in the study, were study population.

### **4.4. INCLUSION AND EXCLUSION CRITERIA**

#### **4.4. 1. INCLUSION CRITERIA**

All adolescent girls between the ages of 10 and 19 years who were enrolled in schools for the 2024/2025 academic year and on WIFAS program were included.

#### **4.4.2. Exclusion Criteria**

Adolescent girls on anemia treatment with iron or folic acid at the time of data collection were excluded.

#### 4.4 SAMPLE SIZE AND SAMPLING TECHNIQUE

##### 4.4.1 SAMPLE SIZE DETERMINATION

The required sample size of this study was calculated using single population proportion formula, with the assumption of 95% CI, Considering proportion of Compliance of WIFAS (29.3%) in Jimma Arjo District, Oromia, Western Ethiopia (26), 5% margin of error, and 10% nonresponse rate.

$$n = \frac{z_{\alpha/2}^2 p(1-p)}{d^2}$$

Where: n= Sample size;  $Z (\alpha/2)^2$  = confidence interval; P= proportion of WIFAS Compliance; d =marginal of error

Thus,

$$n = \frac{(1.96)^2 * (0.293) * (1-0.293)}{(0.05)^2} = 318$$

Finally, taking a 10 % non-response rate, the minimum sample size was 350. When the sample size needed for the second objective was determined, all became less than the one calculated for the degree of compliance. Thus, the sample size is set at 350. (See Table 1 below)

As the source population is fewer than 10,000, a correction formula was applied to determine the sample size as follows.

$$nf = \frac{no}{1+no/N} \quad nf = \frac{350}{1+350/1428} = 281$$

Where:  $n_f$  = final sample size

no= sample size calculated from single population proportion formula (350)

N=total population/Source Population (1428)

A multi-stage sampling technique was applied, accounting for the design effect. The adjusted sample size was calculated as follows.

$$n_{\text{adjusted}} = n_0 \times DE, = 281 * 1.5 = 422, \text{ resulting in a final sample size of } \mathbf{422}.$$

**TABLE 1:- SAMPLE SIZE CALCULATION FOR THE SECOND STUDY OBJECTIVE, WESTERN OROMIA, 2024 (16,21,38)**

To determine the appropriate sample size for the study, the sample size for the second objective was also calculated using Epi Info, with a 95% confidence level and 80% power, yielding values between 220 and 245. These were then compared with the sample size estimated for the first objective, which was higher at 422. Consequently, the larger sample size of 422 was chosen as the basis for determining the final sample size after applying the correction formula and design effect.

| S.N. | Factors/Variables                    | CI  | Power | Proportion of outcome among exposed | Proportion of outcome among unexposed | Sample size (n) | Sample Size with 10% non-response rate |
|------|--------------------------------------|-----|-------|-------------------------------------|---------------------------------------|-----------------|----------------------------------------|
| 1    | Mother's Education                   | 95% | 80%   | 60%                                 | 40%                                   | 223             | 245                                    |
| 2    | Adolescent girls' Knowledge of WIFAS | 95% | 80%   | 50%                                 | 30%                                   | 223             | 245                                    |
| 3    | Access to Drinking Water             | 95% | 80%   | 40%                                 | 20%                                   | 200             | 220                                    |
| 4    | Availability of IFA Tablets          | 95% | 80%   | 70%                                 | 50%                                   | 212             | 233                                    |

#### **4.4.2 THE SAMPLING TECHNIQUE/ PROCEDURE**

As it is implementing WIFAS program, Haru woreda was purposely selected. Among fourteen schools providing weekly Iron Folic Acid Supplementation (WIFAS) from the woreda, five were randomly selected, from five schools, 5-8 grades were included and, all sections from grade 5 through 8 were included and sample size was allocated to each section proportionally. Simple random sampling technique was employed to select study participants from each section using WIFAS registration book as a sampling frame.

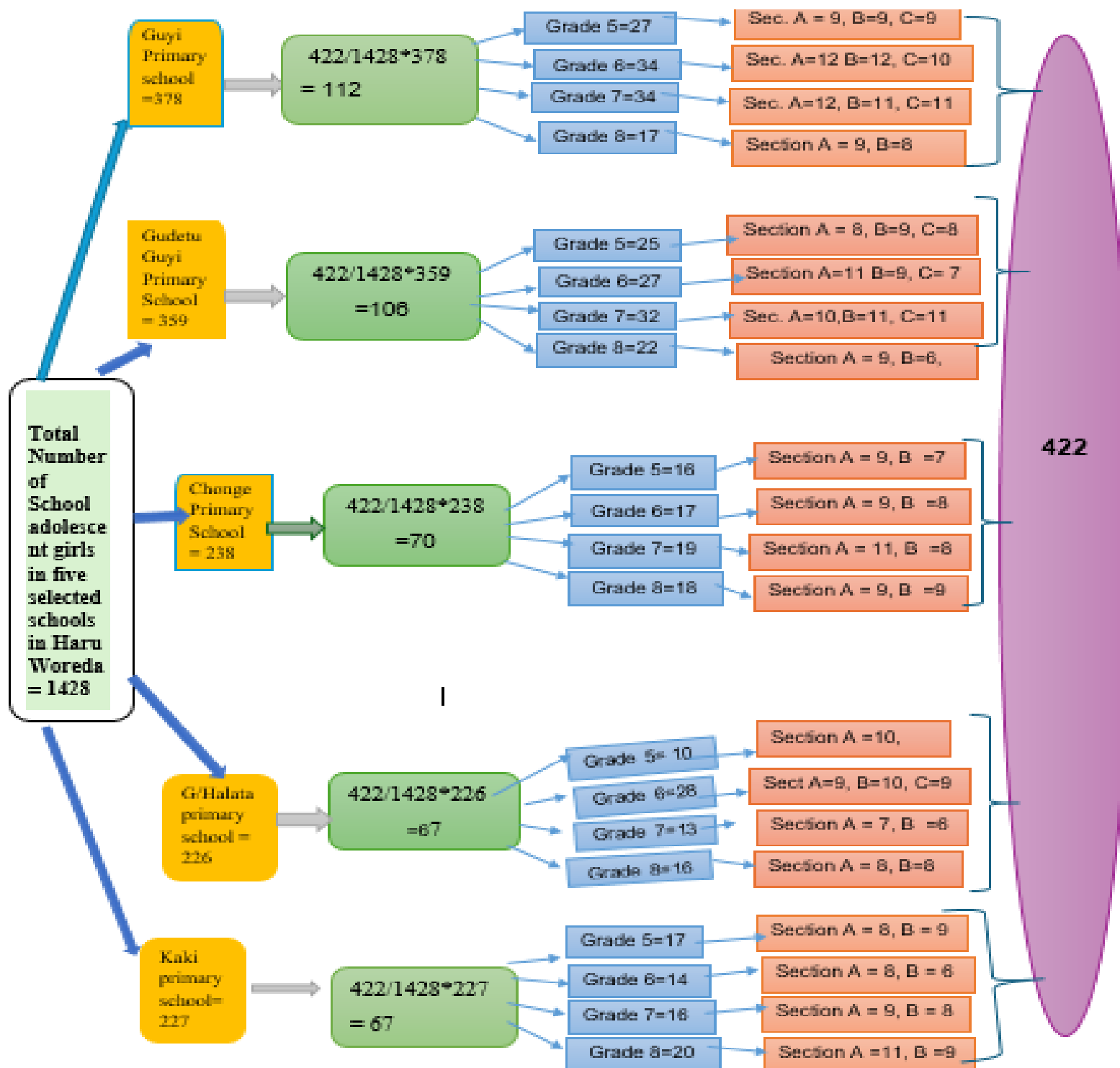


Figure 2:- Schematic presentation of sampling procedure for assessment of Compliance to WIFAS and associated factors among school adolescent girls in Haru Woreda, 2024

## 4.5 STUDY VARIABLES

### **Dependent Variable**

- Compliance with WIFAS program

### **Independent Variables**

- Sociodemographic characteristics: - age, marital status, grade, residence, parental educational and occupational status, religion
- Knowledge of WIFAS program: - Number of IFA tablets to be taken within a month and a year, appropriate age to start WIFAS, importance of WIFAS
- Adolescent girls-related (Behavioral) factors - accessed any type of SBCC material related to WIFAS, ever missed taking the tablet, reasons for missing, ever discussed with family about WIFAS, ever encountered any form of trouble after taking IFA tablet
- School-related (Environmental) factors: - health education on WIFAS given, availability of girls' club and drinking water, teacher assigned for WIFAS, regularity of WIFAS days,

## 4.6 OPERATIONAL AND TERM DEFINITIONS

**Compliance with WIFAS:** - Adolescent girls who consumed the total required tablets (12 tabs with in the past 3 months prior to the data collection period (21).

**Knowledge of IFAS Program** - Assessed using eight questions. Adolescent girls scoring above the mean were classified as having good knowledge, while those scoring below the mean were classified as having poor knowledge (26).

## 4.7 DATA COLLECTION TECHNIQUE AND PROCEDURES

### **4.7.1 DATA COLLECTION TOOL**

Customized questionnaire was initially adapted from previous literatures(16,21,26,32). The questionnaire has sections on socio-demographics for both study participants and parents, behavioral factors, and School environment related factors. The questionnaire was prepared in English, translated into Afan Oromo languages and then back to English to check consistence.

#### **4.7.2 DATA COLLECTION PROCEDURE**

Sessions for conducting interviews were planned for each school, grades and sections after obtaining permission from the school administrations. Data was collected through face-to-face interview utilizing a customized questionnaire.

#### **4.7.3. DATA COLLECTORS**

Five BSc Nurses were assigned to collect data, one for each School, and one supervisor to supervise the overall activities. There was orientation on the study's scientific goals, ethical considerations, and methods for collecting data.

#### **4.8 DATA QUALITY CONTROL**

The investigator provided a one-day orientation to supervisors and data collectors to ensure the quality of the fieldwork. It included how to complete the questionnaire, obtain consent, and guarantee the confidentiality of research participants' information.

Every day, the supervisor monitored and confirmed the accuracy of the data collection process. The data collection tools were pretested on 5% (20 students) of the sample in unselected WIFAS providing (Guracha Ujumo primary school check reliability of the tool. The pre-testing phase's findings and recommendations were used to modify the questionnaire. The pre-tested data was not included in the main data analysis.

#### **4.9 DATA PROCESSING AND ANALYSIS**

All collected data from the questionnaire was checked manually before entry to computer. Data was cleaned manually, coded, and entered Epi data version 4.4.3.1, and then exported to and analyzed by using SPSS version 24 software. Descriptive analysis was carried out for each of the variables to check frequency distribution and missing values. Bi-variate analysis was employed to check the crude association between dependent and independent variables. Multicollinearity was assessed by using VIF and goodness of fit model was checked by Hosmer-Lemeshow statistic with P-value of  $>0.05$ .

Variable with p value  $<0.25$  on bi-variate analysis was entered into multivariable Binary logistic regression to identify the factors associated with WIFAS Compliance. Odds ratio and

corresponding 95% confidence intervals were used to quantify the degrees of association between independent variables. Results with p-value  $\leq 0.05$  was considered as being statistically significant.

#### **4.10 ETHICAL CONSIDERATION.**

Before the actual data collection process, an ethical clearance letter was obtained from ethical review committee of Wollega University and was taken to West Wollega Zonal health and Education Office, which was conveyed to Woreda health and education Office. Finally, letter of permission was written for all selected Schools from Woreda Education Office. In addition, a brief explanation of the study objective was provided for Study participants to avoid uncertainty and misunderstanding. Once participants' willingness to take part was confirmed and verbal consent was obtained from the school director, data collection commenced. Confidentiality was ensured and maintained by the principal investigator, supervisor, and data collectors.

#### **4.11 PLAN FOR DISSEMINATION OF RESULTS**

After completion of the study and defended at Wollega University, the findings of the report will be submitted to Wollega University and the copy of it will be sent to advisors and to woreda and Zonal health and education Offices. Further efforts will be made to publish the findings.

## **5. RESULTS**

### **5.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS**

The study reported a high response rate of 99%. A large share of participants (65.8%) and their families (67.5%) resided in rural areas. The majority of participants (62.4%) were between 10 and 14 years old, with a mean age of 13.91 years ( $\pm 1.62SD$ ), and over half (51.4%) were enrolled in grades 5 or 6. The vast majority were unmarried (98.3%), identified as Protestant (68.7%), and belonged to the Oromo ethnic group (99%). Nearly half of the mothers (48.8%) and over a quarter of the fathers (28.2%) were illiterate. Additionally, most mothers (89.2%) were not employed, and a significant portion of families (76.8%) had a monthly income of less than 3000 ETB (Table: -2)

**TABLE 2: -SOCIO-DEMOGRAPHIC CHARACTERISTICS OF ADOLESCENT GIRLS IN SCHOOL, HARU, 2025 (N=418)**

| Variable                 | Category                  | Frequency | Percent |
|--------------------------|---------------------------|-----------|---------|
| Residence of Respondent  | Urban                     | 143       | 34.2    |
|                          | Rural                     | 275       | 65.8    |
| Age Categories           | 10–14 years               | 261       | 62.4    |
|                          | >14 years                 | 157       | 37.6    |
| Grade                    | 5–6                       | 215       | 51.4    |
|                          | 7–8                       | 203       | 48.6    |
| Marital Status           | Single                    | 411       | 98.3    |
|                          | Married                   | 7         | 1.7     |
| Religion (Respondent)    | Orthodox                  | 108       | 25.8    |
|                          | Protestant                | 287       | 68.7    |
|                          | Adventist                 | 12        | 2.9     |
|                          | Others                    | 11        | 2.6     |
| Mother's Education       | Cannot read and write     | 204       | 48.8    |
|                          | Read and write            | 99        | 23.7    |
|                          | Primary Level (Grade 1-8) | 86        | 20.6    |
|                          | Secondary (Grade 9-12)    | 20        | 4.8     |
|                          | College and above         | 9         | 2.2     |
| Father's Education       | Cannot read and write     | 118       | 28.2    |
|                          | Read and write            | 105       | 25.1    |
|                          | Primary Level (Grade 1-8) | 100       | 23.9    |
|                          | Secondary (Grade 9-12)    | 60        | 14.4    |
|                          | College and above         | 35        | 8.4     |
| Mother's Occupation      | Housewife/Unemployed      | 373       | 89.2    |
|                          | Merchant                  | 27        | 6.5     |
|                          | Others                    | 18        | 4.3     |
| Father's Occupation      | Unemployed                | 17        | 4       |
|                          | Merchant                  | 45        | 10.8    |
|                          | Government Employee       | 44        | 10.5    |
|                          | Private Employee          | 307       | 73.4    |
| Religion (Family)        | Orthodox                  | 111       | 26.6    |
|                          | Protestant                | 284       | 67.9    |
|                          | Adventist                 | 8         | 1.9     |
|                          | Others                    | 15        | 3.6     |
| Ethnicity                | Oromo                     | 414       | 99      |
|                          | Amhara                    | 4         | 1       |
| Residence (Family)       | Urban                     | 136       | 32.5    |
|                          | Rural                     | 282       | 67.5    |
| Monthly Income of Family | <3000 ETB                 | 321       | 76.8    |
|                          | >3000 ETB                 | 97        | 23.2    |

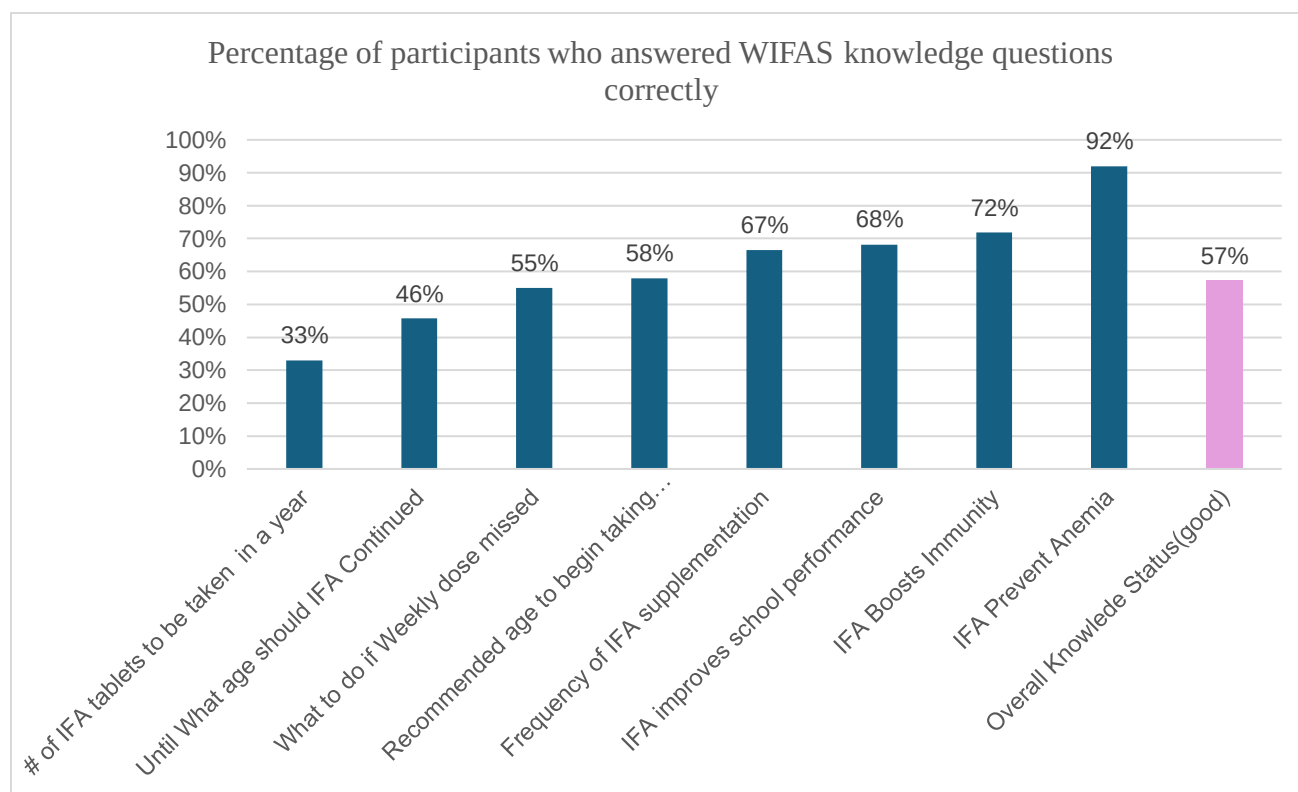
\* OTHERS (RELIGION) – MUSLIMS & WAKEFATA, \*\* others (Mother's Occupation) -- Gov't & Private Employee

## **5.2. KNOWLEDGE REGARDING WEEKLY IRON FOLIC ACID SUPPLEMENTATION PROGRAM**

Although 278 (66.5%; 95% CI: 62%–71%) of the participants accurately identified the recommended weekly frequency of IFA intake, only 138 (33 %; 95 % CI: 28.5 %–37.5 %) were aware of the correct total annual dosage. Knowledge of the appropriate starting age was 57.9% (242), and just 45.7% (191) were aware of the age limit for continuing IFA supplementation. However, a positive finding was that 91.9% (384) recognized IFA’s role in preventing anemia, and 71.8% (300) understood its benefits for boosting immunity. The overall mean knowledge score was 59.9. 239 respondents, accounting for 57.2% (95% CI: 52.5%–61.9%), were classified as having good knowledge about the WIFAS program, reflecting a moderate level of awareness and understanding (Table 3).

**TABLE 3- KNOWLEDGE ASSESSMENT OF RESPONDENTS TOWARDS WEEKLY IRON SUPPLEMENTATION, HARU WOREDA, 2025**

| Variable                                                    | Response            | Frequency  | %           |
|-------------------------------------------------------------|---------------------|------------|-------------|
| Recommended frequency of IFA supplementation                | <b>Every Week</b>   | <b>278</b> | <b>66.5</b> |
|                                                             | Every 2 Weeks       | 46         | 11.0        |
|                                                             | Every 3 Weeks       | 7          | 1.7         |
|                                                             | Every 4 Weeks       | 87         | 20.8        |
| Recommended annual IFA tablet intake for adolescent girls.  | 12 tablets          | 121        | 28.9        |
|                                                             | <b>24 tablets</b>   | <b>138</b> | <b>33.0</b> |
|                                                             | 36 tablets          | 13         | 3.1         |
|                                                             | No limits           | 121        | 28.9        |
|                                                             | I don't know        | 25         | 6.0         |
| Recommended age for adolescent girls to begin taking WIFAS? | <b>10 Years</b>     | <b>242</b> | <b>57.9</b> |
|                                                             | Other than 10 Years | 176        | 42.1        |
| IFA supplementation continue up to age of                   | 19 Years            | 191        | 45.7        |
|                                                             | Other than 19 Years | 227        | 54.3        |
| Does IFA improve school performance?                        | Yes                 | 285        | 68.2        |
|                                                             | No                  | 80         | 19.1        |
|                                                             | Don't Know          | 53         | 12.7        |
| Does IFA prevent anemia?                                    | Yes                 | 384        | 91.9        |
|                                                             | No                  | 17         | 4.1         |
|                                                             | Don't Know          | 17         | 4.1         |
| Does IFA boosts immunity                                    | Yes                 | 300        | 71.8        |
|                                                             | No                  | 81         | 19.4        |
|                                                             | Don't Know          | 37         | 8.9         |
| What should you do if you miss a weekly dose of IFA         | Receive on next day | 188        | 45.0        |
|                                                             | Continue next week  | 223        | 53.3        |
|                                                             | Stop taking         | 7          | 1.7         |
| Overall Knowledge Status                                    | Good                | 239        | 57.2        |
|                                                             | Poor                | 179        | 42.8        |

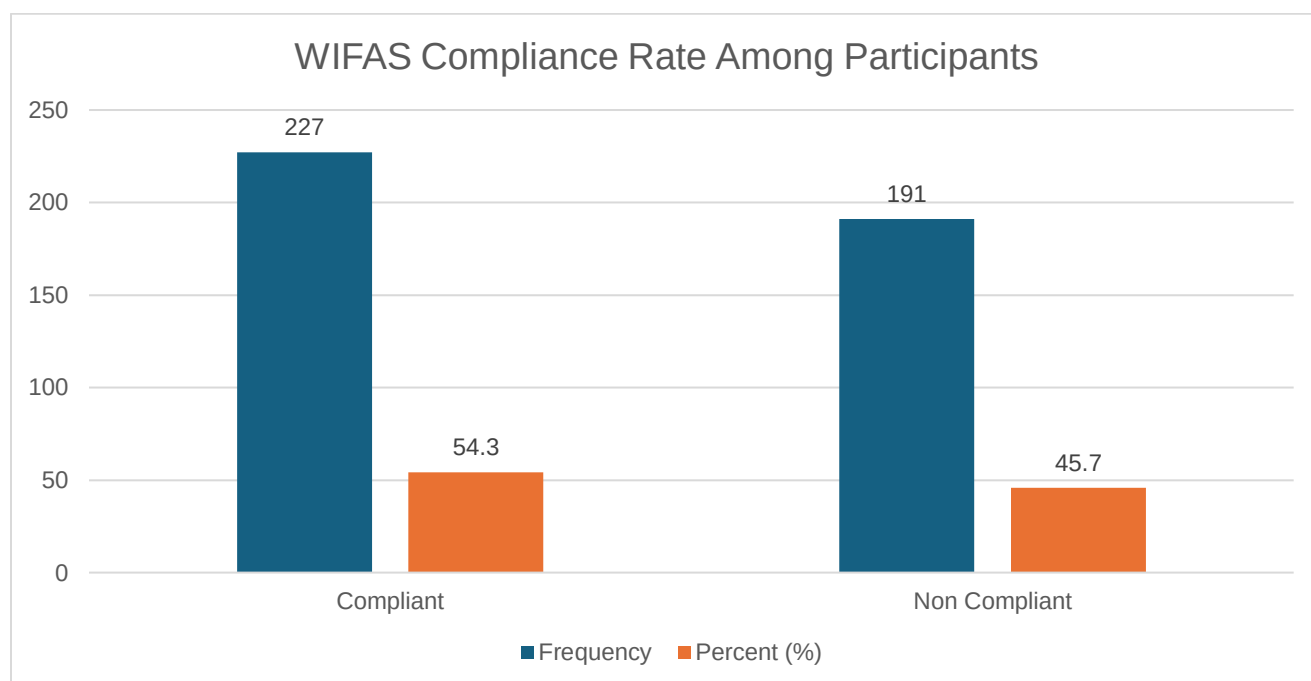


**FIGURE 3 : -PROPORTION OF RESPONDENTS WITH CORRECT KNOWLEDGE RESPONSE ON WIFAS PROGRAM, HARU WOREDA, 2025**

As noted above, the most of respondents (92%) correctly identified that IFA can prevent anemia, and 72% recognized its role in boosting immunity. However, only a small portion (33%) were aware of the minimum recommended number of tablets to be taken annually.

### 5.3. COMPLIANCE LEVEL OF STUDY PARTICIPANTS

Respondents' Compliance with WIFAS Recommendations



**FIGURE 4 :-COMPLIANCE TO WIFAS AMONG SCHOOL GOING ADOLESCENT GIRLS, HARU WOREDA, 2025**

In schools within Haru Woreda, iron and folic acid (IFA) supplementation compliance with among adolescent girls was 54.3% (95% CI: 49.5–59.1

### 5.4. BEHAVIORAL FACTORS RELATED TO WIFAS AMONG RESPONDENTS

A study among in school-adolescent girls found that 90.4% recognized the importance of nutrition during adolescence. However, only 38.8% had accessed SBCC materials on WIFAS, primarily through schools (32.8%). Currently, 58.4% are taking IFA tablets, with 35.2% aiming to prevent anemia. Non-compliance reasons include lack of information (17.0%) and school absenteeism (9.1%). Notably, 68.7% receive support beyond family, mainly from teachers (51.9%). Despite 98.3% reporting no adverse effects, 42.3% have missed doses, often due to school absence (24.2%) (Table: -4)

TABLE 4 – BEHAVIORAL FACTORS, RELATED WITH WIFAS AMONG RESPONDENTS,  
HARU WOREDA, 2025

| Variables                                                                            | Category                   | Frequency | Percent |
|--------------------------------------------------------------------------------------|----------------------------|-----------|---------|
| Are you aware that adolescence is a critical period for nutrition                    | Yes                        | 378       | 90.4    |
|                                                                                      | No                         | 40        | 9.6     |
| Have you ever accessed any type of SBCC material related to WIFAS?                   | Yes                        | 162       | 38.8    |
|                                                                                      | No                         | 256       | 61.2    |
| If yes, where did you get this material from? (N=162)                                | Schools                    | 137       | 32.8    |
|                                                                                      | Health workers             | 19        | 4.5     |
|                                                                                      | Relatives/friends          | 6         | 1.5     |
| Are you taking IFA currently                                                         | Yes                        | 244       | 58.4    |
|                                                                                      | No                         | 174       | 41.6    |
| Reason for taking IFA tablet (N=244)                                                 | Advised from teachers      | 81        | 19.4    |
|                                                                                      | Prevent anemia             | 147       | 35.2    |
|                                                                                      | Improve school performance | 9         | 2.2     |
|                                                                                      | Others *                   | 7         | 1.6     |
| Ever missed taking the tablet                                                        | Yes                        | 177       | 42.3    |
|                                                                                      | No                         | 241       | 57.7    |
| If yes, for how long (Weeks) (N=177)                                                 | 1-4                        | 163       | 39.0    |
|                                                                                      | >4                         | 14        | 3.4     |
| Reasons for missing the tablets (N=177)                                              | Forgot the date            | 46        | 11.0    |
|                                                                                      | absent from School         | 101       | 24.2    |
|                                                                                      | No IFA tablets             | 24        | 5.7     |
|                                                                                      | No Water Supply in School  | 6         | 1.2     |
| Always taking under supervision?                                                     | Yes                        | 237       | 56.7    |
|                                                                                      | No                         | 181       | 43.3    |
| Ever taken IFAS on an empty stomach?                                                 | Yes, most of the time      | 20        | 4.8     |
|                                                                                      | Yes, sometimes             | 27        | 6.5     |
|                                                                                      | Yes, Once/ twice           | 22        | 5.3     |
|                                                                                      | Not at all                 | 349       | 83.5    |
| Have you discussed with your family on your status of taking IFA?                    | Yes                        | 233       | 55.7    |
|                                                                                      | No                         | 185       | 44.3    |
| If yes, what was their response? (N=233)                                             | Encouraging                | 221       | 52.9    |
|                                                                                      | Others**                   | 12        | 2.9     |
| Is there anyone other than your family supporting you in any form to comply with IFA | Yes                        | 287       | 68.7    |
|                                                                                      | No                         | 131       | 31.3    |
| If yes, who supports you? (N=287)                                                    | Teachers                   | 217       | 51.9    |
|                                                                                      | Motivator Girls            | 33        | 7.9     |
|                                                                                      | Girls club members         | 34        | 8.1     |
|                                                                                      | Others                     | 3         | 0.7     |

|                                                                           |                                            |     |      |
|---------------------------------------------------------------------------|--------------------------------------------|-----|------|
| Have you ever encountered any form of trouble after taking an IFA tablet? | Yes                                        | 7   | 1.7  |
|                                                                           | No                                         | 411 | 98.3 |
| If yes, What?                                                             | Heart burn                                 | 4   | 1.0  |
|                                                                           | Others                                     | 3   | 0.7  |
| What measures have you taken to solve the problem?                        | Temporarily Discontinued taking the tablet | 7   | 1.7  |
| Reasons for Adolescent girls not taking or discontinuing WIFAS? (N=418)   | Lack of information                        | 287 | 68.7 |
|                                                                           | Family decision                            | 34  | 8.1  |
|                                                                           | Fear of adverse effect                     | 73  | 17.5 |
|                                                                           | I don't know                               | 24  | 5.7  |

\*Others (Friends taking & because it is free), \*\*others (Discouraging & No response)

### 5.5. SCHOOL AND ENVIRONMENTAL FACTORS

An evaluation of school-based Weekly Iron and Folic Acid Supplementation (WIFAS) programs indicates that 37.8% of schools have Social and Behavior Change Communication (SBCC) materials, and 51.4% conduct health education sessions. Among these, 20.3% hold weekly programs, while 23.0% offer monthly sessions. Girls' clubs are present in 75.8% of schools, and 71.8% have access to drinking water. Regular IFA supplementation days occur in 58.1% of schools, with 87.6% having assigned teachers; however, only 53.1% distribute tablets on time. Stock-outs affect 17.5% of schools, and 76.8% of students report supportive home environments.

**TABLE 5 : SCHOOL RELATED FACTORS ASSESSMENT OF RESPONDENTS TOWARDS WIFAS, HARU WOREDA, 2025**

| Variable                                                                  | Response       | Frequency | Percent |
|---------------------------------------------------------------------------|----------------|-----------|---------|
| School have SBCC materials on WIFAS                                       | Yes            | 158       | 37.8    |
|                                                                           | No             | 260       | 62.2    |
| Availability of IFAS health education program in the school?              | Present        | 215       | 51.4    |
|                                                                           | Not Present    | 203       | 48.6    |
| If present, frequency of the program(N=215)                               | Every Week     | 85        | 20.3    |
|                                                                           | Every Month    | 96        | 23.0    |
|                                                                           | Every 3 months | 34        | 8.1     |
| Girls Club in School?                                                     | Yes            | 317       | 75.8    |
|                                                                           | No             | 101       | 24.2    |
| Drinking water sources in school.                                         | Yes            | 300       | 71.8    |
|                                                                           | No             | 118       | 28.2    |
| How regular are the school's weekly iron-folic acid supplementation days? | Regular        | 243       | 58.1    |
|                                                                           | Irregular      | 175       | 41.9    |
| Is any assigned teachers to provide IFA?                                  | Yes            | 366       | 87.6    |
|                                                                           | No             | 52        | 12.4    |
| Assigned teacher provides IFAS on timely bases.                           | Yes            | 222       | 53.1    |
|                                                                           | No             | 144       | 34.4    |
| Stock-out of IFA tablets occurred.                                        | Yes            | 73        | 17.5    |
|                                                                           | No             | 345       | 82.5    |
| Home environment of WIFAS                                                 | Encouraging    | 321       | 76.8    |
|                                                                           | Discouraging   | 97        | 23.2    |

## 5.6. FACTORS ASSOCIATED WITH COMPLIANCE WITH WIFAS

In the bivariate analysis, variables with a p-value of less than 0.25 were considered as candidates for the multivariate logistic regression model. Nine variables met this criterion and had been found to be significantly associated with adherence to weekly iron and folic acid supplementation, these included age, grade level, current use of IFAS, history of missed doses, regularity of school IFAS supplementation days, availability of drinking water, presence of assigned teachers, stock-out of IFAS, and knowledge level. Following multivariate logistic regression analysis and adjustment for potential confounders, four variables remained statistically significant ( $p < 0.05$ ) and were independently associated with adherence: grade level, availability of drinking water, stock-out of IFAS, and knowledge level.

Students in grades 7–8 were more likely to adhere to supplementation compared to those in grades 5–6, (AOR = 3.44; 95% CI: 1.33–8.92;  $p = 0.011$ ). The presence of a reliable drinking water source at school was positively associated with adherence, with students having access to water being more likely to take IFAS regularly (AOR = 3.42; 95% CI: 1.10–10.79;  $p = 0.036$ ). Schools that did not experience IFAS stock-outs also had better adherence among students, as lack of stock significantly reduced adherence (AOR = 3.04; 95% CI: 1.03–8.93;  $p = 0.043$ ). Additionally, students with good knowledge about iron and folic acid were significantly more likely to adhere to supplementation compared to those with poor knowledge (AOR = 4.23; 95% CI: 1.84–9.70;  $p = 0.001$ )

**TABLE 6: BIVARIABLE AND MULTIVARIABLE RESULTS OF FACTORS ASSOCIATED WITH WEEKLY IRON AND FOLIC ACID SUPPLEMENTATION COMPLIANCE AMONG SCHOOL GOING ADOLESCENT GIRLS, HARU WOREDA, 2025**

| Variable                                         | Category       | WIFAS         |            | COR                   | AOR                    | P-Value |
|--------------------------------------------------|----------------|---------------|------------|-----------------------|------------------------|---------|
|                                                  |                | Non-Compliant | Compliant  |                       |                        |         |
| Age                                              | 10-14yrs       | 131(50.2%)    | 130(49.8%) | 1.63(95%CI:1.09-2.44) | 0.44(95%CI:0.16-1.15)  | 0.095   |
|                                                  | >14yrs         | 60(38.2%)     | 97(61.8%)  | 1                     |                        |         |
| Grade                                            | 5 -6           | 114(53%)      | 101(47%)   | 1.89(95%CI:1.25-2.73) | 3.44(95%CI:1.33-8.92)  | 0.011*  |
|                                                  | 7- 8           | 77(37.9%)     | 126(62.15) | 1                     |                        |         |
| Taking IFA currently                             | Yes            | 93(38.1%)     | 151(61.9%) | 1                     |                        | 0.192   |
|                                                  | No             | 98(56.3%)     | 76(43.7%)  | 2.09(95%CI:1.41-3.11) | 0.55(95%CI:0.22-1.35)  |         |
| Ever missed taking IFAS                          | Yes            | 115(64.6%)    | 63(35.4%)  | 3.94(95%CI:2.61-5.94) | 1.19(95%CI:0.06-22.44) | 0.91    |
|                                                  | No             | 76(31.7%)     | 164(68.3%) | 1                     |                        |         |
| School IFAS day                                  | Regular        | 97(39.9%)     | 146(60.1%) | 1                     |                        | 0.54    |
|                                                  | Irregular      | 94(53.7%)     | 81(46.3%)  | 1.75(95%CI:1.18-2.59) | 0.78(95%CI:0.35-1.73)  |         |
| Availability of drinking water sources at school | Yes            | 123(41%)      | 177(59%)   | 1                     |                        | 0.036*  |
|                                                  | No             | 68(57.6%)     | 50(42.4%)  | 1.96(95%CI:1.27-3.01) | 3.42(95%CI:1.10-10.79) |         |
| Assigned teachers to provide IFAS                | Yes            | 90(40.5%)     | 132(59.5%) | 1                     |                        | 0.08    |
|                                                  | No             | 80(55.6%)     | 64(44.4%)  | 1.83(95%CI:1.20-2.80) | 2.10(95%CI:0.91-4.90)  |         |
| Stock out of IFA                                 | Yes            | 47(64.4%)     | 26(35.6%)  | 2.52(95%CI:1.49-4.26) | 3.04(95%CI:1.03-8.93)  | 0.043*  |
|                                                  | No             | 144(41.7%)    | 201(58.3%) | 1                     |                        |         |
| Knowledge level                                  | Poor knowledge | 114(63.7%)    | 65(36.3%)  | 3.69(95%CI:2.45-5.55) | 4.23(95%CI:1.84-9.70)  | 0.001*  |
|                                                  | Good knowledge | 77(32.2%)     | 162(67.8%) | 1                     |                        |         |

\*= Significant at  $P < 0.05$ , 1= Referent

## 6. DISCUSSIONS

This study aimed to assess the level of compliance with Weekly Iron and Folic Acid Supplementation (WIFAS) and identify associated factors among selected school adolescent girls in Haru Woreda, Oromia Region, Ethiopia.

This study found that the level of compliance to WIFAS among in-school adolescent girls in Haru Woreda, Oromia Region, was 54.3%. When compared to other studies, the compliance level found in this study is **lower** than the **66.1%** reported in the Debub Achefer district of Northwest Ethiopia(21). The higher adherence observed in Debub Achefer may be due to the district's status as a pilot area for Ethiopia's national WIFAS program, where enhanced implementation strategies such as intensive training of school and health personnel and strong monitoring systems were employed. These supportive measures likely contributed to better program uptake (21).

Similarly, the current finding is also lower than that reported in Urban Puducherry, India, where 67.7% of adolescent girls were found to be compliant with IFA tablet intake. The higher adherence in Puducherry can be explained by more established healthcare infrastructure, regular program supervision, cultural normalization of supplement use, and proactive community engagement.

India's WIFAS program benefits from systemic support, including periodic counseling, parent-teacher involvement, and ongoing evaluation—factors that have been shown to influence compliance positively (39).

In contrast, the compliance level found in this study (54.3%) is notably higher than that reported in a study conducted in the Jimma Arjo district of the East Wollega Zone, where only 29.3% of adolescent girls were compliant with WIFAS(26). The higher compliance observed may reflect relatively better coordination between schools and local health authorities, more effective health education interventions, or increased community awareness of anemia prevention and potential variations in the timing of the studies.

This study identified four key factors significantly associated with compliance with WIFAS among adolescent girls in Haru Woreda: grade level, availability of a reliable drinking water source at school, stock consistency of IFAS, and knowledge about IFAS programs.

Firstly, students in grades 7–8 were found to be significantly more compliant to WIFAS compared to those in grades 5–6. This finding is consistent with a study conducted in Debub Achefer district, northwest Ethiopia, which also reported higher compliance among older or more senior students (21). The increased maturity and cognitive ability of students in higher grades may contribute to a better understanding of the benefits of supplementation, as well as increased compliance with health-related instructions. Younger students may have limited awareness, greater fear of side effects, or lower perceived susceptibility to anemia, which could reduce their adherence.

The presence of a reliable drinking water source at school was significantly associated with improved compliance. This aligns with findings from a study in Tamale Metropolis of Ghana where the unavailability of water in schools was a challenge to facilitate tablet intake and reduced compliance (16,26). Lack of drinking water can discourage students from taking iron tablets due to discomfort swallowing pills or concerns about side effects, such as gastrointestinal irritation when taken on an empty stomach. The presence of water promotes convenience and reduces barriers to consistent intake.

Regular availability of IFA tablets significantly influenced adherence. This result is in line with studies from Northwest Ethiopia, Ghana, and Nepal, which both emphasized that continuous supply and consistent distribution of iron tablets are crucial for maintaining adherence (16,21,36). Stock-outs interrupt regular supplementation schedules and may lead to a loss of motivation or habit discontinuation among students.

Good knowledge about WIFAS program was strongly associated with higher Compliance. This finding agrees several studies, including those conducted in Jimma Arjo, and in Urban Puducherry, India (26,39) where awareness about anemia and the benefits of supplementation significantly influenced compliance. When students understand the purpose of WIFAS, including its role in preventing anemia and improving school performance, they are more likely to participate consistently in supplementation programs (39).

These findings suggest that multifaceted strategies are essential for improving adherence. Interventions should focus not only on health education and awareness creation but also on addressing systemic issues like supplements availability and the school environment. Targeting

younger students with tailored educational messages and ensuring basic facilities such as access to Safe drinking water source can significantly improve program outcomes.

## 6.1 STRENGTH AND LIMITATION OF THE STUDY

### 6.1.1 *STRENGTH*

The study provides valuable, localized insights into WIFAS compliance among in-school adolescent girls in Haru Woreda, contributing to the scarce regional data in Ethiopia. It incorporates comparative analysis with both national (e.g., Debub Achefer, Jimma Arjo) and international (e.g., Urban Puducherry) studies, offering a broader understanding of factors affecting adherence.

A major strength of this study is the identification of four key determinants influencing WIFAS compliance—student grade level, availability of drinking water at school, consistency in IFA tablet supply, and students' knowledge of the program. These findings provide clear, evidence-based targets for designing focused interventions to enhance the effectiveness of WIFAS implementation.

### 6.1.2. *LIMITATION*

Recall bias, possibly leading to overestimation or underestimation of actual adherence. As the study was conducted only in selected schools in *Haru Woreda*, the findings may not be generalizable to other districts or regions with different socio-cultural or health system contexts.

## 7. CONCLUSION AND RECOMMENDATIONS

### 7.1. CONCLUSION

The study in Haru Woreda found that 54.3% of adolescent girls were compliant with the Weekly Iron and Folic Acid Supplementation (WIFAS) program. Key factors influencing adherence include grade level, availability of drinking water at schools, occurrence of IFA tablet stock-outs, and the students' knowledge about IFA.

## 7.2. RECOMMENDATION

Based on these findings, the following recommendations are proposed:

**Schools in Haru Woreda:** Each school should ensure the consistent availability of drinking water to facilitate the intake of IFA tablets. Additionally, schools should organize regular health education sessions to enhance students' knowledge about the benefits and proper use of IFA supplementation.

**Haru Woreda Education Office:** The office should coordinate with schools to monitor and support the implementation of the WIFAS program. This includes ensuring that schools have the necessary resources and training to effectively deliver the program.

**Haru Woreda Health Office:** Efforts should be made to prevent stock-outs of IFA tablets by improving supply chain management. The health office should also provide training for health workers and teachers involved in the distribution of IFA tablets to ensure timely and accurate delivery.

**West Wollega Zonal Education Office:** At the zonal level, there should be oversight and support for the WIFAS program's implementation across schools in Haru Woreda. This includes facilitating training programs, allocating resources, and monitoring adherence rates to identify and address challenges promptly.

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## ANNEX I. CONSENT FORM

### *Greeting*

Good morning/afternoon, my name is \_\_\_\_\_. I am one of the data collectors on the study assessing “Compliant and associated factors of WIFAS among School adolescents in Haru Woreda, West Wollega, 2024/2025”. As a result, I would appreciate your assistance in answering the following questions. The information that you will offer helps to avoid WIFAS non-compliance and in turn helps for its effectiveness in preventing anemia. Your provided information was kept private. You are free to decline participation in the study and to end the interview at any point if you are not interested or want to. It can take 30 minutes to complete the questionnaire.

## Annex II- Questionnaires (English Version)

**TABLE 7** QUESTIONNAIRE PREPARED TO COLLECT INFORMATION ON COMPLIANCE LEVEL ON WIFAS AND ASSOCIATED FACTORS AMONG ADOLESCENT GIRLS AT HARU WOREDA, WEST WOLLEGA, 2024/2025

DATE OF INTERVIEW \_\_\_\_\_ INTERVIEWER'S INITIALS \_\_\_\_\_  
QUESTIONNAIRE # \_\_\_\_\_

Respondent's # \_\_\_\_\_ School Name \_\_\_\_\_

### PART I: - SOCIO-DEMOGRAPHIC CHARACTERISTICS

| S.N. | Characteristics               |                                                                                                          |
|------|-------------------------------|----------------------------------------------------------------------------------------------------------|
| 1    | Residence                     | 1) Urban 2) Rural                                                                                        |
| 2    | Age in year                   | _____                                                                                                    |
| 3    | Grade & section               | Grade_____ Section_____                                                                                  |
| 4    | Marital status                | 1. Single 2. Married 3. Divorced 4. Widow                                                                |
| 5    | Religion of respondent        | 1. Ordothox 2. Protestant 3. Adventist 4. Muslim 5. Wakefata 6 others(specify)_____                      |
| 6    | Mother's level of Education   | 1. Cannot read and write 2. Read and Write 3. Primary level 4. Secondary 5) college and above            |
| 7    | Father's level of Education   | 1. Cannot read and write 2. Read and Write 3. Primary level 4. Secondary 5. college and above            |
| 8    | Mother's Occupation           | 1. Housewife/Unemployed 2. Merchant 3. Government Employee 4. Private Employee 5. Others (specify) _____ |
| 9    | Father's Occupation           | 1. Unemployed 2. Merchant 3. Government Employee 4. Private Employee 5. Farmer 6. Others(specify) _____  |
| 10   | Religion (Families')          | 1. Ordothox 2. Protestant 3. Adventist 4. Muslim 5. Wakefata 6 others(specify)_____                      |
| 11   | Ethnicity                     | 1. Oromo 2. Amhara 3, Garage 4. Tigre 5, others (Specify)_____                                           |
| 12   | Residence (Families')         | 1. Urban 2. Rural                                                                                        |
| 13   | Average family monthly income | _____ in ETB                                                                                             |

Part II: - Knowledge regarding WIFAS program

| S.N. | Characteristics                                                                  |                                                                                    |
|------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1    | What is the recommended frequency of IFA supplementation in a month?             | 1) Every Week<br>2) Every 2 Weeks<br>3) Every 3 Weeks<br>4) Every 4 Weeks          |
| 2    | How many tablets should be taken within a year?                                  | 1) 12 tablets<br>2) 24 tablets<br>3) 36 tablets<br>4) No limits<br>5) I don't know |
| 3    | What is the appropriate age to start taking weekly IFA for adolescent girls?     | _____years                                                                         |
| 4    | Do you know how long you should keep taking IFA tablets under the WIFAS program? | 1) Up to_____ years<br>—                                                           |
| 5    | Does IFA improves school performance?                                            | 1) Yes<br>2) No                                                                    |
| 6    | Does IFA prevents anemia?                                                        | 1) Yes<br>2) No                                                                    |
| 7    | Does IFA boosts immunity                                                         | 1 Yes<br>2 No                                                                      |
| 8    | What should you do if you miss a weekly dose of IFA                              | 1) Receive on next day.<br>2) Continue next week<br>3) Stop taking                 |

### Part III: -Awareness and Compliance with WIFAS program

| S.N. | Characteristics                                                    |                                                                                                                                           |
|------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Are you aware that adolescence is a critical period for nutrition  | 1) Yes<br>2) No                                                                                                                           |
| 2    | Have you ever accessed any type of SBCC material related to WIFAS? | 1) Yes 2) No                                                                                                                              |
| 3    | If yes, from where did you get this material?                      | 1) Schools<br>2) Health workers<br>3) Relatives/Friends<br>2) Others (specify).....                                                       |
| 4    | Number of IFA tablets received in the last 12 Weeks                | _____tablets                                                                                                                              |
| 5    | Are you taking IFA currently                                       | 1) Yes 2) No                                                                                                                              |
| 6    | If yes, for how long?                                              | _____months                                                                                                                               |
| 7    | If yes for Question # 5, reason for taking IFA tablet              | 1) Advised from teachers<br>2) Because it is free<br>3) Friends taking<br>4) Prevent anemia<br>5) Improve school performance<br>6) Others |
| 8    | If no for Question # 5, reason for not taking IFA                  | 1) Absent from school<br>2) Fear of side effect<br>3) No permission from parents<br>4) No information on the program<br>5) Others         |
| 9    | Ever missed taking the tablet                                      | 1) Yes 2) No                                                                                                                              |
| 10   | If yes, for how long (Weeks)                                       | _____Weeks                                                                                                                                |
| 11   | Reasons for missing the tablets                                    | 1) Forgot the date<br>2) Absent from School<br>3) No IFA tablets<br>4) No Water Supply in School                                          |
| 12   | Always taking under supervision?                                   | 1) Yes 2) No                                                                                                                              |
| 13   | Ever taken IFAS on an empty stomach?                               | 1) Yes, most of the time<br><br>2) Yes, sometimes<br><br>3) Yes, Once/ twice<br>4) Not at all                                             |
| 14   | Have you discussed with your family On your status of taking IFA?  | 1) Yes<br>2) No                                                                                                                           |
| 15   | If yes, what was their response?                                   | 1) Encouraging<br>2) Discouraging                                                                                                         |

|    |                                                                                               |                                                                                                                 |
|----|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|    |                                                                                               | 3) No response                                                                                                  |
| 16 | Is there anyone other than your family supporting you in any form to comply with IFA          | 1) Yes<br>2) No                                                                                                 |
| 17 | If Yes, Who support you?                                                                      | 1) Teachers<br>2) Motivator Girls<br>3) Girls club members<br>4) Boys in the school<br>5) Others (mention       |
| 18 | Have you ever encountered any form of trouble after you have taken your IFA tablet?           | 1. Yes 2) No                                                                                                    |
| 29 | If yes, What?                                                                                 | 1) Heart burn<br>2) Increase in menstruation flow<br>3) Overweight<br>4) 4) Other                               |
| 20 | What measures have you taken to solve the problem?                                            | 1) Went to a health facility for advice<br>2) Temporarily Discontinued taking the tablet<br>3) Others (mention) |
| 21 | What do you think are the reasons for Adolescent girls for not taking or discontinuing WIFAS? | 1) Lack of information<br>2) Family decision<br>3) Fear of adverse effect<br>4) Other (mention) .....           |

#### Part IV: -School Related factors

| S. N | Characteristics                                        |                                                      |
|------|--------------------------------------------------------|------------------------------------------------------|
| 1    | School have SBCC materials on WIFAS                    | 1) Yes 2) No                                         |
| 2    | IFAS health education program in the school compound   | 1) Present<br>2) Not Present                         |
| 3    | If present, frequency of the program                   | 1) Every Week<br>2) Every Month<br>3) Every 3 months |
| 4    | Girls Club in School?                                  | 1) Yes 2) No                                         |
| 5    | Drinking water source in school?                       | 1) Yes 2) No                                         |
| 6    | School weekly iron-folic acid supplementation days are | 1) Regular<br>2) Irregular                           |
| 7    | Is there any assigned teacher to provide IFA?          | 1) Yes 2) No                                         |
| 8    | Assigned teacher provides IFAS on timely bases.        | 2) Yes<br>3) No                                      |
| 9    | Stock-out of IFA tablets occurred.                     | 1) Yes<br>2) No                                      |
| 10   | Home environment of WIFAS                              | 1) Encouraging<br>2) Discouraging                    |

### ANNEX III: - AFAN OROMO VERSION OF QUESTIONNAIRE

Unka waliigaltee af-gaaffi

Nagaa Gaafachuu

Akkam oolte/bulte? Ani maqaankoo\_\_\_\_\_ shamarran saafilootaa mana barumsaa kanaa Simboo walitti fufiinsaan fudhachuu irratti qo'annoo geggeessuuf, namoota raga funaanan keessaa ani nama tokko.

Haaluma kanaan gaaffilee armaan gadii naa deebisuuf gargaarsa ati goote nan ajaa'ibsiiffadha. Odeeffannoo ati laattu shamarran saafilootni Simboo walitti fufiinsaan akka fudhataniif gargaara, kara biraammoo bu'a-qabeessummaa simboon hir'ina dhiigaa ittisuu irratti qabu beekuuf gargaara. Odeeffannoon ati laattu qobaatti eegama. Qo'annoo kana keessatti hirmaachuu dhiisuu dandeessa, yo fetes yeroo kamittuu af-gaaffii kana addaan kutuu dandeessa. Gaaffii fi deebiin nu waliin taasifnu kun daqiiqaa 30 fudhachuu danda'a.

## WARAQAA GAAFANNOO

**TABLE 8 -WARAQAA SADARKAA SINBOON AKKATAA BARBAADAMUTTI FUDHATAMAA JIRAACHUU ISAA ODEEFFANNOO ITTIIN FUNAANUUF QOPHAA'E, BARATTOOTA SHAMARRAN SAAFILOTAA AANAA HAARUU, G/W/LIXAA, 2017.**

Guyyaa\_\_\_\_\_ maqaa nama odeeffannoo funaanuu\_\_\_\_\_

Lakkoofsa waraqaa gaaffii\_\_\_\_\_

Maqaa nama gaafatamuu\_\_\_\_\_ Maqaa mana baruusaa\_\_\_\_\_

### PART I: - SOCIO-DEMOGRAPHIC CHARACTERISTICS

| T.L | Gaaffilee/Characteristics  |                                                                                                                            |
|-----|----------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1   | Bakka jireenyaa            | 2) Magaalaa 2) Baadiyaa                                                                                                    |
| 2   | Umurii                     | _____ Waggaadhaan                                                                                                          |
| 3   | Sadarkaa barnootaa         | _____                                                                                                                      |
| 4   | Haal Gaa'elaa              | 1.Kan Heerumte 2. Qophaa 3. kan hiikte 4. Kan irraa du'e                                                                   |
| 5   | Amantii gaafatamtuu        | 1.Ortoodooksii 2. Pirotellantii 3. Adventistii 4. Musilima<br>5. Waaqeffataa 6. kan biraa (ibsi)_____                      |
| 6   | Sadarkaa barnootaa haadhaa | 1.barreessuu fi dubbisuu hin dandeessu 2 barreessuu fi dubbisuu qofa 3. Sadarkaa jalqabaa 4. Sadarkaa lammaffaa fi isaa ol |
| 7   | Sadarkaa barnootaa Abbaa   | 1.barreessuu fi dubbisuu hin dandeessu 2 barreessuu fi dubbisuu qofa 3. Sadarkaa jalqabaa 4. Sadarkaa lammaffaa fi isaa ol |
| 8   | Hojii Haadhaa              | 1. Haadha manaa/kan hin qacaramne 2. daldaltuu 3. Hojjettuu Mootummaa 4. Dhuunfaa 5. Kan biraa_____                        |
| 9   | Hojii Abbaa                | 1. kan hin qacaramne 2. Daldalaa 3. Hojjettuu Mootummaa 4. Dhuunfaa 5. Qonnan bulaa 6. Kan biraa_____                      |
| 10  | Amantii Maatii             | 1.Ortoodooksii 2. Pirotellantii 3. Adventistii 4. Musilima<br>5. Waaqeffataa 6. kan biraa (ibsi)_____                      |
| 11  | Sabummaa Maatii            | 1. Oromoo 2. Amaaraa 3. Guraagee 4. Tigiree 5, kan biraa (ibsi)_____                                                       |
| 12  | Bakka jireenyaa/Maatii     | 1. Magaalaa 2) Baadiyaa                                                                                                    |
| 13  | Galii guyyaa /Maatii       | _____Qarshii Itoophiyaatiin                                                                                                |

Kutaa II:- Gaaffii Beekumasaa Sagantaa Simboo Irratti

| S.N | Characteristics                                                                    |                                                                                         |
|-----|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1   | Simboon Ji'a tokko keessatti yeroo ammamiif fudhatam?                              | 1) Torban tokkoof<br>2) Torban lamaaf<br>3) Torban sadiif<br>4) Torban afuuriif         |
| 2   | Waggaa tokko keessatti Simboo ija meeqatu fudhatama?                               | 1) 12, 2) 24 3) 36<br>4)Daangaa hin qabu<br>5) Hin beeku                                |
| 3   | Umurii sirriin shamarran saafilootaa kininii Simboo fudhachuu itti eegalan hammam? | Waggaa_____                                                                             |
| 4   | Kininii simboo sagantaa Simboo jalatti hanga waggaa meeqaatti itti fufama?         | Hanga waggaa_____                                                                       |
| 5   | Kininnii Simboo raawwii barnootaa ni fooyyesaa?                                    | 1) Eyyee<br>2) Lakki.                                                                   |
| 6   | Kininniin Simboo hirrina dhiigaa ni ittisaa?                                       | 1) Eyyee<br>2) Lakki                                                                    |
| 7   | Kininniin Simboo hannisaa ittisa dhukkubaa ni dabalaa?                             | 1) Eyyee<br>2) Lakki                                                                    |
| 8   | Simboo torbanii kana yoo hin fudhatin hafte maalgoota                              | 1) Borumtaan fudhadha<br>2) Torbanuma itti aanun itti fufa<br>3) Achuma irrattan dhiisa |

### Kutaa III: - Hubannoo fi Compliance with WIFAS program

| S.N. | Characteristics                                               |                                                                                                                                                                                                          |
|------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Saafilummaan soorataaf yeroo murteessaa akka ta'e ni beektaa? | 1) Eyyee<br>2) Lakki                                                                                                                                                                                     |
| 2    | Meeshaa barnootaa Simboon wal-qabate argattee beektaa?        | 1) Eyyee<br>2) Lakki                                                                                                                                                                                     |
| 3    | yoo eyyee ta'e, eessaa argatte?                               | 1) Mana barumsaa<br>2) Ogeessa Fayyaa<br>3) Ollaa/Hiriyaa<br>4) Kan biraa(ibsi)-----                                                                                                                     |
| 4    | Torban 12n darban keessatti kininii Simboo meeqa fudahtte?    | _____                                                                                                                                                                                                    |
| 5    | Yeroo ammaa kana Kininii Simboo fudhachaa jirtaa?             | 1) Eyyee .2) Lakki                                                                                                                                                                                       |
| 6    | Ji'a meeqaaf?                                                 | Ji'a _____                                                                                                                                                                                               |
| 7    | Yoo fudhachaa jirta ta'ee, sababa maaliif                     | 1) Barsiisonni waan na gorsaniif<br>2) Tola waan ta'eef<br>3) Hiriyoonna koo waan fudhataniif<br>4) Hir'ina dhiigaa waan ittisuuf<br>5) Raawwii mana barumsaa waan fooyyesuuf<br>6) Kan biraa(ibsi)----- |
| 8    | Yoo fudhachaa hin jirtu ta'ee, sababa maaliif                 | 1) Mana barumsaa irraa wanan hafeef<br>2) Miidhaa cinaa isaan dhufu waanan sodaadhuuf<br>3) Warri koo waan hin eyyaminiif<br>4) Odeeffannoo sagantichaa wanan hin qabneef<br>5) Kan biraa(ibsi)-----     |
| 9    | Kininii Simboo fudhachuu irraa fatee beektaa?                 | 1) Eyyee 2) Lakki                                                                                                                                                                                        |
| 10   | Yoo eyyee ta'e, torban meeqaaf                                | _____                                                                                                                                                                                                    |
| 11   | Sababa Kininii Simboo fudhachuu irraa hafateef                | 1) Guyyaa isaa waanan dagadheef<br>2) Mana barumsaa irraa wanan hafeef<br>3) Kininiin Simboo waan dhibeef<br>4) Bishaan mana barumsaa keessa waan dhibeef                                                |
| 12   | Yeroo hundaa to'annoo barsiisaa/ogeessa fayyaatiin fudhattaa? | 1. Eyyee<br>2. Lakki                                                                                                                                                                                     |
| 13   | Kininii Simboo garaa duwwaatti fudhattee beektaa?             | 1) Eyyee, yeroo baayyee<br>2) Eyyee, yeroo tokko tokko<br>3) Eyyee, guyyaa tokko/lama<br>4) Lakki, tasaayyuu                                                                                             |

|    |                                                                                                             |                                                                                                                                                   |
|----|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 14 | Kininii Simboo fudhachuu kee maatiikee waliin mar'atee beektaa?                                             | 1) Eyyee<br>2) Lakki                                                                                                                              |
| 15 | Deebiin isaanii maal fakkaata?                                                                              | 1) Nama jajjabeessa 2) Nama hin jajjabeessu<br>2) Deebii naa hin laanne                                                                           |
| 16 | Maatiikeen ala kininii Simboo akka hordoftuuf kan si deggaruu jiraa?                                        | 1) Eyyee<br>2) Lakki                                                                                                                              |
| 17 | Yoo eyyee ta'e, Eenyuf'i?                                                                                   | 1) Barsiisota<br>2) Shamarran dadamaqsitootaa<br>3) Miseensa Gumii Shamarranii<br>4) Ijoollee dhiiraa mana barumsichaa<br>5) Kan biraa(ibsi)----- |
| 18 | Erga kininii Simboo Fudhattee booda rakkoon si mudatee beekaa?                                              | 1) Eyyee<br>2) Lakki                                                                                                                              |
| 19 | Maal ture?                                                                                                  | 1) Laphee gubaa<br>2) Dhangala'uun lagu ji'aa dabaluu<br>3) Ulfaatinni qaaamaa dabaluu<br>4) Kan biraa(ibsi)-----                                 |
| 20 | Rakkoo kana furuuf tarkaanfii akkamii fudhatte?                                                             | 1) Gursa argachuufan gara dhaabbata fayyaa deeme<br>2) Yeroodhaaf addaanan kute<br>3) Kan biraa(ibsi)-----                                        |
| 21 | Sababi Shamarran saafilootaa kiniinii Simboo kana fudhachuu dhiisaniif/addaan kutaniif maali jettee yaadda? | 1) Odeeffannoo dhabuu<br>2) Murtoo maatii<br>3) Sodaa rakkoo cinaa isaan dhufuu<br>4) Kan biraa(ibsi)-----                                        |

#### Kutaa IV: -Wantootaa Mana barumsaan walqabatan

| T.L | Characteristics                                                    |                                             |
|-----|--------------------------------------------------------------------|---------------------------------------------|
| 1   | Manni barumsaa barreeffama jijjiirraa amalaa fidu qabaa?           | 1) Eyyee<br>2) Lakki                        |
| 2   | Simboo irratti Sagantaan barnoota fayyaa mooraa kana keessa jiraa? | 1) Jira<br>2) Hin jiru                      |
| 3   | Yoo jiraate, hammam hamamiin?                                      | 1) Torbaniin 2) Ji'aan 3) Ji'a sadi'in      |
| 4   | Gumiin shamarranii mana barumsaa kana keessa jiraa?                | 1) Eyyee<br>2) Lakki                        |
| 5   | Maddi bishaan dhugaatii mana barumsaa kana keessa jiraa??          | 1) Eyyee<br>2) Lakki                        |
| 6   | Guyyaan raabsaa Simboo mana barumsaa kanaa                         | 1) Dhaabbataadha 2). Dhaabbataa miti        |
| 7   | Barsiisonni ka'ame yeroodhaan Simboo ni kennuu?                    | 1) Eyyee 2) Lakki                           |
| 8   | Hanqinni Kininii Simboo Mudatee beekaa?                            | 1) Eyyee 2) Lakki                           |
| 9   | Naannoon mana itti Simboo fudhattanii akkami?                      | 1) Nama jajjabeessa 2) Nama hin jajjabeessu |

# Annex IV- Multi-Stage Sampling Procedure.

**Table 5: - Sampling Procedure for Assessment of Compliance to WIFAS and Associated Factors Among in School Adolescent Girls in Haru Woreda, West Oromia, 2024/2025**

| S.N. | Selected WIFAS Providing School | Number of School adolescent girls enrolled to WIFAS in Grade 5-8 | Sample Size allocated (Proportional Allocation) | Grade        | Number of adolescent girls enrolled to WIFAS from each grade | Sample Size allocated for each grade | Section | Number of adolescent girls enrolled to WIFAS from each Section | Study Unit (Proportional allocation) |
|------|---------------------------------|------------------------------------------------------------------|-------------------------------------------------|--------------|--------------------------------------------------------------|--------------------------------------|---------|----------------------------------------------------------------|--------------------------------------|
| 1    | Guyi Primary School             | 378                                                              | 112                                             | 5            | 91                                                           | 27                                   | A       | 32                                                             | 9                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 29                                                             | 9                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 30                                                             | 9                                    |
|      |                                 |                                                                  |                                                 | 6            | 114                                                          | 34                                   | A       | 41                                                             | 12                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 38                                                             | 11                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 35                                                             | 11                                   |
|      |                                 |                                                                  |                                                 | 7            | 115                                                          | 34                                   | A       | 42                                                             | 12                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 36                                                             | 11                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 37                                                             | 11                                   |
|      |                                 |                                                                  |                                                 | 8            | 58                                                           | 17                                   | A       | 32                                                             | 9                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 26                                                             | 8                                    |
|      |                                 |                                                                  |                                                 | <b>Total</b> | <b>378</b>                                                   | <b>112</b>                           |         | <b>378</b>                                                     | <b>112</b>                           |
| 2    | Gudetu Guyi Primary School      | 359                                                              | 106                                             | 5            | 86                                                           | 25                                   | A       | 28                                                             | 8                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 32                                                             | 9                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 26                                                             | 8                                    |
|      |                                 |                                                                  |                                                 | 6            | 93                                                           | 27                                   | A       | 37                                                             | 11                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 31                                                             | 9                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 25                                                             | 7                                    |
|      |                                 |                                                                  |                                                 | 7            | 108                                                          | 32                                   | A       | 36                                                             | 10                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 37                                                             | 11                                   |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 35                                                             | 11                                   |
|      |                                 |                                                                  |                                                 | 8            | 72                                                           | 21                                   | A       | 29                                                             | 9                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | B       | 19                                                             | 6                                    |
|      |                                 |                                                                  |                                                 |              |                                                              |                                      | C       | 24                                                             | 7                                    |

|                     |                                       |             |            |              |             |            |   |             |            |
|---------------------|---------------------------------------|-------------|------------|--------------|-------------|------------|---|-------------|------------|
|                     |                                       |             |            | <b>Total</b> | <b>359</b>  | <b>106</b> |   | <b>359</b>  | <b>106</b> |
| 3                   | Chonge<br>Primary<br>School           | 238         | 70         | 5            | 53          | 16         | A | 29          | 9          |
|                     |                                       |             |            |              |             |            | B | 24          | 7          |
|                     |                                       |             |            | 6            | 58          | 17         | A | 31          | 9          |
|                     |                                       |             |            |              |             |            | B | 27          | 8          |
|                     |                                       |             |            | 7            | 65          | 19         | A | 37          | 11         |
|                     |                                       |             |            |              |             |            | B | 28          | 8          |
|                     |                                       |             |            | 8            | 62          | 18         | A | 30          | 9          |
|                     |                                       |             |            |              |             |            | B | 32          | 9          |
|                     |                                       |             |            | <b>Total</b> | <b>238</b>  | <b>70</b>  |   | <b>238</b>  | <b>70</b>  |
| 4                   | Gurach<br>Halata<br>Primary<br>School | 226         | 67         | 5            | 35          | 10         | A | 35          | 10         |
|                     |                                       |             |            |              |             |            | A | 29          | 9          |
|                     |                                       |             |            | 6            | 94          | 28         | B | 34          | 10         |
|                     |                                       |             |            |              |             |            | C | 31          | 9          |
|                     |                                       |             |            | 7            | 44          | 13         | A | 25          | 7          |
|                     |                                       |             |            |              |             |            | B | 19          | 6          |
|                     |                                       |             |            | 8            | 53          | 16         | A | 25          | 8          |
|                     |                                       |             |            |              |             |            | B | 28          | 8          |
|                     |                                       |             |            | <b>Total</b> | <b>226</b>  | <b>67</b>  |   | <b>226</b>  | <b>67</b>  |
| 5                   | Qaki<br>Primary<br>School             | 227         | 67         | 5            | 58          | 17         | A | 26          | 8          |
|                     |                                       |             |            |              |             |            | B | 32          | 9          |
|                     |                                       |             |            | 6            | 49          | 14         | A | 27          | 8          |
|                     |                                       |             |            |              |             |            | B | 22          | 6          |
|                     |                                       |             |            | 7            | 54          | 16         | A | 30          | 9          |
|                     |                                       |             |            |              |             |            | B | 24          | 7          |
|                     |                                       |             |            | 8            | 66          | 20         | A | 36          | 11         |
|                     |                                       |             |            |              |             |            | B | 30          | 9          |
|                     |                                       |             |            | <b>Total</b> | <b>227</b>  | <b>67</b>  |   | <b>227</b>  | <b>67</b>  |
| <b>Ground Total</b> |                                       | <b>1428</b> | <b>422</b> |              | <b>1428</b> | <b>422</b> |   | <b>1428</b> | <b>422</b> |