



Knowledge, attitude and practice of adolescent girls on IFA supplementation and nutrition education in Rohingya refugee camp.

A project report submitted to the Daffodil International University, Dhaka. For the fulfillment of the Nutrition & Food engineering.

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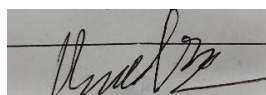
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Certification

This is to certify that the dissertation entitled “ **knowledge, attitude and practice of adolescent girls on IFA supplementation and nutrition education in Rohingya refugee camp** “ submitted by Shahnaz Akter, student of NFE, student ID #161-34-508 has carried out the dissertation work under my direct supervision and guidance in the department of Nutrition and food engineering , daffodil international University.

I have the confidence regarding the originality of his data and I express that the dissertation is up to my satisfaction.



Dr. Md. Bellal Hossain

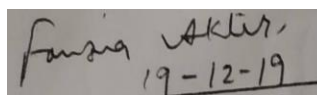
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Abstract

This study was carried out to evaluate the knowledge, attitude, and practice of adolescent girls on IFA supplementation and nutrition education of Rohingya adolescent girls in Rohingya refugee camp in Cox's Bazar. 12-18 years girls who were selected as a sample. Data was collected from four hundred adolescents randomly. Their educational qualification was very frustrating. 74.2 percent of girls were illiterate. The rest of the girls' educational qualifications were class 1 to 5 and more than 5. Their parents' education level almost similar to them. 91.5 percent of fathers and 93.5 percent of mothers were illiterate and the rest of the parents' education level was class 1 to 5 and more than class 5. Data was collected after nutrition intervention in camp. At the time of the study, 78 percent of adolescents had been taking 2 Iron-folic acid supplementation once a week for 3 months, 8.8 percent had been taking 2 IFA supplementation once a week for 6 months and 13.2 percent didn't take IFA supplementation. They prefer to take weekly than daily for iron folic acid supplementation.

Key Words

Knowledge, attitude, practice, adolescent girls, IFA supplementation, nutrition, education, Rohingya, refugee camp.

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Chapter-1

1.1 Introduction

Iron-folic acid contains 60 mg of elemental iron and 0.4 mg of folic acid. According to the WHO (world health organization), iron-folic acid supplementation may correspond to the dose of 2.8 mg of folic acid. Two iron-folic acid supplementation should be taken once a week for a period of three months. Followed by three months should not take Iron-folic acid supplementation for 6 months per year. After this, should take up the supplementation ^[1]. IFA provides for adolescent girls who are 10-19 years of age and also the pregnant mother. Adolescence is a momentous stage intended for physical progression and sensual development ^[2]. First, the highest growth rate of a person's life is a childhood period and the second-highest rate of growth in a person's life is the Adolescent period. Since this period of growth is longer than childhood, adolescents have greater nutritional needs during juvenescence than any other period of life. Certain nutrients are needed for the adolescent to support their rapid growth. One such nutrient is iron, which is important for adolescents' prolong blood volume, it prevents menstrual blood loss in females. Due to a lack of Iron adolescent girls are suffering from iron deficiency disorder. During menstruation adolescent girls have increased iron needs and generally, girls have lower iron stores than boys ^[3]. In Rohingya community adolescents who do become pregnant, there are also increased risks for negative birth outcomes for the mother and infant. IFA supplementation is a cost-effective way to prevent anemia. As a result of anemia, it could be a loss of productivity and has negative reproductive outcomes for the adolescent mother and her infant. Adolescent girls who take IFA supplement regular they feel more energized and it improves capacity for physical work. This supplementation also enhanced skin glow and improved appearance ^[4].

Nutrition education is more important for girls than boys. Because they are future mothers. Nutrition is need for mothers and children. Mother and children's dietary habits depend on their nutritional Knowledge. Nowadays junk food occupies more space than nutritious food in the children's diet list. Children spend most of the time in school and there take junk food or unhealthy food as snacks. Basically, junk food contains high sugar, salt, fat, etc. Homema

Nutritious food could change their dietary habits and every mother able to play a vital role to replace their dietary habits from unhealthy food to nutritious food. The mother should have sufficient knowledge, attitude, and practice because it influences children and other family members and promotes health conditions ^[5].

Here, check the knowledge, attitude, and practice of IFA supplementation and nutrition education level of selected Rohingya adolescent girls through gathered socio-economic facts and about IFA supplementation and nutrition education-related information. In the Rohingya refugee camp, most of the adolescent girls take IFA supplements regularly and they have proper knowledge about IFA supplementation. They know the importance of IFA supplement. According to the information, this supplement does not have any negative effect if it takes regularly. They have less nutrition knowledge and try to take nutritious food as much as they know. This community believes that adolescent girls should have taken more nutritious food compare to others.

Chapter-2

2.1 Literature review

It is calculated that more than 30% of women of reproductive age are suffering from Anemia. Because of During Menstruation, they lose iron and they don't take sufficient iron by taking food. So adolescent girls and women are a vulnerable group of iron deficiency. Daily iron supplementation for 3 months was a standard approach to prevent anemia. But recently calculated that once, twice or three times a week consumed supplements are more effective, safe than a daily supplement for all reproductive age of women ^[15].

One-third of women of reproductive age are anemically affected worldwide. Hemoglobin concentration decreases due to anemia. Which reduces the capacity of blood to carry oxygen to tissue. Another symptom is exhaustion and it reduces the capacity of physical work. Increases the prevalence of anemia in pregnant women and adolescent girls along with the growth of the world population. As a result of anemia, some negative outcomes are seen of pregnant women

Such as maternal mortality, low birth weight, and premature birth, etc. Now should take action and needed to invest to reduce iron deficiency anemia. The world health assembly sings a deal in 2012 to achieve the nutrition target of reducing anemia in women of reproductive age by 50% within 2025 as a preventive way by increasing investment in this sector. the stakeholders, national-level government, communities, civil society, United Nations regional and country offices and the private sector could be investing in this sector to prevention and control of anemia^[16].

Iron deficiency disorder is commonly seen in adolescent girls in India. There are many conflicting opinions about dosages of iron supplementation to control anemia. A survey was done in a slum area to assess the impact on weekly iron supplementation intake and daily iron supplementation dosages and then to comparison with both of them to prevention capacity of anemia. The average age of the group of a survey in 'daily iron and folic acid supplementation' and 'weekly iron-folic acid supplementation' was 13.48 and 13.55 years respectively. Here observed that weekly iron-folic acid supplementation patient was as good as than 'daily iron folic acid' supplementation in 'iron deficiency disorder' ^[17].

A survey was conducted by the American Journal of clinical nutrition on Malaysian adolescent girls who have mild to moderate anemia. That survey was done to assess weekly and long term IFA supplementation would improve Hemoglobin concentration and also improve ferritin concentration of adolescent girls. Respondent was divided into two groups. Where 60 or 120 mg iron plus 3.5 mg folic acid given to receive group A and only 5mg folic acid given to receive for group B for 22week. The respondents who were group A, their initial hemoglobin concentration was 80 – 119.9 g/L and group B Respondents hemoglobin concentration were of 120 – 130 g/L. At the final result, it is seen that 2% of the girls had dropped out and more than 96% had taken >20 of the 22tablets with a minimal side effect. Hemoglobin concentration and ferritin concentration was increases more in group A than group B which group received higher iron. Group B which received only folic acid were decreased ferritin concentration ^[18].

Asian Journal of clinical nutrition published a research paper on Attitude, knowledge, and practice of iron deficient and iron-deficient anemia among adolescent girls in Gaza, Palestine.

This study was conducted on 330 female adolescents between aged 15-19 years. Result of this study was 84% could not tell if a person was having anemia. About 81.3% of them were not aware of the result of IDA among pregnant women and 91.6% had no knowledge of causes iron deficiency disorder anemia. 89% also did not know which iron-rich food can be easily absorbed. 74.8% did not know which foods reduce iron absorptions. An adolescent who usually consumed and did not consume citrus fruits was 81.7% and 68%. And 43.5% of adolescents think anemia is a serious condition. Also, 56.5% of them did not regard anemia to be a serious condition. 45.0% of adolescents liked the taste of food items ^[19].

A research was done on Nutrition education and knowledge, attitude and hemoglobin status of Malaysian adolescents by 'the southeast Asian of tropical medicine and public health'. 280 students were divided into 4 different groups. Their hemoglobin level was measured before and after the survey. There hemoglobin level changes of four groups at 3 months were 11, 4.6, 3.9 and -3.7% and the changes at 6 months were 1.0, 6.8, 3.7 and -14.8% respectively due to receive supplementation. There no significant difference in hemoglobin was noted among four groups. The supplementation and control groups had no improvement in knowledge or attitude and significant improvements knowledge and attitude were record the nutrition education and combinations groups ^[20].

Research was done on Indian adolescent school girls. The study recorded that 55.9% were found to be anemic in the 111 girls. The knowledge and practices of personal hygiene were lower in anemia girls compared to non-anemic girls. The range of deficiency of iron-rich food consumption was low in both anemic and non-anemic girls ^[21].

A survey was done in Managua, Nicaragua on adolescent girls and mothers to assess nutritional knowledge, hemoglobin level and nutritional status of adolescent girls and the nutritional knowledge of their mother. For girls, Data collection was carried out for 4 years. It was observed that their nutritional knowledge level significantly improved in the most event after participation in the nutrition intervention program. The girl's hemoglobin level did not significantly improve ^[22].

International journal of medical science and public health published a research paper. And that research was conducted to determine knowledge, attitude, and practice about anemia among adolescent girls in urban slums of Davangua city, Karnataka. After complete that Survey the result recorded that 91 percent had heard anemia, 33 percent girls told poor diet is responsible for anemia.31 percent told tiredness is only result of anemia.13 percent replied that anemia impacts on physical growth, learning process and shortened work capacity and 88 percent adolescent took iron tablets^[23].

The recorded result By surveying on weekly iron and folic acid supplementation with counseling reduces Anemia in Adolescent girls in Uttar Pradesh, India was reduced of Anemia prevalence in 4 years from 73.3 percent to 25.4 percent. There was no difference in the impact on hemoglobin or anemia prevalence observed between supervised and no supervised girls and hemoglobin level and anemia prevalence were influenced significantly at 6 months. Counseling on the positive impact of weekly IFA intake helps to contribute a high obedience rate of over 85 percent ^[24].

National Journal of community medicine published a research paper in which research was held to assess the Knowledge, attitude, and practice regarding anemia and the improvement of health education among high school girls in rural Bangalore. 14 to 16 years old girls were included in that a cross-sectional intervention study. The study was carried out for three months. The result observed that 78 percent of participants belonged to the age group of 13-14 years, 85 percent were nuclear families. Primary assessment showed knowledge level was poor, Attitude was negative and practice was not good and health education was given through various forms ^[25].

Another intervention study was done based on four domains- knowledge, attitude, practice and health-seeking behavior change regarding anemia after weekly Iron folic acid supplementation and intensive health education were given among adolescent school girls in Delhi. Iron folic acid supplementation given for 6 months and health education provided by PowerPoint presentation, visual display of different types of iron-rich foods, citrus fruits, etc. The result was recorded that 34.9 percent of girls had heard about anemia, 38.9 percent told that anemia is a

health problem. Around 7.5 percent of participant could answer correctly the reason for the anemia. Significantly improve the knowledge, attitude, practices, and health-seeking behavior of adolescent school girls after the intervention of health education [26].

A cross-sectional study was done regarding anemia among adolescent girls in Bangladesh. The final result was recorded that a total of 51.6 percent of girls were suffering from any form of anemia. While 46 percent were mild, 5.4 percent were moderately and only 0.2 percent were severely anemic [27].

Journal of health, population, and nutrition published a study report. Which was conducted to determine Nutritional status, dietary intake and relevant knowledge of adolescent girls in rural Bangladesh. This study was carried out by using data from the baseline survey 2004 of the national nutrition program. Data was collected from 4,993 unmarried adolescent girls who were 13-18 years in 708 rural people. Female interviewers were record data by asking study-related questions. Such as about education, dietary knowledge, seven-day food frequency, intake of folic acid supplementation, weight and height, etc. The final result of this study was 16 percent of girls were underweight, percent of obese girls were 0.3 and 32 percent were stunted. Girls who belong to the high-income family were 55 percent fish/meat a 91 percent egg/milk more intake than lower-income family's adolescent girls. 36 percent didn't conscious about taking extra nutrition during adolescents. The use of IFA supplementation in the nutrition intervention area was 21 percent and the non-intervention area was 8 percent of IFA supplementation [28].

A cross-sectional study was completed in Jimma Zone, South-west Ethiopia to assess the optimal dietary practices and nutritional knowledge among school adolescent girls. The study was driven between 455 adolescent girls. The result was observed that 61.3 percent of students had a dietary diversity score was less than five and 55.8 percent of adolescent girls had good nutrition knowledge about nutrition-related messages [29].

American journal of clinical nutrition published a research paper which was conducted to assess the efficiency of multiple micronutrient supplementation compares to iron-folic acid supplementation to increases hemoglobin concentration of anemic adolescent girls in

Bangladesh. Girls were divided into two groups. One group for multiple micronutrient nutrition and another one was for only iron-folic acid supplementation. The final result was observed that the group of multiple micronutrients had significantly greater improvement in mean serum vitamin A, plasma Vitamin C, red blood cell folic acid, and riboflavin concentrations than the IFA supplementation group. After 12 weeks of supplementation, only the appearance of vitamins A and C and riboflavin deficiencies decreased greater in the multiple micronutrient nutrition than in the IFA supplementation group ^[30].

2.2 Justification of the study

Iron deficiency disorder is Anemia. It is defined when Hemoglobin concentration falls down and impairing the capacity of the blood to carrying oxygen around the body is called anemia.

Anemia may develop at any stage of the life cycle. But adolescent girls of reproductive age are high-risk groups for developing anemia. Anemia impairs the normal growth of adolescent girls ^[6]. IFA supplementation prevents the anemia and help to normal physical growth and survive. This supplement effect hemoglobin level and plays an important role in increases in appetite and work abilities.

A higher number of adolescent girls are still suffering from anemia in Bangladesh and nonpregnant adolescent girls contributed the most. Result shown from a study Overall, 51.6% girls were suffering from any form of anemia (non-pregnant-Hb < 12 g/dl; pregnant-Hb < 11 g/dl) while 46% were mildly (non-pregnant-Hb: 10–11.9 g/dl; pregnant-Hb: 10–10.9 g/dl) and 5.4% were moderately (Hb: 7–9.9 g/dl) anemic while only 0.2% were severely anemic ^[7].

According to this study the adolescent girls of host community still now carrying Anemia. There were some reasons behind the survey in the Rohingya refugee community. Any refugee camp has been faced with any critical situations. Basic needs are important to survive an emergency situation. The refugee community also suffers from malnutrition and different types of diseases due to lack of nutrition. So supplementation is badly needed for a refugee camp. Now the Rohingya refugee community overcome emergencies situations and now curative treatment is providing. IFA supplement is important for adolescent girls to prevent anemia. So aim to find out, How aware are the adolescent of the Rohingya population about their good health, proper

nutrition, education, and exact marriage age. Another thing, whether the adolescent girls take IFA supplements regularly which were provided from several organizations. Most important reason was to determine the effect of IFA supplement on the health of adolescent. it can be negative or positive. By surveying it was observed that, Most of the adolescent girls are taking IFA in the Rohingya refugee camp. Although this community has less nutrition knowledge they take nutritious food.

2.3 Research question

What is the level of knowledge, Attitude and practice of adolescent girls on IFA supplement and nutrition education?

2.4 General objective

To assess the level of knowledge, attitude, and practice of adolescent girls on IFA supplement and nutrition education.

2.5 Specific objective

- i. To identify socio-economic information of the respondent
- ii. To assess the knowledge level of adolescent girls on IFA supplement
- iii. To know about the attitude of adolescent girls on IFA supplement
- iv. To know about practice level of adolescent girls on IFA supplement
- v. To determine the knowledge level of adolescent girls on nutrition education
- vi. To know about the attitude of adolescent girls on nutrition education
- vii. To identify the practice condition of adolescent girls on nutrition education

Chapter-3

3.1 Research methodology

Study Location

Rohingya refugee camp in Cox's Bazar at Ukhiya was my study area. Socio-demographic information, knowledge, attitude, and practice related information were collected from the community. Adolescent girls always stay inside the house. so all information was collected from their house at the refugee camp. For sometimes Adolescent girls attended the School, Madrasah and session. (A session which organizes for adolescent girls to provide knowledge about IFA supplementation and nutrition education). Some data are collected from School, Madrasah and Adolescent session.

Study duration

10 September 2019 to November 2019

Data collection period

5 October 2019 to 20 October 2019

Study population

This study was conducted among Rohingya adolescent girls who had been staying the refugee camp in Cox's Bazar at Ukhiya who were come from Myanmar.

Data collection method

All information took according to the developed questionnaire. Volunteer asked randomly to all of the respondents about the IFA supplementation and its uses

Sampling technique and sample size

The subjects of this study were Adolescent girls who are ages 12-18 years in the Rohingya refugee camp in Cox's Bazar. A total of 400 girls willingly participated in this study. The sample size was calculated using the following formula.

Sample size calculation

The required sample size is, $n = z^2pq/d^2$. The population is more than 10000.

Here, n is desired sample

z = standard normal deviate = 1.96, corresponding to 95 percent confidence interval
 p = assumed proportion of target population = Percent or population variance = 50% = 0.5
 q = 1 - p = (1 - 0.5) = 0.5
 d = level of significance desired = 5% = $5/100$ = 0.05

$$\text{So, } n = z^2pq/d^2 = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05} = 384.16 \approx 384$$

So, the total sample size will be 384.

To avoid any dropout, we have collected data from 400 samples as a whole.

Development of the questionnaire

A standard questionnaire was developed to obtain the relevant information regarding the General information, socio-economic information and individual information.

Pre-test

The purpose of the pre-test was to test the content, wording, and expression, the topical Sequence of questions and duration of the interview and the reliability of some items.

After the pre-test, the individual questionnaire which was related to quantitative data. The collection was improved and reformed to ensure content coverage, reliability and validity of the study

Statistical analysis and methods

The data collected by the questionnaire was shifted from written form to a computerized database file. Data analysis finish through statistical package SPSS on a personal computer. To determine the relationship between two categorical tables used cross-tabulation. All data are presented by table and graph.

Data Verification

Data has been stored through an individual interview. Each day after collect information was recheck. Confusing answer was asked repeatedly in a different way. Gathering data was transferred into a personal computer carefully to avoid mistakes. Before analysis transferred data was rechecking to minimize error.

Ethical consideration

Socio-demographic information was recorded by taken of respondent permission. Respondent informed that it was a survey and they felt free to give an answer to the asking question. Their parents also knew about the survey and they provide all the information willingly.

3.2 Operational planning (time schedule)

5 September 2019 to November was the study duration. Whole study period divided according to work.

Prepare questionnaire: first one week were spending to prepare a questionnaire.

Sample collection: The second and third weeks were spending to collect a sample from the community at the Rohingya refugee camp.

Data entry: then collected data were transferred from the questionnaire to computerize.

Data analysis: after completing data entry started to analysis data by SPSS.

Report Prepare: After completing all the process, prepared a project report by gathering all information which was collected within November.

3.3 Operational definition

Knowledge

Knowledge can refer to a theoretical or practical realization of someone or something. Such as information, skills. Which is obtained through experience or education by invention or learning [8].

Attitude

Attitude is processed, nature, feeling and think with regard to a person or thing, tendency especially in the mind [9].

Practice

It converses from theories to apply. The physical application or use of a thought, belief or action is called the practice [10].

Adolescence

Adolescence is defined as the transitional stage of enhancement, improvement within infancy and maturity. According to the WHO, the age group of the adolescent is 10 to 19 years [11].

Nutrition

Nutrition can be defined as the resources of sufficient energy and nutrients for the cells to complete their physiological function. Functions are of growth, generation, protection repair, etc [12].

Education

Education is the process of learning, gather knowledge and improve efficiency, worth, confidence and behavior which brings people from the darkness of unlettered to light of wisdom [13].

Supplementation

If the vitamins, minerals or other nutrients are attached to food as addition is called supplementation. Iron supplementation uses as an oral tablet to increase red blood cells in the body [14].

Chapter-4

4.1 Finding

Table-1 Age of the respondent

age	Number	percent
12	45	11.2%
13	51	12.8%
14	71	17.8%
15	65	16.2%
16	56	14.0%
17	109	27.2%
18	3	0.8%
total	400	100%

Table-1 shows the distribution of respondents according to age. Observed that 11.2 percent were 12 years old, 12.8 percent were 13 years old, 17.8 percent were 14 years old, 16.2 percent were 15 years old, 14.0 percent were 16 years old, 27.2 percent were 17 years old, 0.8 percent were 18 years old.

Figure: 1 Educational level of respondents

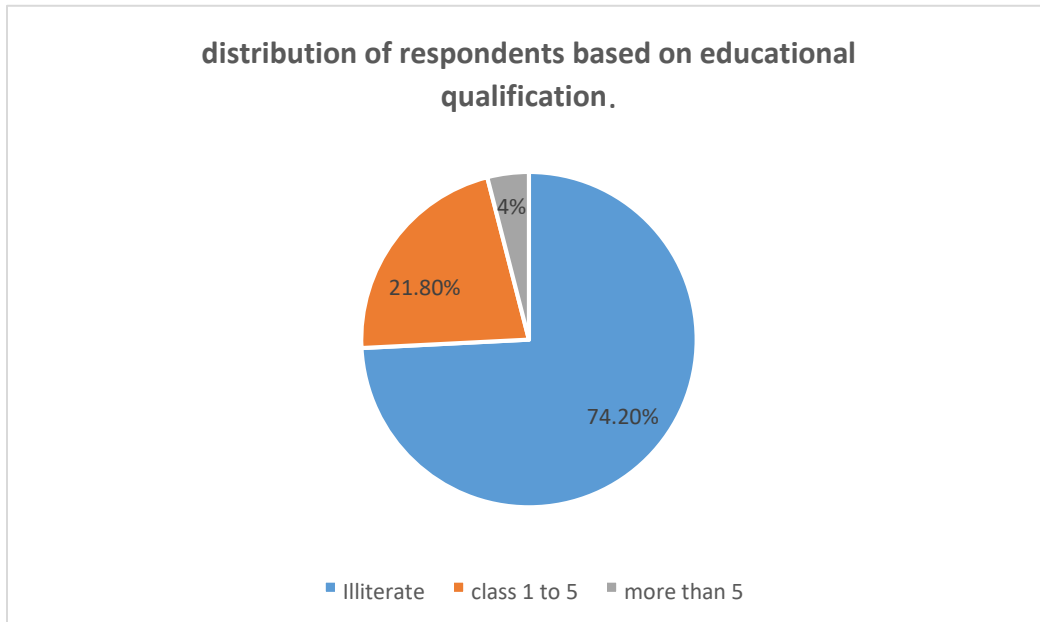


Figure-1 Here shows the distribution of the educational level of respondents. Observed that 74.2 percent were illiterate. 21.8 percent respondent’s educational status was class 1 to 5 and only 4 percent of the respondent’s educational status was more than class 5.

Table-02 Father’s Educational level of respondents

Education level	Number	percent
Illiterate	366	91.5%
Class 1 to 5	9	2.2%
More than 5	25	6.2%
total	400	400%

Table-02 shows that the distribution of educational qualification of father’s. Here observed that 91.5 percent of respondent’s fathers were illiterate. 2.2 percent father’s educational qualification was class 1 to 5 and 6.2 percent was more than class 5.

Table-03 Mother’s Educational level of respondents

Education level	Number	percent
-----------------	--------	---------

Illiterate	373	93.2%
Class 1 to 5	17	4.2%
More than 5	10	2.5%
total	400	100%

Table-03 Here shows the educational qualification of Rohingya Mom. Here observed that 93.2 percent of Rohingya Mom were illiterate, 4.2 percent mother's educational status were class 1 to 5 and 2.5 percent mother's educational status was more than class 5.

Table-04 live with whom

They Live with whom	Number	percent
parents	341	85.2%
mother	44	11.0%
father	6	1.5%
relatives	9	2.2%

Table-04 here presented that the percentage of respondents live with whom. 85.2 percent of respondents live with parents. 11.0 percent of respondents live with mother. 1.5 percent was live with father and 2.2 percent of respondents live with relatives.

Table-05 Number of the person who knew or didn't know what is IFA

opinion	Number	percent
yes	400	100%

Table-05 here shows the percentage of knowledge about IFA supplement. 100 percent of respondents knew about IFA.

Table-06 who could be answer of what is IFA supplement

Answer	number	percent
It prevents anemia	400	100%

Table-06 shows that the respondents who could answer what is IFA supplement. Here 100 percent of the respondent gave the answer that it prevent Anemia.

Table-07 from whom adolescent girls knew about IFA supplement

From whom	Number	percent
Community Nutrition Promoter	400	100%

Table- 07 shows the distribution of respondents by whom they knew about the IFA supplement. Here 100 percent of respondents knew about the IFA supplement from Community Nutrition Promoter.

Table-08 distribution of respondents who knew that Why IFA need for adolescent girls

opinion	Number	Percent
yes	400	100%

Table-08 shows the respondents who knew that why the IFA supplement is needed for adolescent girls. 100 percent of respondents knew why needs IFA supplements.

Table-09 many respondents could say why IFA is important.

Answer	Number	percent
To get more energy increases appetite.	400	100%

Table-09 shows that how many respondents could say the importance of the IFA supplement. Here 100 percent of respondents could say the importance of IFA supplement.

Figure-10 How many respondents took and didn't take IFA regularly

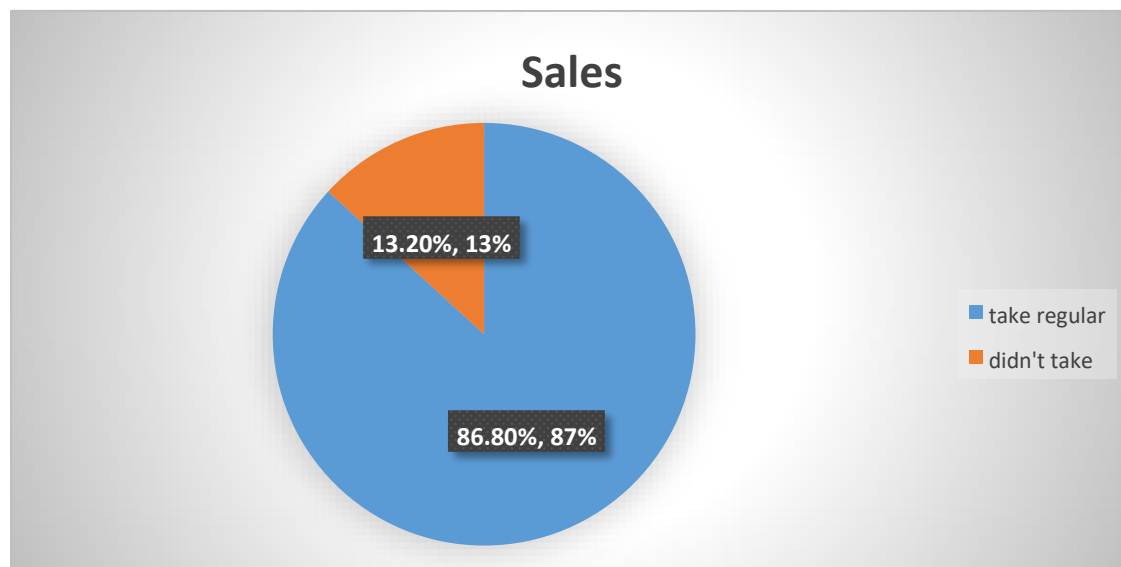


Figure-10 shows the distribution of respondents who were taken and didn't take IFA regularly. Here 86.8 percent of Adolescent girls took IFA regularly and 13.2 percent were didn't take IFA regularly.

Table-11 IFA should or not to be taken daily

opinion	Number	percent
no	400	100%

Table-11 shows that adolescent girls who were express their opinion about the IFA should or shouldn't be taken daily. Here 100 percent of adolescent said no it's not should be taken daily.

Table-12 from Where Respondents got IFA

From where	Number	percent
Community Nutrition Promoter	347	86.8%
Don't take	53	13.2%
total	400	100%

Table-12 shows the distribution of adolescent girls based on where they got IFA supplement. Here 86.8 percent of respondents got IFA from Cnp and 13.2 percent didn't take IFA.

Table-13 How many respondents who have face negative effect to take IFA

opinion	Number	percent
no	400	100%

Table-13 shows the distribution of respondents who have faced or have not to face any negative effect to take IFA supplements. Here 100 percent of respondents said that they didn't face any negative effect to take IFA.

Table-14 How many respondents agreed or disagree that IFA good for adolescent

opinion	Number	percent
Agree	400	100%
total	400	100%

Table-15 shows the distribution of respondents who were agreed or disagree that IFA is good for adolescents. Here 100 percent of respondents were agreed that IFA is good for adolescents.

Figure-15 How many IFA they were taking weekly

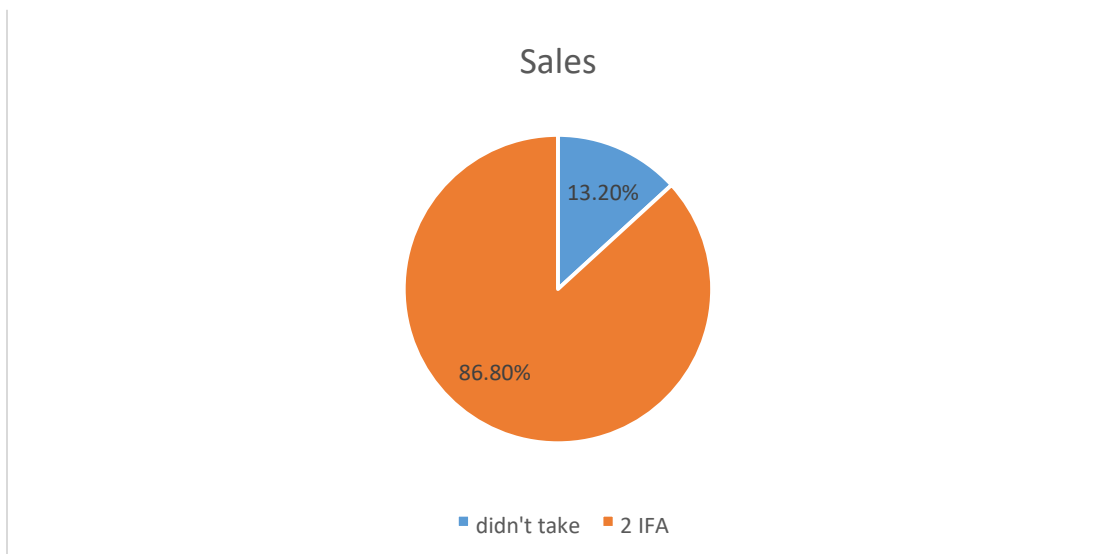


Figure-15 shows the distribution of respondents based on how many IFA they were taking weekly. 87.2 percent of respondents took two IFA weekly. 1.2 percent were didn't take IFA.

Table-16 How many respondents knew that who the Adolescents are.

opinion	Number	percent
yes	400	100%

Table-16 shows the distribution of respondents based on how many knew that who are the adolescents. Here 100 percent of respondents said that they know who are the adolescent.

Table-17 respondents could say the range of age of the adolescent

who	Number	percent
12-18 years	400	100%

Table-17 shows the distribution of respondents based on who was could say the range of age of adolescent girls. 100 percent of respondents could be said that 12-18 years is the range of adolescent girls.

Figure-18 How long they have been taking IFA supplement

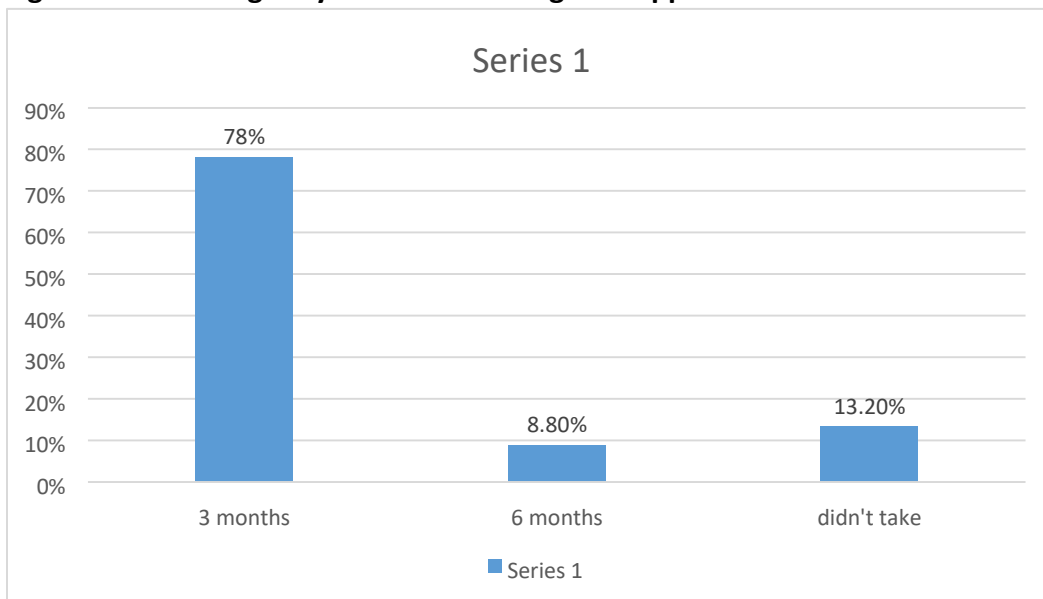


Figure-18 shows the distribution of respondents based on how long they were taking IFA supplements. Here observed that 78 percent of respondents took IFA supplement at 3 months, 8.8 percent took this supplement at 6 months and 13.2 percent didn't take IFA.

Table-19 How many respondents knew or didn't knew what is nutrition.

opinion	Number	percent
---------	--------	---------

no	400	100%
total	400	100%

Table-19 shows the distribution of respondents who knew or didn't know what is nutrition.

Here observed that 100 percent of respondents didn't know the basic definition of nutrition.

Table-20 How many respondents knew the importance of

opinion	Number	percent
yes	400	100%
total	400	100%

Table-20 shows the distribution of respondents who knew why nutrition is important for

adolescents. Here observed that 100 percent of respondents knew the importance of nutrition.

Table-21 How many respondents could be said about the importance of nutrition

why	Number	percent
For good health, prevent diseases	400	100%

Table-21 shows this table the percent of respondents who knew the importance of nutrition.

Here 100 percent of respondent knew the importance of nutrition.

Table-22 Who knew about malnutrition

opinion	Number	percent
no	400	100%

Table-22 shows the distribution of respondents who knew what is malnutrition. The 100

percent of respondents didn't know what is malnutrition.

Table-23 Who knew the different type of foods need for respondents

opinion	Number	percent
yes	400	100%

Table-23 shows the percentage of respondents who knew about the food types. Here the 100

percent of respondents knew about food types.

Table-24 who could be said about the different type of foods need for adolescent girls

Food types	Number	percent
Vegetables, fruits, egg, fish, meat	400	100%

Table-24 shows this table 100 percent of respondents could tell that vegetables, fruits, eggs, fish and meat are the need for adolescent girls.

Table-25 Diseases of adolescent girls due to lack of nutrition

opinion	Number	percent
no	400	100%

Table-25 shows this table distribution of respondents who didn't know about diseases which as are the result of lack of nutrition. The percent of respondents w¹⁰⁰.

Table-26 who knew the Malnutrition evil cycle

opinion	Number	percent
no	400	100%

Table-26 shows the distribution of respondents who knew about the malnutrition evil cycle. Here 100 percent didn't know about the malnutrition evil cycle.

Table-27 who knew about Food groups

opinion	Number	percent
no	400	100%

Table-27 this table shows that 100 percent of respondents didn't know about food groups.

Table-28 who knew that the Sources of iron

opinion	Number	percent
no	400	100%

Table-28 this table shows that 100 percent of respondents didn't know about sources of iron

Table-29 How many respondents knew about the Iron deficiency disorder

opinion	Number	percent
no	400	100%

Table-29 shows that 100 percent of respondents didn't know about iron deficiency disorder.

Table-30 How many respondents knew about the Sources of iodine

opinion	Number	percent
no	400	100%

Table-30 shows the distribution of respondents who knew the sources of iodine. Here observed that 100 percent of respondents didn't know about the sources of iodine.

Table-31 How many respondents knew the Iodine deficiency disorder

opinion	Number	percent
no	400	100%

Table-31 shows the distribution of respondents who knew that what the iodine deficiency disorder is. 100 percent didn't know about iodine deficiency disorder.

Table-32 Who knows about the Vitamin A deficiency disorder

opinion	Number	percent
no	400	100%

Table-32 shows the distribution of respondents who knew that what is vitamin A deficiency disorder. Here observed that 100 percent of respondents didn't know about vitamin A deficiency disorder.

Table-33 How many respondents knew about the Sources of Vitamin A

opinion	Number	percent
no	400	100%

Table-33 shows the distribution of respondents who knew that what are the sources of vitamin A. here observed that 100 percent of respondents didn't know about sources of vitamin A.

Table-34 How many respondents agreed that before 18 years they should not get Marriage

opinion	Number	percent
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agree	400	100%
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Table-34 shows the distribution of respondents who agreed or disagree that before 18 years they should not get married. Here observed that 100 percent of respondents agreed with this statement.

Table-35 How many respondents agreed that before 20 years they should not conceive

opinion	Number	percent
Agree	400	100%

Table-35 shows the distribution of respondents who agreed that before 20 years old they should not conceive. Here observed that 100 percent of respondents agreed with this statement.

Table-36 How many respondents were taking Iron, Iodine and vitamin A rich food

opinion	Number	percent
yes	400	100%

Table-36 shows the distributions of respondents who took iron, iodine, and vitamin A-rich food. Here observed that 100 percent of respondents took iron, iodine, and vitamin A-rich food.

Table-37 How many respondents used iodized salt during cooking

opinion	Number	percent
yes	400	100%

Table-37 shows that how many respondents take iodized salt. There is 100 percent of respondents take iodized salt during cooking.

Table-38 How many respondents take or don't take Deworming

Take /don't take	Number	percent
yes	242	60.5%
no	158	39.5%
total	400	100%

Table-38 shows the distribution of respondents based on taking deworming. Here observed that 60.5 percent were taking deworming and 39.5 percent didn't take deworming.

4.2 Discussion

This study was conducted to assess the Knowledge, Attitude, and practice of Adolescent girls on IFA supplementation and nutrition education of the Rohingya refugee camp in Cox's Bazar. These findings have been discussed and compared with different studies conducted in Bangladesh and abroad.

Selected Rohingya adolescent girls' socio-economical information was collected. The adolescent girls' age range is 12-18 years. In this study, different ages of selected Rohingya adolescent girls were included. Here out of four hundred respondents, 11.2 percent was 12 years old, 12.8 percent was 13 years old, 17.8 percent was 14 years old, 16.2 percent was 15 years old, 14.0 percent was 16 years old and only 0.8 percent was 18 years old. There all of the selected respondents could say the age range (12-18 years) of adolescent girls.

Respondent's educational qualifications are distributed through figure showing. There observed that a large number of adolescents were illiterate. It was 4.3 percent. Then 3.5 percent of respondent's educational qualification was more than 5 and 2.5 percent was class 1 to 5. Respondent's Father's educational qualification also included in socio-economical information. The majority of the fathers were illiterate. 91.5 percent was illiterate, 6.2 percent were more than class 5 and 2.2 percent father's educational qualification was class 1 to 5. The mother educational qualification of respondents was also recorded. As like fathers, the educational qualification of respondents was the majority of the mother illiterate. 93.2 percent was illiterate, 4.2 percent was class 1 to 5 and 2.5 percent mother's education level was more than class 5. All adolescents didn't live with parents. They were distributed based on with whom they lived. 85.2 percent lived with parents, 11.0 percent lived with their mother and 1.5 percent lived with their relatives.

In this study, all of the respondents knew about iron-folic acid supplementation. They replied that iron-folic acid supplements could prevent anemia. According to the study of 'the southeast Asian of tropical medicine and public health'. That study showed the Malaysian adolescent girls

they had no more knowledge and practice about iron-folic acid supplementation. Another study was done among Indian high school girls in rural and observed that they had no knowledge, attitude and practice about the iron-folic acid supplement [20].

All of the selected respondents got iron-folic acid supplementation from a volunteer of several organizations. All adolescent could say that IFA is needed to get more energy, it increases appetite and prevent iron deficiency disorder anemia through improving hemoglobin level. According to the study among school girls in Delhi, the result was recorded that only 7.5 percent could answer correctly the reason for the anemia [26].

Respondents were distributed according to who have been taking IFA supplement regularly. The percentage was shown through the figure. There 86.8 percent of adolescent girls took IFA regular and 13.2 percent didn't take IFA supplements. According to a study report of selected adolescent girls in rural Bangladesh, IFA supplementation receive in the nutrition intervention area was 21 percent and the non-intervention area was 8 percent [27].

How long the iron-folic acid supplement had been receive by selected Rohingya girls were shown through figure. This supplementation was receiving weekly 2. Here the findings observed that 78 percent of respondents took IFA at 3 months, 8.8 percent took this supplement at 6 months and 13.2 percent girls didn't take an iron-folic acid supplement. All of the respondents said that the IFA supplement should not take daily. They thought weekly receiving supplementation was more effective than daily supplementation. A survey was done by the global journal of health and science at a slum area in India among adolescent girls in order to comparison of the results of weekly iron-folic acid supplementation and daily iron-folic acid supplementation. The result was observed that weekly IFA supplementation patient was good than daily supplementation patients [17].

No one had been faced negative effect because of taking an iron-folic acid supplement. They also agreed that IFA is good for adolescents and it is good for adolescents and it is most important and badly needed for adolescence period.

Out of four hundred selected respondents, no one could say the basic definition of nutrition but they had an idea about nutrition. All respondents replied from their concept that nutrition is important for good health and prevention of diseases. No one of the respondents could tell about malnutrition and malnutrition evil cycle. Also had no idea about the diseases that are causes of due to malnutrition. No one had any ideas about the sources and deficiency disorder of iron, iodine, and vitamin A deficiency disorder. However iron, iodine, and vitamin A were in their diet list. So respondents took these types of vitamins and minerals through taking different types of vegetables, fish, egg fruits, etc. A cross-sectional study was completed in Jimma Zone, South-west Ethiopia to assess the optimal dietary practices and nutritional knowledge among school adolescent girls. The study was driven between 455 adolescent girls. The result was observed that 61.3 percent of students had a dietary diversity score was less than five and 55.8 percent of adolescent girls had good nutrition knowledge about nutrition related messages [29].

Rohingya adolescent girls were very conscious of the appropriate age of marriage and conceive. All selected girls were agreed that before 18 years should not get married and before 20 years should not conceive. They were also very aware of receiving deworming. 60.5 percent adolescent girls received deworming at consecutive 6 months and 39.5 percent didn't receive the deworming.

4.3 Recommendations

A large number of data collection was difficult within a short time. If I spend more time in order to re-survey then more samples could be collected.

Chapter-5

5.1 conclusion

The study was conducted by collecting some information on adolescence at the refugee camp. Here information was gathered about socio-economic status, about iron supplementation, about knowledge of nutrition. Based on the findings of this study, it is observed that most of

the adolescence were illiterate. It was 74.2 percent and there is not much significant difference in parent's educational qualification. 91.5 percent of the mother was illiterate and 93.2 percent of the father were illiterate. All most all of the respondents knew about the importance of IFA supplementation. Respondents agreed to this supplement should take weekly not daily. 86.8 percent of respondents took IFA supplements regularly. It was observed that there was no significant negative effect of IFA supplements. 87.2 percent of girls took these 2 IFA supplements at weekly dosages. All of the respondents knew the age range of adolescence. 79 percent of adolescent girls have been taking an iron supplement for 3 months and 8.8 percent have been taking this supplement for 6 months. 12.2 percent didn't take the supplement. Their nutrition knowledge is not much. But they knew about different types of food which are needed for good health. They also didn't know about malnutrition, iron, iodine, and vitamin A sources and deficiency. All these respondents agree that before 18 years they should not get married and before 20 years should not conceive. Since respondents were in the refugee camp and they get relief from Govt., several national and international organizations. So they were taking vitamin A, iron and iodine-rich food.

5.2 Limitation

Since the sample collection location was refugee camp so there was some limitation to collect data.

- The main challenge faced while doing this survey was a linguistic problem. Data was collected via volunteers because of the language barrier. It's consumed more time to gather data. But there was limited study time to survey so less sample was collected.
- Intolerable sunshine was another important barrier to visit the community to collect data from respondents.
- The Rohingya adolescent girls didn't want to expose them to strangers. They felt ashamed to talk to an unknown person. That was another barrier to collect data.

Chapter-6

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