

Impact of Education on Knowledge, Attitude, And Practice on Prevention of Anemia Among Adolescent Girls

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Abstract- Anemia is one of the most crucial health issues and a widespread nutritional deficiency disease. One of the critical health problems among the adolescents is anemia in KSA. One of the most important causes of all dietary issues is a lack of nutrition understanding. And as a result, this inappropriate practice may cause a number of problems. This study aims to determine how schooling affects teenage girls' attitudes, knowledge, and practices about anaemia. The 30 samples were chosen using the purposive sampling strategy using the pre-experimental design. The influence of information on anaemia was evaluated using a structured interview schedule, and attitudes towards anaemia were evaluated using a rating scale and a practice checklist. A video slide presentation is proposed for anaemia education. The overall mean score on knowledge in the pre-test was higher 2.27 ± 1.337 than in the post-test which was 10.67 ± 1.184 . It shows that adolescent girls had excellent knowledge of anemia after the educational program, and it shows that teaching was more effective. In perception, the mean score in total in the pre-test was 2.07 ± 1.112 , and in the post-test, 9.2 ± 0.664 , revealing that the parents had a highly favorable attitude. The mean score in total for practice in the pre-test was 1.2 ± 0.805 , whereas in the post-test it was 5.2 ± 0.61 . It predicts that girls improved their practice after the implementation of the education program. The calculated 't' value for awareness, perception, and practice scores were 7.13, 9.73 & 5.4 at 0.05 level respectively. WIFS and intense health education interventions have an influence on enhancing teenage schoolgirls' attitudes, knowledge, practices, and health-seeking behaviour. In order to reinforce good practices to prevent anemia additional nutritional interventional research is essential.

Index Terms- Knowledge, Perception, Practice, Iron deficiency Anemia, Adolescent girls, Educational program.

I. INTRODUCTION

One of the most serious dietary deficits that affects people from all social and economic backgrounds is anaemia. The condition of anaemia is more prevalent in underdeveloped nations, and children and teenagers are often more at risk for it. The medical condition known as anaemia is marked by unusually low levels of erythrocyte haemoglobin (Hb), hematocrit (Ht), and red blood cell concentration per unit of volume as compared to the peripheral blood parameters of a reference population. Hematocrit and haemoglobin levels in people differ depending on the oxygen pressure in the environment, stage of development, hormonal stimulation, gender, and age [1].

Anaemia is a condition in which there are either too few red blood cells in circulation or not enough of them to carry enough oxygen to meet physiological needs. Anaemia can also be identified when Hb or hematocrit levels are low. Anaemia can also be identified based on alterations in mean corpuscular volume, blood reticulocyte count, or Hb electrophoresis, or blood film analysis. The haematological test that is most frequently used to determine anaemia is Hb concentration. Anaemia affects a large percentage of preschoolers worldwide and can appear at any age. The World Health Organization (WHO) defines anaemia as having a Hb concentration of less than 11 g/dL in females and less than 12 g/dL in boys. Mental health, the ability to study, and focus are all impacted by anaemia [2,3].

Iron deficiency is the primary cause of anaemia. According to the available data from clinical and epidemiological studies, both in children and adults, iron deficiency anaemia (IDA) is significantly linked to a difficult danger of unipolar depression, anxiety disorder, bipolar disorder, delayed development, attention deficit hyperactivity disorder, and mental retardation [4,5].

II. SIGNIFICANCE OF THE STUDY

Girls in particular are thought to be more nutritionally susceptible among adolescents. Some minerals are particularly important since adolescence is a time of increased development. During this stage of the human life cycle, nutritional anaemia is more likely to occur. Anaemia is a significant global public health issue. The teenage group is more susceptible to nutritional problems, and adolescent girls are more afflicted by the disease in the majority of underdeveloped nations. According to the report, the biggest nutritional issue in many developing nations is teenage anaemia [6].

Adolescence, according to the WHO, is between the ages of 10 and 19. A phase of transition from infancy to adulthood occurs during this time. Due to the high levels of physical activity and quick growth spurts that occur during this time, adolescents require increased nourishment. Major psychological, behavioural, and physical changes also occur during this time. According to recent data, there are around 1.2 billion teenagers on the globe, or one-fifth of all people. These numbers are rising daily [7, 8].

Only a few studies were available on anaemia in teenage females, compared to several studies on anaemia in pregnant women and toddlers. This study sought to determine how anaemia knowledge among teenage females between the ages of 13 and 17 attending a particular school in Farasan, Saudi Arabia, was impacted by schooling.

III. OBJECTIVES

1. To evaluate the knowledge, practice, and attitude of anemia among adolescent girls before the implementation of the educational program.
2. To evaluate the impact of schooling on teenage girls' anaemia.
3. To subordinate the pre-test scores of attitudes, knowledge, and practice with carefully chosen demographic variables.
4. To correlate the pre along with post-test knowledge, practice, and attitude scores of anemia among adolescent girls.
- 5.

IV. HYPOTHESIS

1. A substantial difference in attitude, knowledge, and practice scores of anaemia among teenage females between pre- as well as post-test
2. Pre- as well as post-test results had a significant correlation with a few demographic factors.
3. A strong relationship among the pre-test and post-test knowledge, attitude, and practice scores for anaemia in teenage females.

V. MATERIALS AND METHODS

Research approach:

This is a quantitative-based cross-sectional study

Research design:

Pre-experimental - one group pre and post-test design

Research setting:

The study was approved out in a secondary school in Farasan, Jazan region, Saudi Arabia.

Population:

The population used for the present study was adolescent girls aged between 13-17 years who are studying in secondary school and living in Farasan, Jazan region, KSA.

Sample size:

Adolescent girls between the ages of 13-17 years. The sample size was 30.

Sample techniques:

The Nonprobability Purposive Sampling technique.

Criteria for sampling technique:

Inclusion Criteria:

- Adolescent girls between the ages of 13-17 years.
- Can read and write Arabic
- Willing to participate.

Tool for data collection:

- Semi-structured interview schedule on demographic variables of adolescent girls.
- Structured interview schedule to assess the impact of knowledge on anemia has 12 questions, the correct response is given as 1 score. The total marks were 12.
- Checklist to assess practice about anemia has 6 questions, and the correct response is given as 1 score. The total marks were 6.
- Rating scale to assess the attitude has 10 questions, the correct response is given as 1 score. The total marks were 10.
- Education about Anemia was given through video-assisted teaching.

Data collection procedure:

- Permission obtained from the Dean of the university college of Farasan and the Director of Governorate School Farasan.
- Adolescent girls between the ages of 13-17 years were selected by inclusion criteria by the screening method of informed consent was obtained.
- To assess the level of awareness among teenage girls about anaemia, a semi-structured interview schedule was used as a pre-test. The checklist was used to assess their practice and a Rating scale was used to assess the perception about anemia. Immediately after the pre-test the education on Anemia and its Effects was taught to the adolescent girls through video-assisted teaching for 20 minutes.
- Post test was conducted by using the same pre-test tool on the 15th day after the educational administration.

Plan for data analysis:

Both descriptive as well as inferential statistics were utilized - Mean, mean percentage, standard deviation, and paired "t" test, Chi-square, and Correlation, and the Coefficient test was used.

VI. FINDINGS & RESULTS

The Percentage wise distribution of demographic variables shows that the Highest percentage (33.3%) of adolescent girls were at the age of 16 years. The maximum percentage (33%) of the girls were studying 10th standard. Most of the girls (73.3%) were residing in urban areas. The maximum percentage of children (60%) were living with joint families and with an income of 10,000 to 15,000 SR (40%). More than half of the percentage (60%) were having 5-10 members in the family. The highest percentage (86.6%) of them are consuming a nonvegetarian diet. 40 percent of students got information about anemia through their family members.

Table No – 1: Frequency and Percentage wise distribution pre and post-test knowledge questions on Anemia

Knowledge Questions on Anemia	Pre-test	Post-test
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	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Heard about anemia	9	30%	28	93.3%
2. Anemia is a health problem?	14	46.7%	30	100%
3. What do you understand by anemia?	4	13.3%	29	96.7%
4. Nutrient deficient in anemia	6	20%	30	100%
5. Causes of anemia	8	26.7%	28	93.3%
6. Signs and symptoms of anemia	7	23.3%	29	96.7%
7. Effects of anemia	4	13.3%	27	90%
8. Preventive measures of anemia	11	36.7%	30	100%
9. Iron-rich foods	2	6.7%	26	86.7%
10. Factors (tea, coffee) inhibit iron absorption	5	16.7%	29	96.7%
11. Vitamin C enhances iron absorption	9	30%	30	100%
12. Treatment of Iron Deficiency Anemia	6	20%	28	93.3%

Table No. 1 shows that in the post-test all the adolescent girls were given correct responses for the aspects of Anemia as a health problem (100%), Nutrient deficient in anemia (100%), Preventive measures of anemia (100%) and Vitamin C enhances iron absorption (100%) respectively. Whereas in the pre-test only less percentage of adolescent girls answered in these aspects 46.7%, 20%, 36.7%, and 30% respectively. A more or less similar percentage of girls responded in the aspects of Effects of anemia (90%) and Iron-rich foods (86.7%) respectively, whereas in the pre-test it was answered by a very less percentage of (13.3% & 6.7%) girls in these aspects.

Table No – 2: Frequency and Percentage wise distribution pre and post-test attitude questions on Anemia

Rating Scale on Anemia	Pre-test		Post-test	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Do you ever check your Hb levels in the past 1 year?	6	20%	7	23.3%
2. Did you take IFA tablets in the past 1 year?	8	26.7%	8	26.7%
3. Have you taken deworming tablet in the past 6 months?	4	13.3%	23	76.7%
4. The value of routine haemoglobin testing	3	10%	30	100%
5. The role of iron-rich diets in maintaining a healthy body state	8	26.7%	30	100%
6. I will not experience anaemia as a teenager.	9	30%	28	93.3%
7. I wouldn't take iron supplements if I had anaemia.	13	43.3%	29	96.7%
8. I would avoid consuming meals high in iron if I were anaemic.	12	40%	30	100%
9. It's important to avoid anaemia, especially in pregnant women.	15	50%	30	100%
10. It's important to avoid anaemia, especially in adolescent girls.	11	36.7%	30	100%

Table No. 2 shows that in the post-test all the girls expressed favorable attitudes towards the items of the importance of consistent valuation of hemoglobin (100%), and the Importance of iron-rich foods in normal body condition (100%). If I were anemic, I would not take iron-rich foods (100%), especially among pregnant women (100%), and adolescent girls (100%) anemia needs to be prevented. Whereas in the pre-test it was expressed very less percentage in these aspects (10%, 26.7%, 40%, 50%, 36.7%) respectively. Parents strongly agreed about the aspects of advising relatives and friends to vaccinate their children at the appropriate age group (100%). And believe that the vaccination program should start from the first week of the newborn's life (100%) respectively. The minimum percentage of the girls only expressed favourably in both pre and post-test for the aspects of checking their Hb levels in the past one year? (23.3%) and (26.7%) have you taken IFA tablets in the past 1 year?

Table No – 3: Frequency and Percentage wise distribution pre and post-test Practice questions on Anemia

Checklist on the practice of Anemia	Pre-test		Post-test	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>

1.	Do you wash your hands with soap after defecation?	12	40%	30	100%
2.	Are you going to wash your hands with soap before eating?	8	26.7%	28	93.3%
3.	Are you washing your vegetables and fruits before eating them?	18	60%	30	100%
4.	Do you trim your nails regularly (weekly)?	7	23.3%	23	76.7%
5.	Do you walk barefoot outside the home?	26	86.7%	27	90%
6.	Consuming Iron-rich foods	8	26.7%	14	46.7%
>	Meat				
>	Fish				
>	Egg				
>	Ragi				
>	Jaggery				
>	Green leafy vegetables				
>	Sprouted grains				

Table No.3 shows that in the post-test all the girls were good adoptive practice in the aspects of washing hands with soap after defecation? (100%) and before eating vegetables and fruits, do you wash them? (100%) respectively. Whereas in the pre-test only half of them were practicing in these aspects (40% & 60%). A very less percentage of the girls were having fully adopted practice the aspect of Consuming Iron-rich foods (46.7%) and in the pre-test, it was practiced only 26.7 percentage.

Table No:4 –Distribution of Mean, SD, and Mean percentage of pre-test along with post-test scores on Anemia among Adolescent girls

S. No	Areas of Anaemia	Max Score	Pre-Intervention		Post-intervention		Mean difference	't-test Value	P value
			Mean	SD	Mean	SD			
1	Knowledge of aspects of anemia	12	2.27	1.337	10.67	1.184	8.4	7.13	0.05
2	Attitude Aspects of Anemia	10	2.07	1.112	9.2	0.664	7.13	9.73	
3	Practice of Anemia	6	1.2	0.805	5.2	0.61	4.0	5.4	

Table No.4 shows that in awareness, the mean score in total for the pre-test was 2.27 ± 1.337 , whereas in the post-test it was 10.67 ± 1.184 with a mean difference of 8.4. It shows that adolescent girls had excellent knowledge of anemia after the implementation of the educational program, and it shows that teaching was more effective. In perception, the overall mean score during the pre-test was 2.07 ± 1.112 as well as in the post-test, the overall mean score obtained by girls was 9.2 ± 0.664 , with a mean difference of 7.13 it revealing that the parents had a highly favorable attitude towards anemia after implementation of the educational program.

The overall mean score for practice on anemia displays that in the pre-test, the mean score was 1.2 ± 0.805 , whereas in the post-test it was 5.2 ± 0.61 , with a mean difference of 4. It predicts that girls improved their practice after the implementation of the education program. on anemia preventive measures. The calculated 't' value for awareness, perception, and practice scores were 7.13, 9.73 & 5.4 at 0.05 level respectively. Hence it shows that significant improvement in adolescent girls' attitude, knowledge, and practice on anemia after the implementation of the educational program.

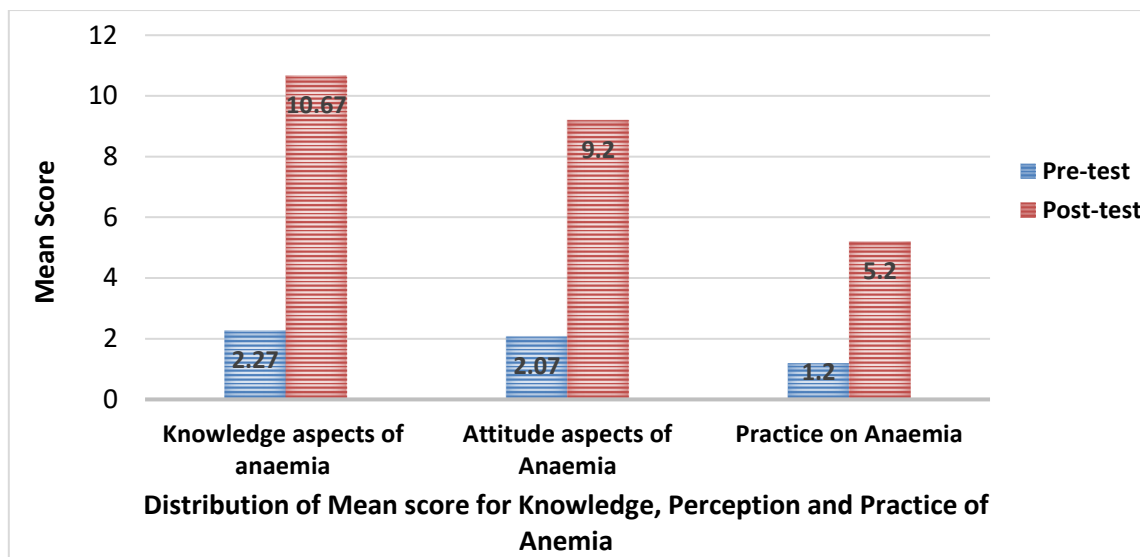


Fig 1. Distribution of Mean score for Knowledge, Perception and Practice of Anemia

Age, place of residence, education level, family size, family income, food, number of family members, and information source did not significantly affect the anaemia pre-test results. It follows that the research hypothesis was rejected since the observed mean score differences were not actual differences. Between knowledge and perception scores (0.74), knowledge and practice scores (0.81), and practice and knowledge scores (0.88) of anaemia, there was a statistically significant link.

VII. DISCUSSION

The current intervention trial, which involved teenage schoolgirls for a month, found a change in KAP with reference to anaemia. One of the main causes of anaemia in teenage females, specifically is iron deficiency anaemia (IDA). The IDA may impede physical and mental growth and may result in palpitations, weakness, incapacity to work, learning problems, inattentiveness, and recurrent illnesses [10, 12, 13].

The findings obviously demonstrated that the existing research population's understanding of anaemia was insufficient. Similar findings were also found in a few additional investigations [14, 15]. On the other hand, an investigation indicated that 90.7% of teenage females in India knew the aetiology of iron-deficient anaemia correctly [16].

The schoolgirl population had limited awareness about nutrition-related anaemia prevention strategies. More than 70% of girls are unaware that consuming more iron in their diets can lower the prevalence of anaemia. One of the main causes of IDA and, therefore, poor practices to avoid anaemia is a lack of nutritional awareness. It is well known that teenage females, especially those from underprivileged backgrounds, are negatively impacted by inadequate and inappropriate nutrition [17]. The prevention of anaemia is greatly aided by an understanding of food [11,18].

Few studies demonstrate and emphasize the significance of washing hands in their studies [21, 22]. But the research also showed that more than two-thirds of respondents didn't wash their hands with soap and water before eating [23]. Based on these findings, the study makes clear recommendations on how to implement the current national programs in an efficient manner, and the study's conclusions are both reassuring and upbeat. Under the National Iron Plus Initiative for Anaemia Control, a weekly iron and folic acid supplement will be given to teenage females between the ages of 10 and 19 as part of the national health program to avoid iron-deficient anaemia. Health education must also be given in school along with iron supplementation to have a better outcome.

VIII. CONCLUSION

The study shows that once health education was provided as an intervention, there was a considerable improvement in teenage girls' understanding of anaemia. WIFS and intense health education interventions had a more positive influence on enhancing teenage schoolgirls' knowledge, attitude, practices, and health-seeking behaviour. The most significant, efficient, and successful setting to undertake a thorough health education program is the classroom. And this will greatly facilitate in reducing the burden of the disease. In order to reinforce good practices to prevent anemia further additional nutritional interventional research is needed.

CONFLICTS OF INTERESTS:

The author declared no conflicts of interest.

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