Effectiveness of an awareness program on knowledge regarding anemia among school going adolescent girls

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Abstract: **Introduction**: *Anemia is a major public health problem but undermined in both developing and developed countries. Adolescent females often do not get enough iron to keep up with menstrual losses. They are often very sensitive about their diet and their body image.* **Aim**: *this study undertaken to assess the effectiveness of an awareness program on the knowledge regarding anemia and to find the association between knowledge regarding anemia with selected socio-demographic variables of adolescent girls studying in selected schools of Ras Al Khaimah, UAE.* **Method**: *One group pretest- posttest design(pre-experimental) was implemented, using consecutive sampling technique, 100 students studying in grade 8th and 9th were selected and the Knowledge questionnaire regarding anemia were administered to the participants as a pretest followed by conduction of an awareness program. Knowledge level reassessed as a posttest after a month.* **Result & analysis**: *The analysis of the data showed that during pretest, 89.5% had moderate level, 9.8% had low while 0.8% had good knowledge regarding anemia while during the post- test, and there was an increase in the knowledge level among 70.7% (good knowledge) and the rest 29.3% an average level of knowledge. The paired t-test showed pretest knowledge mean of 5.94(S.D-2.47) and post-test mean of 9.66(S.D-10.65, P=0.001) showing a significant improvement of knowledge regarding anemia. This study finding suggests that the awareness program on anemia was effective and such programs are beneficial to school students in improving their knowledge, which influences their attitude and behavior eventually empowering the adolescent girls to fight against anemia.*
Key words: anemia, adolescent girls, awareness program

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I. Introduction

Globally the adolescent population (10-19 years) constitute about a billion, still this group largely remains unnoticed and unreached especially in the communities in which needs of the adolescent girls get flouted[1]. The adolescence period, requires essential nutrients as a provision of growth and development. Anemia is a major public health issue that remains a challenge in both developing and developed countries. In developing countries, it serves as a primary cause for 40% of maternal death either directly or indirectly. Anemia, among adolescent girls causing concerns on growth, school performance, morbidity and reproductive performance. According to WHO reports from 1993 to 2005, in South East Asia, prevalence of iron deficiency anemia in school aged children is 65.5%[2]. The prevalence of anemia was found to be 39% in adolescent girls in India[1]. Similarly, even in the Middle East and North Africa region, anemia is the most prevalent nutritional disorder among children. The prevalence of anemia in children and adolescents ranges from 11.6% in Saudi school-aged children to 39.6% in Egyptian children[3]. WHO, describes the prevalence of anemia, a mild problem at 5%−19.9%, moderate at 20%−39.9%, and a severe if ≥ 40 %. Most of the Arab Middle East countries are categorized between moderate to severe deficiency [4].

Adolescent girls due to the physiological process lend not to get enough iron to keep up due to the menstrual losses. Girls in this age group are quiet sensitive about the diet and their body image. In a systematic study by Keats E C, the adolescent girls are more vulnerable to nutritional disorders. Almost half (44%; n=6572) of all adolescent girls (10-19 years) did not consume three full meals per day. They were used to snacking is more between breakfast and lunch (64%) or afternoon (between lunch and dinner; 61%), when compared to the evening (26%) [5]. In another study conducted among students of university of Sharjah, the overall prevalence of anemia was 26.7% among Emirati students, which represented 50.8% of the study population[6]. To tackle this public health problem among adolescent girls who grow up to become future healthy mothers require apart from nutritional programs in educational institutions, awareness programs are essential to build positive attitude and healthy eating behavior. In Egypt, an adolescent anemia prevention program showed that providing nutrition and health education improved acceptance of iron supplementation. The study proved the effectiveness of educational training programs in increasing knowledge about iron correctly increased significantly from 23% to 41%[7]. Another study carried out in Egypt showed the positive impact of the

nutritional educational program on the total scores of students' knowledge about iron deficiency anemia; the total mean scores of knowledge for the experimental group increased from 41.34 ± 8.05 at the pre intervention phase to 62.59 ± 11.53 at the post-intervention phase[8]. Hence, this study was undertaken to assess the effectiveness of awareness program on the knowledge regarding anemia among adolescent girls studying in selected schools of UAE.

II. Material & methods

Study design: One group pretest- posttest (pre - experimental) design
Study location: Students (girls) of grade 8th and 9th grades of Indian public school and Al Hudaiba School Ras Al Khaimah - UAE.
Sample size: 100 adolescent girls studying in 8th and 9th grade in the selected school
Sample size calculation: Single proportion design was used to estimate the sample size. The target population consisted of 302 elements. The researcher set the confidence interval at 10% and level of confidence as 95%. The calculated sample size obtained for the study was 73. About 100 students were selected 50 from each school.
Subject selection method: Students were selected by consecutive sampling technique.
Inclusion criteria: All the girls studying in 8th and 9th grade of the school present on the day of (pretest) data collection.
Exclusion criteria: Students who were not willing to participate in the study
**Tool**: set of demographic questions featuring their age, nationality, educational status of parents and their income was gathered. About 14-item researcher, prepared questionnaire was prepared, translated into Arabic language and was checked for its reliability and validity. The content highlighted the awareness regarding the causes, importance of balanced diet, symptoms of anemia with preventive methods and the possible complications that arise with anemia. The categorization of scores were as good knowledge - above 75%, moderately adequate knowledge-51-75%, poor or inadequate knowledge-below - $\leq 50\%$.
Procedure Methodology: After obtaining the approval from RAKMHSU Research and Ethical Committee, respective schools were approached; the class teachers of the classes facilitated distribution of consent form from the parents and scheduled the pretest and after a month posttest for the students enabling the collection of the data. Participants were explained the purpose of the study, following which the students were given the choice to be part of the study. Willing participants had obtained the written consent from their parents and were given the anemia awareness questionnaire prepared by the researcher that was filled within 10 - 15 minutes administered before and after the structured education program. The structured education program involved a power point presentation along with a video show and a role-play of 30 minutes duration both in English and Arabic language.
Statistical analysis: The data obtained was entered into SPSS version 23, for analysis. Descriptive and inferential statistics were used to assess the effectiveness of the structured education program regarding anemia. The cut off value of significance was set at $p < 0.05$ level
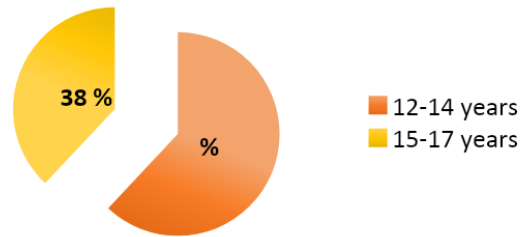
III.   Result

Fig 1 - Distribution based on nationality
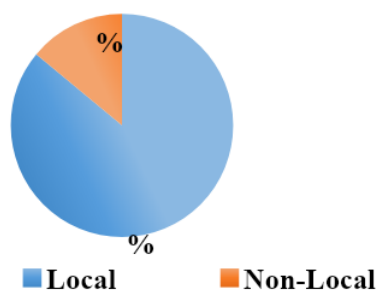
Majority of the students were nationals who participated in the study

**Fig 2 - Distribution based on age of the adolescent girls**

38 %

%

■ 12-14 years
■ 15-17 years

Most of the girls were between 12-14 years of age

**Fig 3 - Distribution based on overall pretest knowledge regarding anemia**

Good knowledge   Average knowledge   Poor knowledge
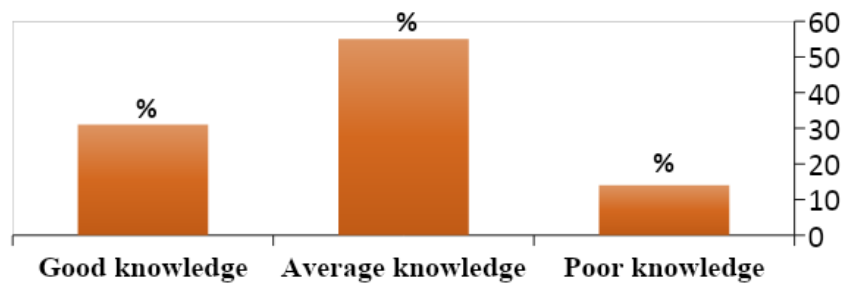
Majority of the students has average knowledge regarding anemia

Fig 4 - Pretest knowledge regarding causes of anemia

63%   24%   13%

Poor knowledge   Average knowledge   Good knowledge
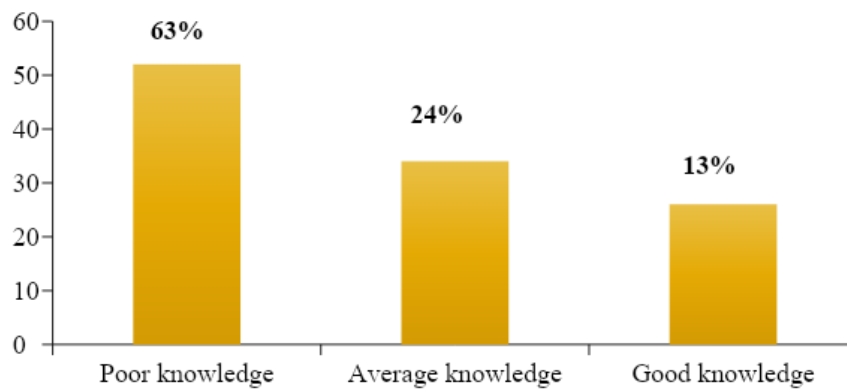
During the pre-test 63% had poor knowledge regarding anemia

Fig 5 - Pretest knowledge regarding diet for anemia prevention

44%   41%   15%

Poor knowledge   Average knowledge   Good knowledge
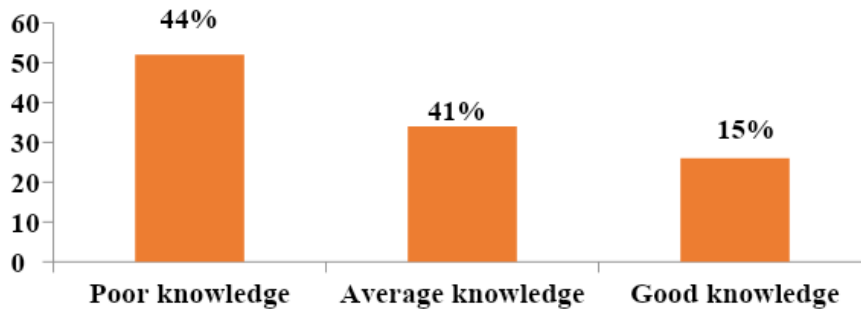
Most of them had poor knowledge regarding diet in anemia

Fig 6 - Knowledge regarding prevention of anemia
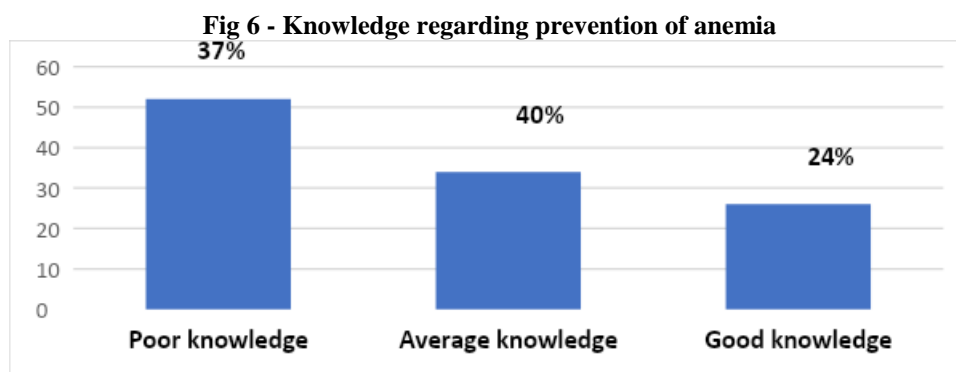
Nearly 40% of the participants had poor knowledge regarding prevention of anemia

Fig 7 - Knowledge regarding complications of anemia
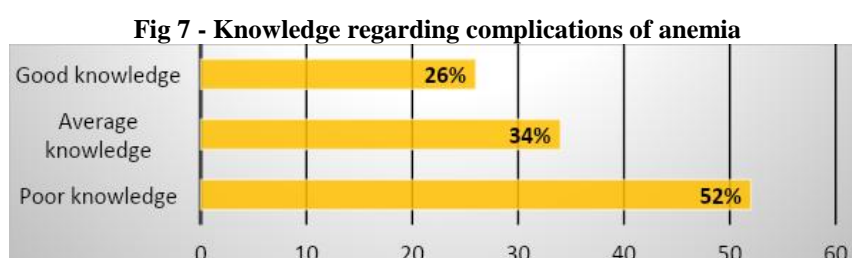
Most of the girls had poor knowledge regarding complications of anemia

Table 1 - Effectiveness of an awareness program on anemia

Variable	mean	S.D	df	T- test	P value
Pretest knowledge	5.94	2.47	99	3.365	0.001*
Posttest knowledge	9.66	10.65			

*significant at p < 0.05 level

Table 1 shows that there is a significant difference in knowledge regarding anemia after the awareness program

IV. Discussion

Anemia continues to be a health problem posing a challenge to the community. The statistics among various countries demonstrates anemia to be more prevalent especially among adolescent girls and childbearing women. The prevalence rate of anemia in Indonesia for adolescent girls in the categories of 5–14 years of age and 10–19 years of age and of 15–24 years of age were 21.7%, 18.4% and 18.4% respectively. Based on the preliminary survey of North Sumatera Health Survey in 2017, there were 322 thousand adolescent girls were with symptoms of anemia[9]. These statistics show that adolescent girls are at risk to develop anemia. The present research study carried out among 100 girls (38%) were also between 15 – 17 years while majority were between 12- 14 years of age. In a study undertaken in Hyderabad India, highlighted that most of the adolescent girls were having faulty food habits; 60% of them at out once a week followed by 23% subjects eat out twice a week and most of them preferred to eat fast foods and carbonated beverages. Among them only 25% of the subjects were having good knowledge about anemia[10]. A pre-experimental study was carried out among girls between 10-19 years studying in high schools, Belgaum, Karnataka showed that in the pre-test about 53.3% had inadequate knowledge and 46.7% had moderate knowledge on prevention of iron deficiency anemia[11]. In another study carried out rural area of North West Ethiopia about 78.5%, of the participants had not heard about anemia and nearly 56.7% of participants had poor knowledge on anemia[12]. In the present study carried out in UAE showed that 55% of the adolescent girls had average knowledge while 14 % had poor overall knowledge regarding anemia.

Examining the area wise knowledge it was noted that 63% had low knowledge and 24% had average knowledge regarding causes and risk factors of anemia. Similar findings are highlighted in a study conducted in Mangaluru, Karnataka that majority (84%) of study sample had moderately adequate knowledge, 11% had inadequate knowledge and 5% had adequate knowledge on prevention of iron deficiency anemia[13].while in the present study most of them (40%) had average knowledge regarding prevention of anemia. These findings elicits that a majority of the adolescent girls do have an average or moderately adequate knowledge about

anemia and lacked its specifics. After the conduction of the awareness program showing role-play and a PowerPoint presentation, the findings were statistically significant (p=0.00). Similar findings were noted in a study conducted in two schools in the girls School in Gujarat where the overall pre -test mean knowledge score of adolescent girls mean score was 13.81±3.67 post-test mean knowledge score of was 22.71±2.35. The posttest mean knowledge score was found to be significantly greater than the pre-test mean knowledge score. According survey among school adolescent girls at the State Senior High School in Deli Serdang regency, in 2018, revealed the effectiveness of booklet on the knowledge, attitude and hemoglobin levels showed significant difference between the intervention group and the control group with ρ-value (0.000). A study conducted in rural areas of West Bengal in 2017, showed that knowledge of anemia, role of diet, health seeking behavior and management of anemia improved significantly (p< 0.001) after the health education. Author emphasized the need to increase the knowledge among adolescents to bring about a change their attitude [14]. Present study did not find any significant association between knowledge of anemia with their demographic variables, though in another study father's education was found to be a significant predictor in pre- intervention score regarding anemia. . Emphasizing the fact, that awareness program can be effective irrespective of the selected demographic factors that may exist among the school students.

V. Conclusion

Creating an awareness and providing appropriate counseling enables empowerment of adolescents to make changes by understanding the importance of preventing anemia in adulthood. Periodic programs to be organized to make schoolchildren be aware about fortification of food as well as importance of iron for adolescents. By inculcating healthy lifestyle practices from young age paves away to build healthier citizens of a country.

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