Dietary Pattern for Adolescent Girls Diagnosed with Iron Deficiency Anemia in Kirkuk Secondary Schools

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ABSTRACT

Objective: To assess the eating habits of adolescent females with iron deficient anemia.

Methodology: This study employed a quantitative research, descriptive evaluation design. The study was carried out on adolescent girls attending Kirkuk secondary school, period from 11 April to 27 December 2022. A non-probability (Purposive) sample has been applied to obtain the study goals. The study sample was (62) student who participate in the study.

Results: Pre-test results from the study revealed that 54.8% of students had moderate IDA. While the students' iron levels returned to normal in the posttest (53.2%). The majority of students (59.7%) had poor eating habits at the time of the pretest. While a healthy dietary pattern is present at the post-test (66.1%). The majority of students (80.6%) have headaches, (82.3%) had menarche between the ages of 13 and 14, and (29%) had a history of IDA..

Conclusion: 59.7% of students have poor dietary pattern. According to the results of this study, the majority of participants-students of teenage girls-can recognize foods that contain iron, but they don't consume enough of it due to their eating patterns and diets.

Recommendations: More work and creative solutions are needed to create and implement programs to prevent and control iron deficiency anemia in our country nutrition education programs.

Keywords: Assessment, Dietary Habits, Adolescent, Iron Deficiency Anemia

INTRODUCTION

Low iron levels are linked to Anemia and the occurrence of microcytic hypochromic red blood cells .The body cannot make enough haemoglobin, a factor that enables red blood cells to transport oxygen, without sufficient iron IDA will develop [1]. Anemia is typically caused by Iron Deficiency Anemia (IDA), and which also the main cause and most prevalent. It is considered to be one of the most important health indicators Due to their rapid development spurt and monthly loss of 12.5–15 mg of iron, adolescent girls' iron needs increase by two to three times. Anaemia's effects on adolescent girls continue to be a global public health issue [2]. Adolescent girls make up (24%) of the population in Iraq. They are viewed as the protection for the future. In the health industry, they have received little attention. Additionally, insufficient information is available on their health-related behaviours; as a result, such information is required to highlight areas where data gaps make it challenging to determine the significance of a potentially important issue relating to the health and development of this age group [3]. Adolescence is a vital period in being because of established most of the behaviours that will affects health through adulthood. Also, some unhealthy behavior frequently starts through teens and represent principal public health challenge [4].

The common signs of iron deficiency anaemia are pallor, irritability, and a decrease in activity. These symptoms are subtle and vague, and they frequently only emerge with severe anaemia. Brittle nails, hair loss, and restless legs syndrome are additional typical symptoms. The main causes of the rising prevalence of iron insufficiency are poor diet quality and reduced dietary iron bioavailability [5]. Teenagers have a propensity to regularly consume snacks made from refined cereals and a habit of drinking carbonated beverages, while they have a reduced propensity to eat fruits and vegetables. Additionally, routinely drinking tea or coffee right after meals increases the risk of iron deficiency and IDA. Teenagers' food quality and quantity, as well as their intake of dietary iron, are becoming increasingly poor due to social prejudice against girls and diets [6].

Adolescent diet affects both dietary patterns and the development of early disease risk factors in adults. One of the most crucial investments any society can make is to support the healthy development of teenagers. For the creation of effective educational and other intervention programs for teenagers, a deeper comprehension of food and eating habits is necessary [7].

Nurses are responsible for intervening and initiating activities that promote poor nutritional status, such as providing information on good nutrition, diet assessment, educational activities focusing on the effects of fad foods and diets, suggested foods that supply essential nutrients, and the relationship of good nutrients to physical health [8].

METHODOLOGY

Study Design

A descriptive research is carried out over the time frame of 11th April to 27th December 2022. Carried out in the Kirkuk secondary school.

Study Sample

A purposefully chosen, non-probability sample of (62) student Adolescent girls attending Kirkuk secondary school.

Ethical Considerations

Prior to data collection, the Scientific Research Ethics Committee of the Baghdad College of Nursing and Schools taking part in the study granted ethical approval.

Study Instrument

The study tool was constructed through intensive review of related literatures and previous studies, it include:

Part I

Socio-demographic information: student age, student's birth order among siblings, family monthly income, is crowding index: person/room, student's absenteeism, students' achievement in classroom, Type of family, Parents' educational level (father and mother), occupation status (father and mother).

Part II

Related to Student health status include items: Medical problems, Present complaints, Age at menarche, BMI-for-age.

Part III

Related to Students' dietary practices include items: '' Number of meals daily, Taking breakfast, Snacks intake, Fast foods intake, Fruits intake, Fresh vegetables intake, Drinking alarm drink like (tea and coffee) immediately after meal, have followed a diet for the past six months, Are you vegetarian, Eat un usual material/thing, Consumption of food rich in iron, students history of IDA and Laboratory investigations'' (blood investigation for serum iron level).

Validity of the Study

A group of fifteen experts decide the validity of the content were from Nursing Faculty/Baghdad University, Babylon University, College of Nursing /University of Kirkuk and doctors from Pediatric Hospital in Kirkuk city.

Reliability of the Study

Through the use of the split-half technique, internal consistency dependability has been applied to the study instrument. The correlation coefficient of Cronbach's alpha is calculated. The result showed acceptable reliability depending on the value of the coefficients test which was (0.780).

Data Collection

Data collection process has been carried out Pre-test from April 11th to May 20th, 2022) (post-test from October 15th to October 19th, 2022). Three parts of the questionnaire were obtained through a direct interview with the student following laboratory investigation of serum iron and diagnosis of ''Iron deficiency anaemia'', serum iron state obtained by laboratory staff. The sample collection period lasted about two months (pre-test) and one month (post-test). A dietary pattern instruction program was given to students with iron deficiency anaemia, which was supported by (instructional posters), and serum iron levels were checked again after about 3 months (post-test).

Data Analysis

Descriptive statistics (mean, frequencies, standard deviation 'SD', and percentages) were employed to discuss the demographic data. Inferential statistics were used to compare the mean scores of all dependent variables. Prior to doing the necessary statistical analysis, the assumptions of normality and homogeneity of variance of the variable were examined and verified using inferential.

RESULT

Table 1: Study Sample Distribution by Socio-Demographic Factor (n= 62).

No.	Characteristics		Frequency	Percent
1	Age group	Nov-13	9	14.5
		14-16	26	41.9
		17-18	27	43.5
		Total	62	100
2	Students birth order	First	17	27.4
		Second	19	30.6
		Third	5	8.1
		Fourth or more	21	33.9
		Total	62	100
3	Family income	Adequate	39	62.9
		Some adequate	9	14.5
		Inadequate	14	22.6
		Total	62	100
4	Crowding index	Less than 3 person/ room	31	50
		3 person / room	19	30.6
		5 person/room	12	19.4
		7 person or more/room	-	-

No.	Characteristics		Frequency	Percent
		Total	62	100
5	Students absenteeism	No absenteeism	18	29
		1-3 day/ month	34	54.8
		4 days or more/ month	10	16.1
		Total	62	100
6	Student achievement in classroom	Poor	12	19.4
		Satisfactory	15	24.2
		Good	35	56.5
		Total	62	100
7	Type of family	Nuclear	17	27.4
		Extended	45	72.6
		Total	62	100
8	Father education	Unable to read and write	3	4.8
		Read & write	-	-
		Elementary school	10	16.1
		Secondary school	12	19.4
		Institute	12	19.4
		College	25	40.3
		Total	62	100

This table indicated that 27(43.5%) of students at age (17-18) years. 21(33.9%) of students have fourth birth order. 39(62.9%) of students have adequate family income. 31(50%) of students have less than 3 person in room as crowding index. 34(54.8%) of students have 1-3day/month absenteeism. 35(56.6%) of students have good classroom achievement. 45(72.6%) of students have extended family type. 25(40.3%) and 20(32.3%) of students have college father and mother education respectively. 31(50%) of fathers are employee and 32(51.6%) of mothers have free work.

Table 2: Assessment student's laboratory investigation (Degree of IDA among anaemic cases).

No.	Item	Levels	Pre-test (n=62)		Post-test (n=62)	
			f	%	f	%
1	Serum iron	Normal	-	-	33	53.2
		Mild	17	27.4	18	29
		Moderate	34	54.8	8	12.9
		Severe	11	17.7	3	4.8
		Total	62	100	62	100

The finding in table (2) indicated that in the pre-test the students have 17(27.4%) mild IDA, 34(54.8%) moderate IDA and 11(17.7%) severe IDA. While, in the post-test 33(53.2%) of the students are normal, 18(29%) mild IDA, 8(12.9%) moderate IDA and 3(4.8%) severe IDA. The finding in this figure indicated that there is significant deference between the pre-test and post-test in all items of the dietary pattern. At the pre-test in the overall 37(59.7%) of students have poor dietary pattern, 18(29) fair, and 7(11.3%) good dietary pattern. While, at the post-test in the overall 13(21%) of students have poor dietary pattern, 8(12.9) fair, and 41(66.1%) good dietary pattern.
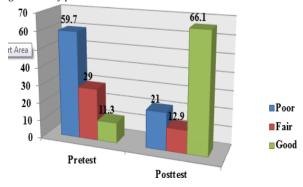

Figure 1: Distribution of overall dietary pattern of students at the pre-test and post-test.

DISCUSSION

This study identified four important variables that detect dietary habits for adolescent girls with Iron deficiency anemia (Student health status, Students' dietary practices, Laboratory investigations and disease history).

The age group enrolled in this study lies in the adolescent period (11-19) years. The current study found that there was a greater prevalence of anemia (43.5%) in the investigated females between the ages of 17 and 18.This result was similar to study in Ramadi: Prevalence of iron deficiency anemia among adolescent's intermediate school pupils in Ramadi District revealed that the prevalence of IDA was 40.5% among female teenagers (ages 16 to 18) [9]. Our study result not agree with study done in Turkey among (Prevalence and Risk Factors of Anemia among Adolescents in Denizli, Turkey) the study found that student adolescent girls aged between (12-16) years had a high prevalence of iron deficiency anemia [10].

(33.9%) of students has fourth birth order. (54.8%) of students have 1-3day/month absenteeism. 35(56.6%) of students has good classroom achievement. This outcome differed from research carried out in Egypt in El-Behira Governorates among: Nutritional approach for Egyptian prep school girls based on dietary habits and awareness of iron deficiency anemia. The majority of students were found to be either the first or second children in their family. More than one third of the pupil's demonstrated satisfactory achievement, according to the teachers' reports of the kids' performance also demonstrates the insufficient monthly household income [11]. Concerning parents' education, nearly (40.3%) and Fathers and mothers who had attended college made up, respectively, 32.3% of the student body. Regarding parents' occupation (50%) of fathers are employee and (51.6%) of mothers have free work .This result is agree with result of Indian study among Adolescent Girls with Iron Deficiency and Iron Deficiency Anemia at a Tertiary Care Hospital [12]. In our study finding there is no association between parent education and students dietary pattern at pre-test. This result is not agree with study among (Pilot Study on Active Adolescents' Attitudes Toward Nutrition and Dietary Habits and the Effectiveness of Nutrition Education).For both high school and middle school students, the association between parent education and students' dietary patterns and knowledge about healthy eating comes most frequently from parents and coaches [13].

(72.6%) of students have extended family type and (35.5%) had healthy weight as BMI. This frequency similar to study done in Maroco among (Dietary habits in adolescents are linked to lifestyle, family, and psychosocial factors) [14].

(62.9%) of students have adequate family income .As regards crowding index was observed that more than half (50%) had a crowding index of three persons per room. Overcrowding has affected many health problems. A risk factor for IDA is known to be low socioeconomic level. However, our result not accepted with study done in Basra/Al-Madinah City(A Comparison study Based on Parents' Knowledge, Attitude, and Practice).The overall prevalence of IDA in them study is (60.0%) suffering from low scale of S.E.S [15].

(82.3%) of students had menarche at age 13-14 years. There is no association between students iron deficiency anemia at post-test and age at menarche. This result is supported by study about(Effect of Structured Teaching Program on Adolescent Girl Students at a Selected Higher Secondary School in Thrissur's Knowledge of Iron Deficiency Anemia and Prevention of Anemia) [16].

Concerning Past history of IDA (71.0%) of adolescent girls students do not have past history of IDA. This result agree with study about(Iron insufficiency risk factors related to lifestyle adolescents' girls' anemia) [17].

Distribution of student's health status (medical problems): the students have medical problems (16.1%) respiratory disease, (19.4%) parasitic infestation, (6.5%) diabetes, (9.7%) epilepsy, (33.9%) allergy. This result is not agree with study done in King Abdulaziz University in Jeddah province about: prevalence of iron deficiency and anemia among female students in higher education [18].

History of anemia: (37.1%) of students have screen for IDA at the last 6 months. (29%) of them had IDA. 42(67.7%) use medication for anemia. This result compared with study result done in Egypt not agree, study about(Nutritional education for Egyptian prep school girls based on dietary habits and understanding of iron deficiency anemia)[19].

At the pre-test in the overall (59.7%) of students have poor dietary pattern, (29) fair, and (11.3%) good dietary pattern. This finding Not similar to study done in Malaysia among (Adolescent Nutrition Survey 2017 Results: Dietary Patterns and Related Factors Among Adolescents in Malaysia). While, at the post-test (after instructional program) in the overall (21%) of students have poor dietary pattern, (12.9) fair, and (66.1%) good dietary pattern [20].

CONCLUSION

(59.7%) of students have poor dietary pattern. The majority of participants—students of teenage girls—can recognize foods that contain iron, but they don't consume enough of it due to their eating patterns and diets.

RECOMMENDATION

Adolescent girls should be screened for IDA. Iron deficiency should be tested in high risk groups. Nutrition education in schools is essential. Nutrition education programs, particularly for women of childbearing age, should be implemented to promote healthy eating habits..

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