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ASSESSMENT OF NUTRITIONAL STATUS OF THE ADOLESCENT GIRLS AND ITS RELATION TO SOCIOECONOMIC CONDITION IN ASSIUT GOVERNORATE, EGYPT

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ABSTRACT

The main objective of this study is to evaluate the nutrient status of the adolescent girls and its relation to socioeconomic condition in Assiut governorate. The study included 50 girls with different families income.

This study revealed that percentage of girls severely overweight, overweight, acceptable weight and under weight were 2%, 22%, 66% and 10%, respectively. Ninety per cent of these girls had less than recommended daily allowances (RDA) of calories, while only 10% had the RDA or more of calories. The study revealed that 70% of the fifty girls failed to gain their recommended amounts of proteins, while 30% took the recommendation. On the other hand, 88% failed to fulfill the recommended amount of carbohydrate, whereeas 12% of them had the recommended amount or even more. Girls took more than recommended amount of fibers were 2%, and those who took less than recommendation were 98%. The percentage of girls took less than the RDA of "B_1", "B_2" and "C" were 94, 90 and 86%, respectively, while those who took more than the recommendation were 6%, 10% and 14%, respectively. The results showed that girls took less than the recommended amount of Ca, Iron and Vitamin "D" were 100%, 72% and 86%, respectively, and those took more than the recommendation were zero %, 28% and 14%, respectively. Most of the girls families had low income and big family size, and this was reflected passively on their nutrition status.

INTRODUCTION

Adolescence is a time marked by a dramatic increase in growth and changes in body composition. Increased growth rates occur in girls between 10 and 12 years of age and in boys approximately 2 years later (Comittee on Nutrition, 1985). Adolescence could be classified into three groups, the first one called preadolescence and it is from 10-12 years, the second stage called early adolescence and it is from 13-16 years, the last stage called late adolescence starting from 17 till 21 years (Fahmy,). In females, body fat increased during this time, and in males, lean body mass and blood volume increased. In order to support the rapid growth, higher intakes of energy and nutrient were required (Gerlach, 1990).

Despite increased needs, adolescence is a time marked by irregular dietary patterns. Adolescents tend to skip meals, especially breakfast and lunch, snack heavily and eat many of their meals away from home (National Dairy Council, 1987). In addition, some adolescents are subject to high-risk nutrition conditions, such as athletics, eating disorders, alcohol and drug abuse and pregnancy (Story and Blum, 1988). Obesity in adolescence is increasing in prevalence as are anorexia nervosa and bulimia (Palla and Litt, 1988). The need for nutrition education directed to adolescents is becoming increasingly apparent. Todays teens have taken more responsibility for grocery shopping and meal preparation than in past years. The trend is

attributed to the influence of four factors: working mothers, single-parent households, dual-income households and smaller families (Jaluvka, 1988).

Because many North American girls between 15 and 19 years of age are married, this case can be compared with adolescent girls in Assiut governorate Egypt, the possibility that girls will bear a child before they were fully matured was a reason to focus special attention on her nutritional status, and because studies show that young girls who were concerned about their health were emotionally stable, conformed to social expectation, and came from home characterized by good family relationships made better food choices than did those motivated by considerations of groups status, sociability, independence from parental control, or enjoyment of eating (Guthrie, 1986).

Therefore this work was planned to investigate the nutritional status of the adolescence girls in Assiut governorate as affected by socioeconomic condition.

METHODS OF THE STUDY

This study had been done on 50 girls, their ages ranged from 18 to 21 years old. These girls were chosen randomly, some of them lived in Assiut city and others in Assiut villages, These girls had different economic and social life. The researcher collected the data through, face to face interviews and through using a structured questionnaire. During face to face interviews, weight, height and age of each girl were registered.

Three types of questionnaires were used, the first one for personal knowledge about nutrition and some food habits like drinking milk, soft drink and snack foods. The second about their fathers and mothers level of education and the families income, while the third was about the 24 hours food recall for 3 days. Then by the use of food composition tables for Egypt (Nutrition Institute, 1996), calories, proteins, fats, carbohydrates (CHO) minerals and vitamin were calculated on the average of 3 days. The recommended calories (R) were obtained from the table of energy requirements of women FAO/WHO for moderately active women cited after Abdo-Elkader, (2001). The ideal body weight was obtained from the table of ideal weight for heights (Abdo-Elkader, 2001). The recommended protein was calculated as 10% of recommended calories, the recommended fat was calculated as 30% according to recommendation of the dietary guidelines for Americans which limit fat to 30% or less of total calories (Dudek, 2001). The recommended CHO was calculated as 60% of recommended energy (Dudek, 2001 & Abdo-Elkader, 2001). The differences between the intake (I) and recommended (R) of all the nutrient were calculated and would be discussed in the results and discussion. The body mass index (BMI) of each girl was calculated by the following formula.

BMI = weight (kg) / height squared (m), then the following guideline were used to know whether the girls weight was acceptable or overweight or under weight (Dudek, 2001).

	Women
Morbidly obese	> 44.7
Severely over weight	>32.3
Over weight	>27.2
Acceptable weight	19.1 - 27.3
Under weight	<19.1

RESULTS AND DISCUSSION

1- Weights, heights and BMI:

Table (1) described the (BMI), the heights, the actual and the ideal body weights for adolescent girls in Assiut governorate. Using the guideline of BMI, table (1) showed that the percentage of girls having severely over weight were 2%, those having over weight were 22%, while those having acceptable weight were 66% and those having under weight were 10%. Studies in USA indicated that 30% to 35% of teenagers were over weight, although only 3% to 20% were actually obese. Many teenagers, especially girls, were either fat, believed they were fat, or were fearful of becoming fat. Because they often try to emulate fashion models, girls often aspire to an unrealistic and unhealthy body size. Thus they embarked on self-directed programs of weight reduction that could easily be hazardous to health. Inadequate intakes of nutrients at a time when these young people still have high nutrient demands for growth, and when they should accumulate reserves for the weight reduction was carried out intermittently, with a period of weights loss followed by one of weight gain (Mahan and Rees, 1984 and Dietz, 1985).

2- Energy needs:

Table (2) demonstrated that the percentage of girls that took more than the recommended energy as the table of energy requirement of moderately active women suggested by Abdo-Elkader, (2001) was 10%, whereas those girls who took less
than recommended energy was 90%. Girls in the adolescence stage need more energy than any other life stage this eranged between 1500 to 3000 K cal/day (Misaker, 1997).

Energy requirements of women, FAO/WHO table, relate energy needed to the body weight and activity but Hegsted (1984) wentioned that it might not always be possible to predict energy needs from body size and activity, and pointed out that the evidence of a high degree of adaptation occurred when energy supplies are limited.

3- *Protein*:

Table (3) shows the intake, the recommended amount of protein and the difference between them for the adolescent girls in Assiut governorate. Recommended protein was calculated as 10% of recommended total calories (Dudek, 2001). This table estimated that 70% of the girls under study took less than the recommended protein and 30% of those girls took more than the recommended protein.

As mentioned before the protein recommended dietary Allowance (RDA) for a healthy adult is 0.8 gm/kg which is approximately 10% of recommended total calories. This protein allowance is derived from absolute minimal requirement needed to maintain nitrogen balance plus an additional factor to account for individual variations and the mixed quality of proteins typically consumed. This allowance is also based on the assumption that calories intake are adequate, however, in this study, table (2) showe that 90% of girls failed to take their recommended amounts of energy and also a high percentage of them failed to cover the RDA of protein.

Table 1: The body mass index (BMI), the heights, the actual and the ideal body for adolescent girls in Assiut governorate.

Case	Height (cm)	Actual B.W./ kg	Ideal B.W/kg[1]	BMI[2]	Type of weight according to BMI	Case	Height (cm)	Actual B.W./ kg	Ideal B.W/kg	BMI	Type of weight according to BMI
1	162	95	57.6	36.1	Severely overweight	26	154	63	52.5	26.6	Acceptable weight
2	160	71	56.2	27.7	Overweight	27	159	57	55.5	22.5	Acceptable weight
3	153	67	52.0	28.6	Overweight	28	152	48	51.5	20.8	Acceptable weight
4	166	65	60.1	23.6	Acceptable weight	29	162	63	57.6	24	Over weight
5	155	51	53.1	21.2	Acceptable weight	30	165	76	59.5	27.9	Over weight
6	154	65	52.5	27.4	Over weight	31	158	80	54.9	32.0	Over weight
7	157	49	54.3	19.9	Acceptable weight	32	152	51	51.5	22.1	Acceptable weight
8	159	67	55.5	26.5	Acceptable weight	33	164	50	58.9	18.6	Under weight
9	161	60	56.9	25.8	Acceptable weight	34	150	43	50.4	19.1	Acceptable weight
10	158	74	54.9	29.6	Overweight	35	168	72	61.4	25.5	Acceptable weight
11	156	46	53.7	18.9	Underweight	36	146	51	49.1	23.9	Acceptable weight
12	161	63	56.9	24.3	Acceptable weight	37	160	52	56.2	20.3	Acceptable weight
13	170	64	62.5	22.1	Acceptable weight	38	154	55	52.5	23.2	Acceptable weight
14	167	66	60.7	23.7	Acceptable weight	39	159	56	55.5	22.2	Acceptable weight
15	150	66	50.4	29 3	Overweight	40	154	64	52.5	26.9	Acceptable weight
16	159	55	55.5	21.8	Acceptable weight	41	165	52	59.5	19.1	Acceptable weight
17	173	68	63.6	22.7	Acceptable weight	42	165	82	59.5	30.1	Over weight
18	154	63	52.5	26.6	Acceptable weight	43	150	56	50.4	24.9	Acceptable weight
19	159	47	55.5	18 6	Underweight	44	149	42	50.1	18.9	Under weight
20	158	54	54.9	21.6	Acceptable weight	45	165	55	59.5	20.2	Acceptable weight
21	150	47	50.4	20.9	Acceptable weight	46	152	50	51.5	21.6	Acceptable weight
22	152	42	51.5	18.2	Underweight	47	159	78	55.5	30.9	Over weight
23	165	61	59 5	22.4	Acceptable weight	48	152	50	51.5	21.6	Acceptable weight
24	160	66	56.2	25.8	Acceptable weight	49	152	46	51.5	19.9	Acceptable weight
25	166	82	60.1	29 8	Overweight	50	157	55	54.3	22.3	Acceptable weight

(1) Ideal B.W. = Ideal Body Weight, Table weight for height (females).
(2) BMI = Body Mass Index. cited after (Dudek, 2001).

Table 2: The intake, the recommended energy and the differences between them for the adolescent girls in Assiut governorate.

Case	Intake energy/Kcal "I"	Recommended Energy/Kcal "R"	(I-R)/Kcal	Case	Intake energy/Kcal "I"	Recommended Energy/Kcal "R"	(I-R)/Kcal
1	1175	2304	-1129	26	1576	2100	-524
2	1409	2248	-839	27	2153	2220	-67
3	1109	2080	-971	28	1929	2060	-131
4	1236	2404	-1168	29	1129	2304	-1175
5	1462	2124	-662	30	1629	2124	-495
6	1879	2100	-221	31	2135	2196	-61
7	2247	2172	+75	32	2229	2060	+169
8	1660	2220	-560	33	1574	2356	-782
9	1265	2276	-1011	34	1397	2016	-619
10	1248	2196	-948	35	1500	2456	-956
11	1840	2148	-308	36	2287	1964	+323
12	1780	2276	-496	37	2266	2248	+18
13	1606	2500	-894	38	1563	2100	+537
14	2230	2428	-198	39	1613	2220	-607
15	1192	2016	-824	40	1723	2100	-377
16	1141	2220	-1079	41	1311	2380	-1069
17	2481	2544	-63	42	1397	2196	-799
18	1618	2100	-482	43	1584	2016	-432
19	1643	2220	-577	44	1916	2004	-88
20	1910	2196	-286	45	1702	2142	-440
21	1310	2016	-706	46	940	2060	-1120
22	1724	2060	-336	47	1431	2220	-629
23	1992	2380	-423	48	1396	2060	-664
24	1825	2248	-600	49	1474	2060	-586
25	1804	2404	-600	50	2290	2172	+118

I= Intake energy/Kcal = The mean for three days of 24 hours food recall.
R= Recommended energy Kcal = Obtained from energy requirements of women, FAO/WHO "Moderately Active".

Table 3: The intake, the recommended protein and the difference between them for the adolescent girls in Assiut governorate.

Case	Intake protein/gm (I)	*Recommended protein/gm (R)	(I-R)/gm	Case	Intake protein/gm (I)	Recommended protein/gm (R)	(I-R)/gm
1	51	57.6	-6.6	26	55	52.5	+2.5
2	28	56.2	-28.2	27	45	55.5	-10.5
3	44 6	52.0	-7.4	28	61	51.5	+9.5
4	41	60.1	-19.1	29	49	57.6	-8.6
5	64	53.1	+10.9	30	41	59.5	-18.5
6	64	52.5	+11.5	31	51	54.9	-39
7	92	54.3	+37.7	32	63	51.5	+11.5
8	48	55.5	-7 5	33	55	58.9	-3.9
9	42	56.9	-14.9	34	33	50.4	-17.4
10	36	54 9	-18.9	35	35	61.4	-26.4
11	68	53.7	+14.3	36	67	49.1	+17.9
12	48	56.9	-8.9	37	58	56.2	+1.8
13	43	62.5	-19.5	38	44	52.5	-8.5
14	66	60.7	+5.3	39	46	55.5	-9.5
15	22	50.4	-28.4	40	50	52.5	-2.5
16	30	55.5	-25.5	41	36	59.5	-23.5
17	67	63.6	+3.4	42	31	59.5	-28.5
18	52	52.5	-0.5	43	41	50.4	-9.5
19	46	55.5	-9.5	44	52	50.1	+1.9
20	55	54.9	+0.1	45	48	59.5	-11:5
21	39	50 4	-11.4	46	27	51.5	-24.5
22	33	51 5	-18.5	47	55	55.5	-0.5
23	55	59.5	-4.5	48	38	51 5	-13.5
24	48	56 2	-8.2	49	58	51 5	+6.5
25	57	60.1	-3 1	50	69	54 3	+14.7

Recommended protein = 10% of recommended total calories (Dudek, 2001).

Although protein is very important, the National Academy of Sciences Committee on Diet and Health recommends the protein intake not exceed twice the RDA, or 1.6 g/kg of body weight for adults (National Research Council, 1989). High protein intakes are associated with increased urinary excretion of calcium, which may contribute to the risk of osteoporosis. High protein intake also burdens the kidneys to excrete nitrogen, which may play a role in the loss of renal function that occurs with aging. Finally, high intakes of animal proteins are linked to atherosclerosis and colon and prostate cancer (Dudek, 2001).

In the average American diet, protein provides 16% to 17% of total calories consumed (American Dietetic Association, 1993). According to data from the continuing survey of food intakes by individuals (Subar *et al.*, 1998), from 1989-1991, the top five sources of protein in the American diets, were beef, poultry, milk, yeast bread, and cheese, however, in this study the major source of protein are yeast bread and vegetable protein which is low value protein.

4- Fat:

Table (4) indicated that the percentage of girls that took more fat than recommended "calculated as 30% of recommended calories, (Dudek, 2001) was 12%, and those who took less fat than recommended amounts was 88%. The average American adult consumes 33% of calories from fat (Subar *et al.*, 1998). Aside from the need for a dietary source of linoleic acid, humanbeings do not require fat. A diet providing 2% of kilocalories from linoleic acid meets this requirement. Fat is a concentrated source of energy and, therefore, allows us to meet energy requirements without eating large quantities of food. A recommend of the Dietary Guidelines for American, consistent with advice from the American Heart Association, the National Cholesterol Education program, the U.S. surgeon General, the American Cancer Society, and the American Diabetes Association, suggest that the consumers "choose a diet low in fat,saturated fat,and cholesterol and moderate in total fat(Dudek, 2001).

Today, health promotion has more to do with avoiding chronic disease, than with avoiding nutrient deficiencies. Fat more than any other nutrient, is singled out as public health enemy based on the overwhelming evidence that high-fat diets increase the risk of certain chronic diseases namely, cardiovascular disease, certain cancer, obesity, hypertension, insulin resistance, and gallbladder disease. Independently, obesity increases the risk of type 2 diabetes, several types of cancer, and heart disease (Kris-Etherton and Burns, 1998; American Cancer Society, 1996; Ravussin and Tataranni, 1997; International Food Information Council, 1998; Kuller, 1997 and Masley, 1998).

5- Carbohydrate (CHO):

Table (5) show that the percentage of the adolescent girls in Assiut governorate that took equal or more than recommended CHO was 12% and those who took less than the recommended amounts was 88% (The recommended amount calculated as 60% of total calories) (Dudek, 2001).

Because the body can make glucose from protein and from fat, a (RDA) for CHO has not been set.

Table 4: The intake, the recommended fat and the difference between them for the adolescent girls in Assiut governorate.

Case	Intake fat/gm (I)	*Recommended fat/gm (R)	(I-R)/gm	Case	Intake fat/gm (I)	Recommended fat/gm (R)	(I-R)/gm
1	37.8	76.8	-39	26	52	70	-18
2	45.4	74.9	-29 5	27	68	74	-6
3	36.7	69.3	-32.6	28	63	68.7	-5 7
4	43.5	80 1	-36.6	29	45	76.8	31.8
5	39.7	70.8	-31 1	30	66	70.8	-48
6	57	70	-13	31	59	73.2	-14.2
7	59 6	72.4	-12.8	32	63	68.7	-5.7
8	61	74	-13	33	56	78.5	-22.5
9	40	75.9	-35.9	34	40.5	67.6	-27.1
10	47.3	73.2	-25.9	35	54.6	81.8	-27 2
11	76	71.6	+4.4	36	67	65.5	+15
12	68	75.9	-7.9	37	67	74.9	-7.9
13	59	83.3	-24.3	38	40	70	-30
14	83.4	80.9	+2.5	39	43	74	-31
15	41	67 6	-26.6	40	27.5	70	-46.5
16	45	74	-29	41	47	79.3	-32.3
17	92	84 8	+7.2	42	53.6	73.2	-19.6
18	69	70	-1	43	41	67.2	-26.2
19	53	74	-21	44	56.6	66.8	-10.2
20	60 8	73.2	-12.4	45	41.4	71.4	-30
21	66	67.2	-1 2	46	48	68.7	-20.7
22	72	68.7	+3.3	47	56.5	74	-17.5
23	65 6	79.3	-13.7	48	36	68.7	-32 7
24	76	74.9	+1 1	49	53	68.7	-15.7
25	57	80.1	-23 1	50	62	72.4	-10 4

Recommended of the dietary Guidelines for Americans limit fat to 30% or less total calories (Dudek, 2001).

Table 5: The differences between the intake and the recommended carbohydrate and fiber for adolescent girls in Assiut governorate.

Case	Intake CHO* /gm (I)	Recommended CHO**/gm (R)	(I-R) CHO/gm	Intake fiber/gm (I')	(I'-R') fiber/gm	Case	Intake CHO/gm (I)	Recommended CHO/gm (R)	(I-R) CHO/gm	Intake fiber/gm (I')	(I'-R') fiber/gm
1	158	345 6	-187 6	2 0	-18.0	26	221 6	315.0	-93 4	3 4	-16.6
2	213 3	337 2	-123 9	3 7	-16.3	27	328.7	333 0	-6 3	16 8	-3 2
3	150 0	312 0	-162	2 3	-17 7	28	263 7	309	-45 3	10 8	-9 2
4	168	360 6	-192 6	1 2	-18.7	29	131 6	345 6	-214	3 3	-16 7
5	212	318 6	-106 6	9 2	-10 8	30	207	318 6	-111 6	3 7	-16 3
6	227	315 0	-38	4 0	-16	31	350	329 4	+20 6	12 7	-7 3
7	322	325 8	-3 8	6 3	-13 7	32	315 8	309	+68	4 8	-15 2
8	230	333 0	-103	7 4	-12 6	33	227.3	353 4	-126 1	5 4	-14 6
9	184	341 4	-157 4	3 0	-17 0	34	225.5	302 4	-76 9	4 6	-15 4
10	170	329 4	-159 4	3 1	-16 9	35	217 4	368 4	-151	4 3	-15.7
11	256	322 2	-66 2	4 3	-15 7	36	228 8	294 6	-65 8	7 0	-13
12	244	341 4	-97 4	7 1	-12 9	37	357 3	337 2	+20 1	11 8	-8 2
13	266 6	375 0	-148 4	6 7	-12 3	38	257 6	315	-57 4	3 4	-16 6
14	304	364 2	-60 2	8 2	-11 8	39	250	333	-8 3	20 2	+0 2
15	182	302 4	-120 4	3 4	-16 6	40	318 8	315	+3 8	5 9	-14 1
16	154 3	333 0	-178.7	2 2	-17 8	41	185 5	357	-171 5	5 3	-14 7
17	346 5	381 6	-35.1	3 2	-16 8	42	198	329.4	-131 4	4 1	-15.9
18	197 3	315 0	-117 7	4 2	-15 8	43	267	302 4	-35 4	12 1	-7 9
19	245 3	333 0	-87.7	3 5	-16 5	44	300	300.0	0	6 0	-14
20	285 6	329 4	-43 8	6 5	-13.5	45	285	321 3	-36 3	5 5	-14 5
21	237	302 4	-65 4	6 0	-14	46	141 6	309	-167 4	1 6	-18 4
22	215	309 0	-94	9 5	-10 5	47	176	333	-157	9 7	-10 3
23	295	357 0	-62	6 1	-13 9	48	229 7	309	-79 3	4 7	-15 3
24	236 6	337 2	-100 6	6 0	-14	49	213 7	309	-95 3	5 3	-14 7
25	265	360 6	-95 6	3 3	-16 7	50	263 8	325 8	+38	5 7	-14 3

* I = Intake carbohydrate = the mean of three days 24 hour food recall.

** R= Recommended carbohydrate = 60% of recommended energy (Dudek, 2001).

I' = Intake fiber = The mean of three days 24 hour food recall.

R' = Recommended fiber which is from 20-35 gm daily or 10-13 gm/1000 cal (Dudek, 2001).

The percentage of girls that cover the recommendation or took more of "B_1", "B_2" and "C" were 6%, 10% and 14%, respectively, and those fail to fulfill the recommended amounts of "B_1", "B_2" and "C" were 94%, 90% and 86% respectively. It is clear that those girls did not take care of the food which provide them with vitamins.

The RDA for thiamin is based on 0.5 mg for every 1000 kilocalories in the diet. A minimal intake of 1.0 mg per day is recommended even when energy intake is less than 2000 calories per day (Smolin and Grosvenor, 1997).

As with thiamin, energy intake affects the need for riboflavin. The RDA for "B_2" is based on 0.6 mg per 1000 calories. An intake of at least 1.2 mg/day is recommended for those who consumed fewer than 2000 calories. Two cups of milk provide about half the amount of riboflavin recommended for typical individual, the recommended intake can be met without milk if the daily diet includes 2-3 serving of meat and 4-5 servings of enriched grain and high-riboflavin vegetables such as spinach. If a balanced diet adequate in energy is consumed, vitamin "B_2" requirement will be covered without supplements (American Dietetic Association and Canadian Dietetic Association, 1993).

The new RDA for vitamin "C" is set at 90 mg/d for adult men and 75 mg/d for adult women. Vitamin "C" prevents scurvy by promoting the formation of collagen, the most abundant protein fibrous tissues such as connective tissue, cartilage, bone matrix, tooth dentin, skin and tendon. Without adequate vitamin C the intergrity of collagen is compromised; muscle degenerate, weakened bones break, wounds fail to heal, teeth are lost, and infection occurs. Hemorrhaging begins as pinpoints under the skin and progresses to massive internal bleeding and death. Even though scurvy is deadly, it can be cured within a matter of days with moderate doses of vitamin "C" (Dudek, 2001).

7. Vitamin D, calcium and iron:

Table 7 indicated that girls took less than the RDA's of vitamin D, "Ca" and "Fe" were 86%, 100% and 72%; respectively, and those who took the recommended amounts of vitamin "D", "Ca" and "Fe" were 14%, zero % and 28%; respectively.

During growth spurts more calcium is absorbed than lost. Therefore, adequate calcium intake in childhood and adolescence is critical for bone building. Calcium and vitamin "D" together with exercise, minimize bone loss after the age of 35. Calcium absorption requires the hormone calcitriol, formed from vitamin D. An estimated 100 million Americans risk calcium deficiency. They include women, especially those who either avoid milk or are postmenopausal or are pregnant. The average adult male obtains 75% of the calcium RDA; the average female, 50%. An estimated 87% of adolescent women and 84% of women between the ages of 35 and 50 are calcium deficient (Ronzio, 1977).

Table 7: The differences between the intake and the recommended amounts of calcium, iron and vit. D for adolescent girls in Assiut governorate.

Case	(I-R*)[1] Ca/mg	(I-R*)[2] Fe/mg	(I-R*)[3] D/mg	Case	(I-R*)[1] Ca/mg	(I-R*)[2] Fe/mg	(I-R*)[3] D/mg
1	-646	-6 6	+6 1	26	-614 3	-4.4	-3 6
2	-842 2	-9	-3.8	27	-640 2	+2 2	-2 6
3	-801	-6 7	+8 3	28	-488 5	-1 2	-3 1
4	-801 1	-9 4	-4 6	29	-599.5	-5 9	-3 8
5	-643 3	-4	-26	30	-651 7	-4 1	-3 7
6	-752 1	-1 4	+0.4	31	-625.8	-4 8	-4 6
7	-62 7	+5	-2 8	32	-744.3	-3 9	-4 5
8	-793 7	-9.6	+0 7	33	-171.9	+2 2	-3 7
9	-566 3	-7	-4 9	34	-848.3	-5	-4 5
10	-845 1	+0.8	-4 1	35	-784.3	+0 9	-4 2
11	-659 1	+1.6	-3 9	36	-463.3	-2 5	-4 5
12	-816 1	+4 5	-4 1	37	-625.3	+0 1	-2 6
13	-816 2	-9	+0 3	38	-773.8	-6 7	-4 5
14	-766 3	-3	-4.3	39	-230.5	0	+3 5
15	-885 4	-7 5	-4 4	40	-756.3	+3.9	-4.7
16	-784 7	-7 4	-3 4	41	-842.2	-3 4	-4 5
17	-614 6	-6 3	-4 2	42	-837 9	-8 2	-4 4
18	-773 4	-5 3	-4 1	43	-669.6	-2 8	-4 6
19	-802 1	+0 1	-2 5	44	-657.9	-4 5	-4 8
20	-566 9	+1 4	-4 3	45	-765.8	-3.5	-4 5
21	-707 6	+3 9	-4	46	-497	-8 8	+6.9
22	-891 1	-6 3	-3.7	47	-489 7	-4 4	-4 2
23	-775 7	-2 0	-4	48	-982.6	-5	-4 8
24	-678 6	-1 4	-4.1	49	-603.8	+3 2	-4 9
25	-410	-2 9	-1.6	50	-644	+3 8	-3 8

(1) (I-R)Ca/mg = The intake - recommended amount of calcium. The recommended daily amount of calcium for females (19-30 years) = 1000 mg/d
(2) (I-R)Fe./mg = the intake - recommended amount of iron. The recommended daily amount of female adolescent = (14-28) mg/d
(3) (I-R)/D/mg = the intake - recommended amount of vitamin D. The recommended daily amount of vit. D for females (19-30 years) = 5 µgm.
* R= Recommended daily dietary allowances obtained from table of National Academy of Science (c) 2000.

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تقييم الحالة الغذائية للفتيات المراهقات وعلاقتها بالحالة الاجتماعية والاقتصادية في محافظة أسيوط "مصر"

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الهدف من هذه الدراسة هو تقييم الحالة الغذائية للفتيات المراهقات بمحافظة أسيوط وعلاقتها بالحالة الإجتماعية والاقتصادية . شملت الدراسة ٥٠ فتاة من أسر مختلفة فى المستوى الاجتماعى والاقتصادى .

وقد أظهرت الدراسة أن نسبة الفتيات ذوات الوزن الزائد جدا والوزن الزائد والوزن المقبول والوزن أقل من المقبول هن على الترتيب ٢% ، ٢٢% ، ٦٦% و ١٠% .

وتشير الدراسة أيضا أن ٩٠% من هؤلاء الفتيات لم يحصلن على الاحتياجات المثالية من الطاقة وحصلت ١٠% منهن فقط على هذه الاحتياجات .

أوضحت الدراسة أن ٣٠% من الفتيات حصلن على الاحتياجات اليومية المثالية من البروتين بينما فشلت ٧٠% منهن فى الحصول على المقررات اليومية من البروتين .

ومن جهة أخرى لم يتمكن ٨٨% منهن من الحصول على الاحتياجات اليومية من الدهون بينما حصلت ١٢% من هؤلاء الفتيات على الاحتياجات اليومية من الدهون . وحصلت ٨٨% من الفتيات على المقررات اليومية من الكربوهيدرات وفشلت ١٢% منهن أيضا فى الحصول على احتياجاتهن من الكربوهيدرات .

كشفت الدراسة أيضا أن ٢% فقط من الفتيات حصلن على المقررات المقترحة من الألياف ولم تحصل ٩٨% منهن على هذه المقررات .

وكانت نسبة الفتيات اللائى لم تحصلن على المقررت اليومية من فيتامين "ب١" ، "ب٢" وفيتامين "ج" هن ٩٤% ، ٩٠% وكذلك ٨٦% على الترتيب واللائى حصلن على كميات زائدة من هذه الفيتامينات هن ٦% ، ١٠% ، ١٤% على الترتيب ايضا .

أوضحت نتائج هذه الدراسة أن الفتيات اللائى لم تحصلن على الكميات المقررة اليومية من الكالسيوم والحديد وكذلك فيتامين "د" هن ١٠٠% ، ٧٢% و ٨٦% على الترتيب واللائى حصلن على المقررات أو زيادة هن صفر % ، ٢٨% و ١٤% على الترتيب .

وأخيرا فإن الدراسة أظهرت أن معظم عائلات هؤلاء الفتيات ذوات دخل منخفض وكذلك فإن عدد أفراد الأسرة كبير مما إنعكس انعكاسا سلبا على الحالة الغذائية لهؤلاء الفتيات محل الدراسة .