Assessment of Eating Habits of Adolescents Body Mass Index Percentile at Secondary School in Najaf Governorate

Haidar Fadhil Abbas[1], Zainab Neamat Jumaah[2], Mansour Abdullah Falah[3]

[1]Assistant Lecturer, College of Nursing, University of Kufa, Iraq, [2]Assistant Lecturer, College of Nursing, University of Kufa, Iraq, [3]Assis Prof, College of Nursing, University of Kufa, Iraq

Abstract

Objective: to assess and find out association between the eating habits and adolescents BMI percentile at secondary school.

Methodology: A cross-sectional study was carried out among 537 adolescents (270 boys and 267 girls) aged 12-15 years selected by means of a multistage stratified random sampling technique.

Results: according to the body mass index; underweight was (6.7), normal weight was (61.5), overweight was (9.5) and obesity was (22.3). (75%) of adolescents have a healthy eating habits while more than two third of adolescents do not consumed fruits and vegetables.

Recommendation: Intervention programs focusing on promoting changes in lifestyles, food habits and increasing physical activity need to be implemented at the earliest stage of children life.

Key words: *Eating Habits, Adolescents, and Body Mass Index.*

Introduction

The term adolescence is transitional period between childhood and adulthood. It is the end of childhood and is characterized by dramatic changes of all aspects of physical, biological, cognitive, social and emotional maturating. Adolescence marks of the end of childhood and is characterized by physical, psychological, social and emotional changes. It is a critical period of great stress. (1) Adolescents are a nutritionally vulnerable group, because they need high requirements of nutrition for growth and maturation. The change in the life of adolescents and they need to achieve their identity, the eating pattern and life style influenced by the environment and the peer group. Inadequate nutrition or unhealthy nutrition of adolescents leads to health problems. (2) Adolescence is an intense anabolic period when requirements for all nutrients increase. During adolescence, 20% of final adult height and 50% of adult weight are attained, bone mass increases of 45% and dramatic bone remodeling occur and soft tissues, organs, and even red blood cell mass increase in size. (3) The term eating habits (or food habits) refers to why and how people eat, which foods they eat, and with whom they eat, as well as the ways people obtain, store, use, and discard food. Individual, social, cultural, religious, economic, environmental, and political factors all influence people's eating habits. (4) Several facets of eating habits are different and more pronounced in adolescents than in other people and each might cause concern in older generation: skipping meals especially breakfast, eating snacks "empty calories", late night snacks, fast food, wow level of some nutrients (calcium and iron), unconventional meals, sweetened beverages and low consumed of milk dairy product and fruits and vegetables. (5)

Methodology

Subjects: The study population included Iraqi nationals, male and female students, aged 12 to 15 years. A representative sample of these adolescents (537 students, 270 boys and 267 girls) was selected from schools in Najaf city by using the proportional stratified sampling. From each school (20%) of the total number of students were randomly selected by interval number. The obese adolescents' number was 120 out of the total

study sample.

Anthropometric measurements:

The weight is measured for each adolescent participant in the study. It is measured without shoes and light clothes as possible. The investigator used weight scale which is highly reliable and borrowed from the Iraqi Nutrition Research Institute made by (Seca Company, Australia), weight scale is a gift from the United Nation Children′s Fund (UNICEF) and has a capacity of (188.8) kg.

Before use the scale, the investigator is checking the scale daily by weight a standard weight. During weighting, the scale was placed on a hard-floor surface, and each participant was stand still in the center of the platform of the scale with the body weight evenly distributed between both feet.

The height of adolescents is measured without shoes by using measuring tape of height two meters (UNICEF tape measure) it is already reliable. The individual should stand on a flat surface with weight distributed evenly on both feet, heals together and the head upward. The arms are hanging freely to the sides, and the head, back, buttocks and heal are against the wall with the knee fully extended and line of vision parallel to floor.[6] According to the Dietary Guidelines for Americans 2010, body mass index is a measure of weight in kilograms (kg) relative to height in meters squared. Body mass index status categories include underweight, healthy weight, overweight, and obese.

Underweight: < 5th percentile of BMI for age

Normal weight: 5th to < 85th percentile of BMI for age

Overweight: 85th to < 95th percentile of BMI for age

Obese: ≥95th percentile of BMI for age. [7]

BMI was calculated by scientific application program (WHO AnthroPlus) which obtained from Iraqi Nutrition Research Institute.

Questionnaire:

The sociodemographic data sheet, consisted of (12) items categorized as general information (adolescents age and gender) and socioeconomic data (parents level of education, parents occupation status, type of family, total number of family, number of rooms, house area, house content and car possession).

Eating habits questionnaire was adopted from food frequency questionnaire to assess the eating habits of obese adolescents. It was composed of (67) items which were grouped and concerned with daily main meals, snack meals, dairy food, eggs and meat, bread cereal and starch, fruits, vegetables, sweet backed food and miscellaneous beverages. [8]

A statistical analysis was performed using the Microsoft office excel 2007 and SPSS package (version 16). Chi- square statistics were used to determine the presence of an association between the variables.

Results

Table 1: Distribution of the Study Sample by their General Information

Variables		No.	%
Gender	Male	270	50.3
	Female	267	49.7
Age (years)	12	79	14.7
	13	183	34.1
	14	145	27
	15	130	24.2
SESS	High	40	7.4
	Middle	416	77.5
	Low	81	15.1

No. = number, % = percentile, SESS = Socio-economic Status Score

Table (1) shows that (50.3%) of the adolescents pupils is male, (34.1%) their age is 13 years old, and (77.5%) of them coming from middle level of socio economic status score.

Table 2: Distribution of the Study Sample by their Overall Measurement through Body Mass Index Percentile Results

BMI percentile	No.	%
Underweight (<5th Percentile)	36	6.7
Normal (5th -84th Percentile)	330	61.5
Overweight (85th -94th Percentile)	51	9.5
Obesity (=>95th Percentile)	120	22.3
Total	537	100%

No. = number, % = percentile

Table (2) shows that (61.5%) is normal weight from the total study sample.

Table 3: Distribution of the Adolescents BMI Eating Habits

Eating Habits		BMI				Total %	Chi Square
		Under Weight %	Normal Weight %	Over Weight %	Obesity %		
meals and Snacks Score	Unhealthy	0.93	6.33	2.42	4.09	32.4	χ^2=11.33 sig=0.01*
	healthy	5.77	55.12	7.07	18.25	57.6	
Fast Food Score	Unhealthy	0.93	11.55	1.49	3.17	17.13	χ^2=1.722 sig=0.632
	healthy	5.77	49,9	8.01	19,18	82.87	
Meat and Eggs Score	Unhealthy	0.56	12.1	2.61	5.77	21.04	χ^2=6.778 sig=0.079
	healthy	6.15	49.35	6.89	18.25	78.96	
Bread, Cereal and Starch Score	Unhealthy	1.3	17.13	3.35	7.82	29.61	χ^2=4.723 sig=0.193
	healthy	5.4	44.32	6.15	14.53	70.39	
Milk Dairy Food Score	Unhealthy	2.79	24.58	5.03	10.43	43	χ^2=3.950 sig=0.267
	healthy	3.91	36.87	4.47	11.92	57	

Cont... **Table 3: Distribution of the Adolescents BMI Eating Habits**

Fruits Score	Unhealthy	3.91	42.64	6.33	16	68.9	χ^2=2.461 sig=0.482
	healthy	2.79	18.81	3.17	6.33	31.1	
Vegetables Score	Unhealthy	4.66	48.23	7.82	16	76.72	χ^2=4.265 sig=0.234
	healthy	2.05	13.22	1.68	6.33	23.28	
Miscellaneous and Candies Score	Unhealthy	2.98	25.14	3.17	7.26	38.55	χ^2=3.743 sig=0.291
	healthy	3.72	36.3	6.33	15.08	61.45	
Funny drinks	Unhealthy	3.17	24.6	3.35	11.36	42.46	χ^2=0.942 sig=0.815
	healthy	3.54	36.88	6.15	10.99	57.54	

Cont. table (3)

Total Score Eating Habits	Unhealthy	0.75	16.01	2.98	5.59	25.33	χ^2=4.933 sig=0.177
	healthy	5.96	45.44	6.52	16.76	74.67	

%= percentage P= probability level, χ^2 = Chi-square, Sig = significant, * = significant at p-value ≤ 0.05

Table (3) shows that adolescents in all weight status have a healthy eating meals and snacks, more of them not eating fast foods, more of them healthy eating meat, eggs, milk dairy food and (Bread, Cereal and Starch) during the week, more than half of adolescents from all weight status have do not consume fruits and vegetables, miscellaneous and candies, more than one third of normal weight and more than half of obese adolescents consumed funny drinks 4 times and more per week and three quarter of the adolescents have a healthy eating habits.

Recommendations

1. The Ministry of Health must be provided a health staff for each school to follow up adolescents' health.

2. Regular visits to schools to detect obesity and its complications.

3. Continue to research the long-term health benefits that result from eating a healthy diet.

4. Research innovative, cost effective ideas to provide nutritious snacks during the school day.

5. Place posters throughout the school showing foods rich in various nutrients.

6. Healthy food tips in the school news letter for parents.

7. Provide facilities and environment for physical exercise in the schools.

8. Educational activities and more orientation about their diet and physical exercise at early ages involving the whole family to control the excess of

weight.

9. Encourage adolescents and their families to read the list of calories on the backed foods.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Kufa and all experiments were carried out in accordance with approved guidelines.

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