

Impact of Dietary Habits Upon Nutrition-related Factors of Secondary Schools Female Students at AL- Rusafa District in Baghdad City

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Abstract- Objective(s): The present study ought to identify the impact of dietary habits upon some nutrition-related factors among secondary schools female students.

Methodology: A descriptive correlational study is conducted throughout the period from November 2nd, 2015 to September 1st, 2016. A simple random sample of (250) female students is selected throughout the use of probability sampling approach, the study sample study is selected from six female secondary schools in Al- Russafa Ddirectorate. A questionnaire is developed tthrough review of the related literature and studies in order to achieve the study objectives. The instrument Content validity of is obtained through eliciting the opinions of a panel of (12) experts and internal consistency reliability is determined by the use of split-half technique through the computation of the Cronbach alpha correlation coefficient of the scale. Data are collected through utilization of the developed questionnaire and the interview technique as means of data collection. Data are analyzed through the application of descriptive and inferential statistical data analysis approaches.

Results: The results of the study present that secondary school female students have moderately experienced their dietary habits. In the meanwhile, dietary habits do not present any significant contribution to the nutrition- related factors. So, female students cannot benefit out of their dietary habits.

Recommendations: The study recommends that nutritional education and counseling can be presented to secondary schools female students for their nutritional benefits. Further studies can be conducted to involve a national standard to assess more factors that may have impact upon the nutritional status of secondary schools female students.

I. INTRODUCTION

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 an influence people's eating habits⁽¹⁾.

Several facets of eating habits are different and more pronounced in adolescents than in other people and each might cause concern in older generation ⁽²⁾:

1. Skipping meals especially breakfast is the leading bad food habit for teenagers. According to the American Dietetic Association, two thirds of female teens do not eat breakfast on a regular basis. Breakfast is the most

important meal of the day. Eating breakfast upstart metabolism, which help with weight control, mood and school performance.

2. Eating snacks confectionary the major snack is usually in the 3mm, after school snacks tend to be high in "empty calories" fat, sugar and alcohol but some proved calcium like milk or vitamin C fruit. Late night snacks is a cause for weight gain because of sleeping after eating and make inactive metabolism, that lead to bum less calories than calories intake .
3. Fast, take away or carry out foods these provide some nutritious portions, but adolescents not choose balanced meals from what is offered. There is not enough accessible information about the nutrient composition of fast food.
4. Consumption of sugar-sweetened beverages (i.e., soda, vitamin water, sports drinks, energy drinks, Kool-Aid etc.) among adolescents has been raised dramatically and continues to replace milk and water. Health risks associated with this increased intake of sugar-sweetened beverages include excess sugar and caloric intake, which contribute to overweight, obesity and dental caries.
5. High-energy intakes: many adolescents go through 8 phases or eating more than adults do, sometimes up to 4000 Kcal per day. This seems to occur near the age of peak height velocity in girls around 12 years, but in boys may come later than the age of peak height velocity usually die 14 years. Presumably, the larger, more muscular male adolescent is expending more energy at this stage.
6. Low level of some nutrients: calcium accretion in the skeleton and adolescents need about 1300mg/day of calcium. Adolescents in the highest soft drink consumption category were found to consume less calcium (Sung and Story, 2005) Iron deficiency in adolescent girls who are menstruating, restricting their food intake. It may sometimes occur in boys too. Iron deficiency is more prevalent in overweight children but the mechanisms that underlie this condition remain unclear.
7. Adolescents watching TV and other media are eating more food kind of food that has relation with obesity. There are association

between television viewing and higher intakes of fast foods and pop, suggesting that a higher exposure to advertisements for unhealthy foods may increase intake of those foods.

8. Unconventional meals may be eaten in combinations and permutations other members of the family do not approve of, but they often add an adequate nutritional mix.
9. Female Adolescent dieters: their two aspects to this: overweight/obesity social eating. Obese adolescents are usually inactive and tend to have low socio-economic status. Dietary management should aim to hold weight constant while the young person continues to grow and so thin out. Increase exercise need to be emphasized and anorectic drugs she not be used.

There are factors that have been reported as contributors for poor eating habits among female adolescent' which include:

1. Easily available, low-cost, high-fat and/or high-sugar, foods, such as French fries, candy, chips or soda.
2. Limited access to healthy foods that appeal to teens at home when away from home.
3. Perception that healthy, low-in-fat, unprocessed nutrient-dense foods (high in nutrients compared with their caloric content) are inconvenient and lack taste. Some examples of healthy snacks include fresh fruit, whole grain bread, or low fat yogurt.
4. Lack of knowledge regarding appropriate nutrition and impact of poor nutrition.
5. Poor parental role modeling.
6. Lack of food handling, shopping, and preparation classes at School (e.g., home economics), resulting in the lack of relevant skills.
7. Increased incidence of disordered eating due to fear of getting fat, desire to appear more muscular and advertising is negative impact on body image⁽³⁾.

The healthy eating habits for teenagers have been reported as:

1. Eat three meals a day, with healthful snacks.
2. Eat balanced meals, including lean sources of protein, nuns and vegetables, whole grains and "good" fats.
3. Increase fiber in the diet and decrease the use of salt.
4. Decrease your child's sugar intake.
5. Use a healthful fat when frying or cooking and try to bake broil
6. Drink a lot of water.
7. Eat fruit or vegetables for a snack.
8. Use low-fat dairy products.
9. Decrease the use of butter and heavy gravies.
10. Reduce eating often more chicken and fish.
11. Limit processed foods.
12. Read ingredient lists. In particular. Look for the many different types of sugar, such as high fructose corn syrup maltose, dextrose, honey, molasses and others⁽⁴⁾.

The most predominant nutrition-related factors among female adolescents include female adolescents' body mass index (BMI); physical activity among female adolescents ; digestive

system disorders among female adolescents; health problems among female adolescents (i.e., diabetes mellitus, anemia, and blood pressure disorders and female adolescents reproductive system disorders)⁽⁵⁾.

In Iraq, There is no study has been evaluating the impact of secondary schools' female students dietary habits upon some nutrition-related factors. So, the present study ought to determine such evaluation.

II. METHODOLOGY

A descriptive correlational study is conducted for the purpose of identifies the impact of dietary habits upon some nutrition-related factors secondary schools female students throughout the period from November 2nd, 2015 to September 1st, 2016.

The study is conducted in (6) female secondary schools, which are distributed throughout Al-Rusafa District in Baghdad City. A simple random sample of (250) female students is selected from the early stated schools throughout the use of probability sampling approach.

Through review of the related literature and studies, a questionnaire is developed to be used as a mean of data collection (Appendix B). It consists of (3) major parts:

Part I: socio-demographic Characteristic

It is concerned with female students' characteristics of age, socio-economic stats and body mass index (BMI).

Part II: Dietary Habits

This part is composed of (23) items, scored and rated at three levels type of Likert Scale:

- (3) For **Always**
- (2) For **Sometimes**
- (1) For **Never**

The cutoff point = 2, (adequate > 2), (inadequate ≤ 2).

Part III: Nutrition- related Factors

They are comprised of the following:

1. Digestive System which is consisted of (9) items. All items are scored and rated at two levels; (1) for Yes and (0) for NO.
2. Reproductive System which is consisted of (4) items. All items are scored and rated at two levels; (1) for Yes and (0) for NO.
3. Health problems which are consisted of (4) items. All items are scored and rated at two levels; (1) for Yes and (0) for NO.
4. Daily activities which are consisted of (5) items. All of these items are scored rated at two levels; (1) for amount of time to do the following activities and (0) for NO for not doing these activities.
5. Exercise and Sports activities Which are consisted of (3) items and all items are scored and rated at two levels; (1) for amount of time to do these activities and (0) for not doing these activities.

Data are collected at the period from 1st of March 1st to April 15th 2016 through the utilization of the developed questionnaire

and the interview technique as a means of data collection. Interviews are conducted with female students in secondary schools. Each interview takes approximately (15-20) minutes.

Content validity for the early developed instrument is determined through a panel of (16) experts to investigate content clarity, relevancy, and adequacy of the questionnaire.

The internal consistency of the instrument is determined through split-half technique and the computation of Cronbach

Alpha Correlation Coefficient ($r=0.72$) which is indicating that the instrument is adequately reliable measure.

Data are analyzed through the application of descriptive statistical data analysis approach of frequency, percentage, and mean of scores; and inferential statistical data analysis approach of simple linear regression and analysis of variance (ANOVA).

III. RESULTS

Table (1): Dietary Habits among Secondary School Female Students (N=250)

List	Dietary Habits	Always	Sometimes	Never	M.S	Significance
1	Eating breakfast	89	131	30	2.24	M
2	Eating three main meals	110	126	14	2.38	H
3	Eating a full meal of meat, vegetables, and bread	86	142	22	2.26	M
4	Eating substantive meals	93	120	37	2.23	M
5	Eating nuts	92	138	20	2.29	M
6	Eating salad with every meal	79	148	23	2.22	M
7	Practicing physical exercise	56	131	63	1.97	M
8	Eating canned food	38	116	96	1.77	M
9	Eating frozen food	53	101	96	1.83	M
10	Eating pickles	118	90	42	2.30	M
11	Eating more fatty food	37	97	116	1.68	M
12	Eating sweets	128	90	32	2.38	H
13	Adding salt while eating food	114	89	47	2.27	M
14	Eating Food during watching TV or talking on the phone	92	113	45	2.19	M
15	Eating food when you are in bad mood	77	78	95	1.93	M
16	Do not eating food when you are in bad mood	77	92	81	1.98	M
17	Eating snacks even when you are not hungry	75	102	73	2.01	M
18	Eating red meat more than white meat	62	109	79	1.93	M
19	Drinking tea with sugar and other beverages	112	71	67	2.18	M
20	Drinking carbonated beverages	112	97	41	2.28	M
21	Drinking tea immediately after meals	57	81	112	1.78	M
22	Eating fast food	101	110	30	2.25	M
23	Caring about your weight and appearance	171	58	21	2.60	H
Total					2.08	M

No: Number, M.S: Mean of score, H: High (M. S=2.33-3), M: Moderate (M. S= 1.67-2.33), L: Low (M. S= 1-1.66)

This table reveals that dietary habits among secondary school female students are moderately significant (Total M. S=2.08). The mean of score is indicates moderate frequency among all dietary habits except eating three main meals, eating sweets, and caring about weight and appearance which are highly significant among female students (M. S= 2.38, 2.38 and 2.60).

**Table (2): Nutrition-Related Factors among Secondary Schools
 Female Students (N= 250)**

Nutrition-Related Factors			F	%	M.S	Sig.
Digestive System	Change in Appetite	Yes	193	77.2	0.77	H
		No	57	22.8		
	Allergy to Certain Types of Foods	Yes	135	54	0.54	M
		No	115	46		
	Loss of Taste Sense	Yes	23	9.2	0.09	L
		No	117	90.8		
	Dizziness and Fainting	Yes	68	27.2	0.27	L
		No	182	72.8		
	Overeating	Yes	75	30	0.30	L
		No	175	70		
	Nausea	Yes	72	28.8	0.29	L
		No	178	71.2		
Vomiting	Yes	44	17.6	0.18	L	
	No	206	82.4			
Constipation	Yes	30	12	0.12	L	
	No	220	88			
Diarrhea	Yes	31	12.4	0.12	L	
	No	219	87.6			
Nutrition-Related Factors			F	%	M.S	Sig.
Reproductive System	Menstruation	Yes	225	90.4	0.91	L
		No	24	9.6		
	Age at First Menstrual Cycle	≤ 9 years	27	10.8	2.33	M
		10 – 12 year	113	45.2		
		13 – 15 year	110	44		
16 ≤ year		0	0			
Average of menstrual cycle Days	3 – 5 days	160	64	1.38	L	
	6 – 8 days	85	34			
	9 ≤ days	5	2			
Regularity of Menstrual Cycle	Regular	153	61.2	0.61	M	
	irregular	97	38.8			
Health Problems	Diabetes Mellitus	Yes	7	2.8	0.03	L
		No	243	97.2		
	Anemia	Yes	108	43.2	0.43	M
		No	142	56.8		
	Blood Hypertension	Yes	12	4.8	0.05	L
		No	238	95.2		
Blood Hypotension:	Yes	20	8	0.08	L	
	No	230	92			
Daily Activity	Reading	None	10	4	1.57	M
		1 – 3 hrs./day	87	34.8		
		4 ≤ hrs./day	153	61.2		
	Watching TV	None	33	13.2	1.02	M
		1 – 3 hrs./day	178	71.2		
		4 ≤ hrs./day	39	15.6		
	Listening to Music:	None	65	26	0.86	L
		1 – 3 hrs./day	156	62.4		
		4 ≤ hrs./day	29	11.6		

	Using Computer or Mobile Phone:	None	44	17.6	1.06	M
		1 – 3 hrs./day	146	58.4		
		4 ≤ hrs./day	60	24		
Nutrition-Related Factors			F	%	M.S	Sig.
	Practicing House Work	None	163	65.2	0.81	L
		1 – 3 hrs./day	67	26.8		
		4 ≤ hrs./day	20	8		
Exercises and Sports	Fitness Exercise	None	190	76	0.62	L
		1 – 3 hrs./day	45	18		
		4 ≤ hrs./day	15	6		
	Walking	None	194	77.6	0.82	L
		1 – 3 hrs./day	48	19.2		
		4 ≤ hrs./day	8	3.2		
	Running and jogging Exercise:	None	193	77.2	0.57	L
		1 – 3 hrs./day	32	12.8		
		4 ≤ hrs./day	25	10		

F: Frequency, **%:** Percentage, **M.S:** Mean of score, **Sig.:** Significance, **L:** Low, **M:** Moderate. Significance levels (Mean of score) for factors are: Digestive system: L= 0-0.33, M= 0.34-0.67, H= 0.68-1; Reproductive system factors: L= 0-0.33, M= 0.34-0.67, H= 0.68-1; Health problems Factors: L= 0-0.33, M= 0.34-0.67, H= 0.68-1; Daily activities and Exercises: L= 0-1, M= 1.1-2, H= 2.1-3

Findings in this table indicates that the more frequent problems among female students related to digestive system are changing in appetite (77.2%) and allergy to certain type of foods (54%), while the other digestive system related factors show low percentages. Regarding reproductive system, most the female students are menstruate (90.4%); their menarches were between the ages of 10 to 12 year old (45.2%); the average length of menstrual cycle is (3–5) days (64%), and (61.2%) of them have regular menstrual cycle. Health-related problems are less frequently among female students in which only (2.8%) having

diabetes mellitus, (4.8%) having blood hypertension, (8%) having hypotension and anemia is the highest prevalent problem of female students spend four hours or more in reading (61.2%); they spend (1–3) hours/day on watching television (71.2%), listen to music (62.4%); using computer and mobile phone (58.4%) and performing house work (65.2%). Regarding exercises, the female students do not spend time for fitness exercise (76%) or walking (77.6%) or running and jogging exercise (77.2%).

Table (3): Linear Regression Analysis for Impact of Dietary Habits Upon Nutrition-Related Factors among Female Students

Independent Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Dietary Habits	0.021	0.039	0.036	0.525	0.60

Dependent Variable: Nutrition-related Factors, B=Regression Coefficient, Std.= Standard, t=T-test, Sig.=Significant

The analysis of linear regression on this table indicates that there is no significant impact of dietary habits upon nutrition-related factors.

IV. DISCUSSION

Part I: Dietary Habits among Secondary School Female Students

Data analysis of secondary school females student's dietary habits results shows that most items are significantly moderate (Total M.S= 2.8) . This is obvious in the following items results; eating breakfast eating a full meal of meat, vegetables and bread

eating substantive meal seating nuts, eating salad with every meal, eating canned food, eating food during watching T.V, eating sweets and eating three main meals (Table 1).

This finding depicts that those female students have experienced moderately oriented dietary behaviors which means that they do not consume food to the extreme as bad as good.

Adolescents are becoming more independent and making many food decisions on their own. Many adolescents experience a growth spurt and an increase in appetite and need healthy foods to meet their growth needs. Adolescents tend to eat more meals away from home than younger children. They are also heavily influenced by their peers. Meal convenience is important to many adolescents and they may be eating too much of the wrong types of food, like soft drinks, fast-food, or processed foods⁽⁶⁾.

Poor or inappropriate dietary habits increase the risk and/or incidence of chronic disease among female's adolescents. Of great concern is the increasing rate of obesity and obesity-related health risks, such as diabetes and cardiovascular disease. The prevalence of type II diabetes among adolescents has increased and is closely linked to overweight and obesity inadequate iron intake increases the incidence of iron -deficiency anemia, especially among those adolescents at highest risk, vegetarians, and competitive athletes⁽⁷⁾.

Consumption of soda, vitamin water, sports drinks, energy drinks...etc. among adolescents has risen dramatically and continues to replace milk and water health risks associated with this increased intake of sugar-sweetened beverages include excess sugar and caloric intake, which contribute to overweight, obesity and dental caries. Their electrolyte needs are normally met by consuming a healthy and balanced diet. Water should be the beverage of choice. However, nonfat or low fat milk can also be consumed⁽⁶⁾.

Part II: Discussion of Nutrition-related Factors among Secondary Schools Female Students

Regarding the nutrition-related factors among the female students; the findings of the digestive system- related factors indicate that change in appetit is the highly significant factor which is experienced by most of the female student and allergy to certain type of food is moderately experienced while the remaining of the digestive system- related factors are low significant among them (Table 2).

A person with an eating disorder may have started out just eating smaller or larger amounts of food, but at some point, the urge to eat less or more spiraled out of control. Severe distress or concern about body weight or shape may also characterize an eating disorder⁽⁸⁾.

Concerning the reproductive system-related factors, the majority of female students are menstruate (90.4%); their age at first menstrual cycle was 10–12 year old (45.2%); the average of menstrual cycle day are (3– 5) days (64%) and (61.2) of them are regular menstrual cycle (Table 2). This means that most of the female students are with normal menstrual cycle.

A study reports that (13.7) years old as the mean age of menarche, which is comparable to the findings of the present study. It has been also reported that (68.7%) adolescents had attained menarche between (11-13) years, (29%) in (14-16) years and (2.2 %) in (17 – 19) years of age⁽⁹⁾⁽¹⁰⁾.

Assessment of Health problems-related factors among the study sample revealed that only anemia is moderately significant (M.S=0.4) experienced by the female students and the other factors are less significant are (diabetic, hypertension and hypotension) (Table 2).

During adolescent period of human life development nutritional anemia is common and girls are more likely to be victim of the health problem for various reasons. In a family with limited resources, the female child is more likely to be neglected. She is deprived of good food and education, and is utilized as an extra working hand to carry out the household chores. The added burden of menstrual blood loss, normal or abnormal, precipitates the crises too often⁽¹¹⁾.

Daily activity related-factor shows that reading, watching television using computer and mobile phone are moderately significant and experienced by the sample, such activities are common among adolescent. While listening to music and practicing house work are less significant (Table 2).

In 2009, young Americans aged (8) to (18) years spend an average seven hours and 38 minutes consuming media in a typical day an extra one hour and (17) minutes with media per day since 2004. The research shows that this increase can be largely attributed to widespread adoption and use of new mobile and online devices, in particular media-enabled mobile phones and MP3 devices, such as the iPod. And one thing that hasn't changed is young people's devotion to music. Listening to music continues to be the second most popular media activity among (8) to (18) year olds (after watching television), and is especially popular among older teens⁽¹²⁾.

While television viewing remains the dominant and most time-consuming media activity for American youth in 2009, new media platforms have transformed the way they watch television. The study questions almost (2,500) youth aged (11 to 16) year olds about their computer, TV and reading habits. The findings show most go online daily and spend much of their time on social networks and video sharing sites, such as YouTube. This is due to the popularity of the internet; the next generation is still likely to be one of tally addicts. Around (63%) of adolescent have, a television set in their room but as the popularity of laptops increases and programs are increasingly available online⁽¹³⁾.

The last studied factor is exercise and sport; the finding indicated that such activity are low significant and most of them are not exercise or sharing in sports (Table 2).

The sharp decrease in girls' physical activity levels is really concerning because early adolescence is a time when a transition away from sport and physical activity participation is at its highest level among female youth⁽¹⁴⁾.

The World Health Organization publishes a report that find Canadian youth females are consistently less active from (11) to (15) years and females have a greater reduction in participation during the same time (WHO, 2008)⁽¹⁵⁾.

In the United States, Pate and others (2007) found that girls' participation in vigorous physical activity declined from (45.4%) in the eighth grade to (34.1) percent in grade 12. It was also found that the probability that girls would participate in several forms of vigorous physical activity in the 12th grade was directly related to participation in those activities in the eighth grade, with those less engaged likely to become non-participants⁽¹⁶⁾.

It is generally accepted that exercise is beneficial for young woman⁽¹⁷⁾.

Part III: Discussion the Impact of Dietary Habits upon Nutrition-Related Factors among Secondary School Female Students

The analysis of linear regression for the impact of dietary habits indicates that there is no significant impact of dietary habits upon nutrition-related factors among secondary schools female students at p-value = 0.05 (Table 3). This finding can be interpreted in a way that dietary habits do not present any significant contribution to those nutrition-related factors. So, female students did not benefit out of their dietary habits.

In a concluding paragraph, we can say that dietary habits among secondary school female students are moderately significant. Unfortunately, dietary habits have not made any significant contribution to the nutrition-related factors of digestive system, reproductive system, health problems, daily activity and exercises and sports.

V. RECOMMENDATIONS

Based on the study findings, the present study recommends the following:

1. Nutritional counseling and education to secondary schools students' female need to be an important component in school health services.
2. Further studies that can be conducted to involve a national standard to assess more factors that may affect nutritional status of secondary schools female students.
3. Further studies can be conducted on a regular basis to assess the prevalence of malnutrition among secondary female students.
4. Development of educational programs for students and their families regarding healthy and proper eating during adolescent period.

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