



## Original Research

# Effect of an educational intervention on Obese Patients' Knowledge about Healthy Food

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### Abstract:

**Background:** Obesity is a complex health issue resulting from a combination of causes and individual factors such as behavior and genetics. Current recommendations for weight management emphasize the importance of healthy eating patterns that include a variety of nutrient-dense foods.

**Objectives:** To evaluate the effect of educational intervention on obese patients' knowledge about healthy food

**Methodology:** A pre-experimental study has been applied with the use of pre-test and post-test approach for one group of sample during the period 19th of January 2023 to the 11<sup>th</sup> of April 2024 and a Non-Probability (convenient Sample) of (53) participant from Obesity and Therapeutic Nutrition Center at Baghdad Teaching Hospital in Medical City. To measure the effectiveness of the educational intervention through the use of constructional questionnaire includes (8) items concerning the effect of healthy food on obesity.

**Results:** regarding the effect of educational intervention on obese patients' knowledge about healthy food. Paired t test results showed a highly significant mean difference between pretest and posttest period at p .000.

**Conclusions:** Based on results of the current study, the educational intervention was effective in improving obese patients' knowledge about the healthy food. Also the educational Level should be taken in consideration; it may have a role in obese patients' knowledge.

**Key words:** Educational Intervention, Obese Patients, Healthy Food.

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## Introduction

Obesity is a medical condition, sometimes considered a disease (1), in which excess body fat has accumulated to such an extent that it can potentially have negative effects on health (2).

People are classified as obese when their body mass index (BMI)—a person's weight divided by the square of the person's height—is over 30 kg/m<sup>2</sup>; the range 25–30 kg/m<sup>2</sup> is defined as overweight (3).

Obesity is a complex health issue resulting from a combination of causes and individual factors such as behavior and genetics. Behaviors can include physical activity, inactivity, dietary patterns, medication use, and other exposures (4). Although there are genetic, behavioral, metabolic and hormonal influences on body weight, obesity occurs when individual take in more calories than body burn through exercise and normal daily activities that is when energy intake exceeds energy expenditure (5). Even though the cause of obesity is complicated, dietary habit plays an important role in developing obese conditions (6).

The increasing westernization, urbanization and mechanization occurring in most countries around the world is associated with changes in the diet towards one of high fat, high energy-dense foods and a sedentary lifestyle. Nutrition transition in developing countries leads to dietary intakes of micronutrient – poor, energy – dense foods, which may be important determinants of overweight/obesity (7). Current recommendations for weight management emphasize the importance of healthy eating patterns that include a variety of nutrient-dense foods, limit portions of energy-dense foods, and reduce overall energy density (8).

A number of dietary patterns that reduce energy intake in relation to energy expenditure lead to similar weight loss. A unifying factor for weight loss across dietary patterns is energy density. Reducing a diet's energy density allows individuals to consume satisfying amounts of food for fewer calories. Strategies that lower energy density are flexible and can be applied to multiple dietary patterns to match differences in energy needs, taste preferences, eating behaviors, food accessibility, and cultural backgrounds (9).

## Methodology

Data were analyzed through the use of SPSS application version 22.0. Descriptive data analysis including (frequency, percentage, Mean of score, and

A pre-experimental study has been applied with the use of pre-test and post-test approach for one group of sample during the period 19<sup>th</sup> of January 2023 to the 11<sup>th</sup> of April 2024. A Non- Probability (convenient Sample) of (53) participant from Obesity and Therapeutic Nutrition Center at Baghdad Teaching Hospital in Medical City.

Ethical Consideration is one of the basic principles before collecting data, to protect participants' values and dignity. The researcher obtained this permission from the Ethical Committee at the College of Nursing (ref: 8; Date: 21/5/2023). The researcher promised to keep the participants information confidential, allocate this data to this study only, then explain the purpose of this study for each participant.

To accomplish the study, the researcher has constructed a questionnaire format which was based on a review of the literature related to the effect of healthy food on obesity in order to reach the objectives of the study. The questionnaire is consisting of (2) parts which are: part 1 includes self-administrated sheet related to the demographic characteristics which consist of 8 items which of sex, age, occupation, level of education, marital status, level of income, residency and presence of non-communicable disease. Part 2 concerning obese patient knowledge about healthy food which of (8) items. Scored as 2 for (correct) and 1 for (incorrect).

The educational intervention is carried out in the continuing education hall of Obesity and Therapeutic Nutrition Center at Baghdad Teaching Hospital in Medical City for the period from 6<sup>th</sup> to 24<sup>th</sup> of August 2023. Two sessions per week, the following explanations were used blackboard, computer. Booklet, pictures, the researcher use Cognitive-Behavioral Theory to apply in this study. Validity of the program and the study instruments are determined by the panel of (10) experts, who had more than five years' experience in their fields in order to achieve study objectives. The reliability of the research instrument had been evaluated through the SPSS program by applying Cronbach's Alpha (0.905).

standard deviation). Inferential data analysis includes (Matched Paired-Samples t-test and ANOVA).

**Results:****Table (1): Characteristic of Study Sample No= (53)**

Variables	Classification	Frequency	Percent
Age groups	28-37 years	11	20.8
	38-47 years	24	45.2
	48-57 years	18	34.0
	Total	53	100.0
	Mean $\bar{x}$ S.D.	31.3 $\pm$ 0.735	
Sex	Male	23	43.4
	Female	30	56.6
	Total	53	100.0
Occupation	Employer	26	49.1
	Unemployed	5	9.4
	Housewife	22	41.5
	Total	53	100.0
Martus Status	Single	4	7.5
	Married	36	67.9
	Divorced	2	3.8
	Widow	11	20.8
	Total	53	100.0
Economic Status	Enough	37	69.8
	Barely enough	14	26.4
	Not enough	2	3.8
	Total	53	100.0
Residency	Urban	45	84.9
	Rural	8	15.1
	Total	53	100.0
Educational Level	Primary	12	22.6
	Intermediate	12	22.6
	Secondary	9	17.0
	Institute	15	28.4
	College	5	9.4
	Total	53	100.0
Do you suffer from Chronic Diseases	No	25	47.2
	Heart Disease	7	13.2
	Diabetes Mellites	5	9.4
	Asthma	3	5.7
	Arthritis	11	20.8
	Kidney Diseases	2	3.8
	Total	53	100.0

**F=Frequency, %=Percentage, N= Sample size, M=Mean, SD=Standard deviation**

Table (1) Present that 45.2% of obese Patients at age group 38-47 years old the mean and standard deviation was (31.3±0.735). 56.6 % of them was females, 49.1% was employers, 67.9% of them was married , with enough income which of 69.8%, 84.9

% of them was live at urban area, 28.4 of them was graduated from institute as a level of education. Finally related to question Do you suffer from chronic diseases, heart disease? the most answers were 47.2% answer with no.

**Table (2): Obesity patients' knowledge about healthy food at Pre and Post Test**

NO	Variables	Pretest				Posttest			
		Correct		Incorrect		Correct		Incorrect	
		F	%	F	%	F	%	F	%
1	<b>The correct diet includes</b> Eat small meals, eat fruits and vegetables, Do not drink soft drinks, Fried foods and fast food.	20	37.7	33	62.3	34	64.2	19	35.8
2	<b>Proteins rich in fats consist of</b> Fish, Chicken breast, Eggs, Whole milk	15	28.3	38	71.7	29	54.7	24	45.3
3	<b>Fatty foods include</b> Ice cream, Butter, Cream, Bread	5	9.4	48	90.6	27	50.9	26	49.1
4	<b>Foods rich in fats and sugars are</b> Fast food, Fried foods, Sweets, Vegetables and fruits	6	11.3	47	88.7	33	62.3	20	37.7
5	<b>The amount of proteins, fats and carbohydrates in the diet should range between</b> 50-70 grams daily, 60-90 grams daily, 70-100 grams daily, 65-80 grams daily.	9	17.0	44	83.0	31	58.5	22	41.5
6	<b>Maintain weight, the calories in the meal must be</b> 1500 calories per day, 2000 calories per day , 1000 calories per day, 2500 calories per day	13	24.5	40	75.5	25	47.2	28	52.8
7	<b>Make changes in the diet, you must adhere to the following</b> Do not eat restaurant food, Eat breakfast, Fat-free cheese derivatives, Eat fruits and vegetables.	22	41.5	31	58.5	33	62.3	20	37.7
8	<b>Therapeutic nutrition is limited to the following</b> Avoid fatty foods, Using expressed milk, Eating a lot of vegetables, Not eating breakfast	13	24.5	40	75.5	37	69.8	16	30.2
	<b>Total</b>		24.3		75.7		65.86		34.14

Freq.=Frequency, %=Percentage.

Table 2 showed that the total Knowledge of patients' about healthy food at pretest was 75.7% of them have incorrect about healthy food while their knowledge

was improved after exposed to education program at posttest to 65.86%.

**Table (3): Effect of educational intervention on Obese Patients knowledge about Healthy Food**

Period	Mean	SD	t-value	d.f	Sig.
Pretest	1.12	.194	20.017	52	.000
Posttest	1.844	.191			

SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: significance level

Table (3) illustrates effect of educational intervention on obese patients' knowledge about healthy food by paired t test. The finding shows a

highly significant mean difference between pretest and posttest period at p .000.

**Table (4): Statistical Differences between Effectiveness of Nurse-led educational intervention on Patients (Age, occupation, marital status, economic status, educational level and chronic diseases)**

Variables		Sum of Squares	df	Mean Square	F	Sig.
Age group	Between Groups	1.247	3	0.416	0.759	0.522
	Within Groups	26.828	49	0.548		N.S
	Total	28.075	52			
Occupation	Between Groups	4.553	3	1.518	1.723	0.174
	Within Groups	43.146	49	0.881		N.S
	Total	47.698	52			
Marital status	Between Groups	1.204	3	0.401	0.477	.700
	Within Groups	41.249	49	0.842		N.S
	Total	42.453	52			
Economic Status	Between Groups	.924	3	0.308	1.008	0.397
	Within Groups	14.963	49	0.305		N.S
	Total	15.887	52			
Educational Level	Between Groups	1.655	3	.552	2.840	0.047
	Within Groups	9.515	49	.194		S
	Total	11.170	52			
Chronic Diseases	Between Groups	7.274	3	2.425	.782	0.510
	Within Groups	151.971	49	3.101		N.S
	Total	159.245	52			

df= degree of freedom, F= F-value, S. = significant, N.S. = non-significant

The results of table (4) revealed that there were no significant differences between obese patients' knowledge about healthy food and demographic

characteristics (age, occupation , marital status and economic status) at  $p \leq 0.05$  level except level of education  $p = 0.047$ .

**Table (5): Statistical Differences between obese patients' Knowledge about healthy food and socio-demographic variables (Sex and Residents)**

Sex Type	Groups	Mean	SD	t-value	d.f	Sig.
	Male	1.84	.179	0.244	52	0.341
	Female	1.85	.203			
Residents		Mean	SD	0.009	52	0.229
	Urban	1.8444	.20148			
	Rural	1.8438	.12939			

SD: Standard deviation, t: t-test, d.f: Degree of freedom, p: Probability value

Table 5 demonstrated Statistical Differences between obese patients' Knowledge about healthy food and socio-demographic variables (Sex and Residents) by independent two samples t test .Findings showed no significant differences between obese patients' Knowledge about healthy food and Sex and Residents at  $p > 0.05$ .

**Discussion**

This study tests the effect of the educational intervention on obese patients' Knowledge about Healthy Food. The study sample contain of (53) participant from Obesity and therapeutic nutrition center at Baghdad teaching hospital in medical city. Table (1) shows distribution of studied group concerning demographic characteristics, such that "age groups, sex, occupation, level of education, marital status, level of income, residency and presence of non-communicable disease ". Results in this table revealed that (38-47 years) age group as referred with high percentage (45.2%), and 34% of them were of age group (48-57 years), while only (20.8 %) were age group (28-37). With  $M = 31.3$  and  $SD = 0.735$ . this result similar to study applied in Baghdad Teaching Hospital and study conducted at Iraqi center for heart diseases. Reported that (50-59) age group as referred with high percentage (47.2%) of study sample <sup>(10)(17)</sup>.

The results show that are 56.6 % of study sample was females, the study conducted by Waheed & Hassan (2021) to assess the effectiveness of a daily living activities program on the physical ability of patients with coronary artery disease undergoing a stress test in Dhi Qar Governorate, in AL- Nasiriyah Heart Center on A non-probability (purposive) sample consists of (40) coronary artery disease patients and study conducted by Ibrahim & Bakey to evaluate effectiveness of instruction program for residents of geriatric-care homes about personal hygiene in al cyelakh geriatric care home. reported that more than half of study sample (57.5) were female <sup>(11)(18)</sup>. But disagree with study carried out by Shinjar et al (2018) that titled (Effectiveness of an Education Program on Hemodialysis Patients, Knowledge towards Dietary Regimen at Al-Hussein Teaching Hospital in Al-Nasiriyha City) in AL-Hussein Teaching Hospital in AL-Nasiriyah City on non-probability sample of 50 patients, and study applied by Khudhair & Ahmed that titled (Type 2 Diabetic Patients' Knowledge Regarding Preventive Measures of Diabetic Foot). that represent the majority of study sample (72%) were male <sup>(12)(19)</sup>.

High percent in study sample 49.1% was employers, 67.9% of them was married , with enough income which of 69.8%, 84.9 % of them was live at urban area, 28.4 of them was graduated from institute as a level of education. Finally related to question Do

you suffer from chronic diseases, heart disease? the most answers were 47.2% answer with no.

A study conducted by Athbi & Hassan (2019) to assess Knowledge of patients with coronary heart disease about secondary prevention measures at Karbala Center for Cardiac Disease and Surgery that used A non-probability sampling method consists of 64 patients was selected purposively based on the study criteria, reported that are 48% of patients were more than 50 years, the mean score of the participants age were 56.2. More than one half of the study sample are male (56.3%), regarding the level of education the greater number of them have had a primary school education and accounted for (40.6%), and (37.5%) of them housewives. approximately more than one half of the patients involved in this study was identified as a known case of DM and / or hypertension, and 68.8%<sup>(13)</sup>.

A study applied by Hassan & Najm (2016) that titled (Effectiveness of an Instructional Program concerning Knowledge on clients with Irritable Bowel Syndrome in Liver and Digestive Disease Hospital at Baghdad City) conducted at liver and digestive disease hospital in Baghdad city. the study sample consist of 60 clients have IBS. Represented that 56.6 % were females and age groups (23-28 years old) with high percent, 56.7% of them was married, and 43% have primary school education, high percent (66.7%) of them was Government employment, 46.7% of them were housewife<sup>(14)</sup>.

Table 2 showed that the total Knowledge of patients' about healthy food at pretest was 75.7% of them have incorrect about healthy food while their knowledge was improved after exposed to education program at posttest to 65.86%. This finding is agree with study titled (Instruction program for patient with peptic ulcer about physical and psychological status: a case-control study) conducted by (Al-Hamad & Hassan. 2023) In this quasi-experimental study, 54 participants were separated into two intervention and control groups. The intervention involved educating participants on about physical and psychological status. which report Before the intervention, there

was no discernible difference in the mean participant knowledge score between the two groups (the intervention and control group;  $P>0.05$ ). Following the program, the mean scores were with a statistically significant difference ( $P 0.05$ ) between the two groups<sup>(15)</sup>.

The findings show a highly significant mean difference between pretest and posttest period of obese patients' knowledge about healthy food at  $p .000$  (Table 3). Study applied by Abid & Mohammed to assess effectiveness of an instructional program on patients' knowledge about home safety while receiving Anti-Cancer Medications at Al-Karama Teaching Hospital in Al-Kut City. The findings of the study show that the evaluation of patients' knowledge in the study groups throughout three periods of measurements showed that most of the studied items had a low means of score (1.23) before applying the instructional program. Comparatively, most of the studied items had a high mean of score (1.77 and 1.70) in post-test I and post-test II after implementation of the program<sup>(20)</sup>.

The results of table (4) revealed that there were no significant differences between obese patients' knowledge about healthy food and demographic characteristics (age, occupation , marital status and economic status) at  $p\leq 0.05$  level except level of education  $p=0.047$ .

Demographic Characteristics and their age, sex, occupation , marital status ,economic status and residency at  $P\leq 0.05$  level. Except level of education  $P=0.047$ .

A study conducted by (Jasim. 2022), To assess the Effectiveness of an Educational Program on Diabetic Patient's Knowledge about Early Complications of Diabetes Mellitus: Type I and Type II on 49 participants, the applied education program resulted in a significant differences between the intervention and the control group ( $p<0.001$ )<sup>(16)</sup>.

In order to confirm that the study subjects are related by the examined instrument after completing the recommended program, comparisons of the

significance of testing hypotheses during the pre and post period are also computed. Findings demonstrated that obese patients knowledge about healthy food, study subjects in light of the major domains recorded very significant variations at P0.01 between pre- and post-test. Thus, it disproves the null hypothesis and shows that the study sample's patients benefited significantly from receiving 21 days of instruction about healthy food.

### Conclusions:

Based on results of the current study, the educational intervention was effective in improving obese patients' knowledge about the healthy food. Also the educational Level should be taken in consideration; it may have a role in obese patients' knowledge.

### Recommendations:

The study recommends increasing the patient's knowledge regarding healthy food and explaining diet through periodic seminars, television programs, and social media and the use of the current educational intervention for the all patients with obesity.

Authors' declaration: The manuscript is an original work, not previously published or sent to other journals. We hereby confirm that all the Figures and Tables in the manuscript are ours. The researcher obtained this permission from the Ethical Committee at the College of Nursing (ref: 8; Date:21/5/2023).

**Conflicts of Interest:** None.

### Authors' contribution

**Ahmed Ammar Yasir:** Acquisition of data analysis, Interpretation of data, Drafting of manuscript.

**Huda Baker Hassan:** Study conception, Study design and Critical revision.

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