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Nutritional Knowledge among a Group of Patients with Cardiovascular Diseases (CVDs) in Menoufia Governorate

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Abstract:
Cardiovascular diseases (CVDs) are the most common cause of death worldwide; they account for about 30% of deaths. Nutrition counseling aims to help clients understand important information about their health. The present study aimed to evaluate the nutritional knowledge among a group of CVDs in Menoufia Governorate, Egypt. The general information and anthropometric measurements such as height, weight, and BMI were assessed, and the subjects' nutritional knowledge, awareness level, and practices were assessed. The questionnaire had data about cooking methods, type of fat, the importance of physical activity, protein, foods rich in cholesterols, and restricted and admitted foods. Knowledge scores were calculated by the total number of correct answers the subjects gave. Each correct answer was given one mark. The subjects were classified into low less than 34%, medium 35 to 50 %, and high more than 51% knowledge. The results revealed that most males and females were married (35.3%), followed by (29.4%) divorced and (23.5%) single. Regarding the subject's education level, the result shows that (41.2%) of them were University graduates, followed by preparatory school (23.5%) and Illiteracy (17.7%). The mean BMI of patients was (33.60± 8.71). The female group's mean BMI was slightly higher than that of males, 36.74± 14.07 VS 32.16± 4.09. Most of the subject group had excellent nutritional and/ or reasonable knowledge.

Keywords: *Heart Diseases, Nutrition Background, Demographic Data, Body Mass Index, Risk Factors*

Introduction

Nutrition counseling aims to help clients understand important information about their health [1]. Cardiovascular diseases (CVDs) are the most common cause of death globally, accounting for 30% of deaths. These deaths of more than three quants are a result of coronary heart disease and a stroke [2]. Dietary risk factors are associated with 53% of CVD

deaths [3]. These CVD may be caused by high blood pressure, smoking, diabetes mellitus, lack of exercise, obesity, high blood cholesterol, poor diet, excessive alcohol consumption, and poor sleep, among other things [4]. Rapid economic growth, urbanization, rural-urban migration, globalization, and aggressive marketing contribute to a significant shift in diet. High intakes of saturated fat, trans fat, and salt, as well as low intake of fruits, vegetables, and fish, have been linked to cardiovascular disease [5]. Nutrition has a central role in both primary and secondary prevention of cardiovascular disease yet only relatively recently has food been regarded as a treatment, rather than as an adjunct to established medical and pharmacotherapy [4]. Dietary change can be a powerful tool. It is particularly important as a treatment option for patients who cannot tolerate cholesterol-lowering drugs. A diet that includes soluble fiber, plant sterols, soy protein, legumes, and nuts can produce reductions in low-density lipoprotein (LDL) cholesterol and C-reactive protein levels similar to those achievable with a low-fat diet combined with a statin [6]. There are multiple modifiable risk factors for cardiovascular disease (CVD), many of which are modifiable via changes in diet and physical activity. This combination is widely recognized in clinical guidelines as being important in both primary and secondary prevention [7]. Nutritional education is an important element of cardiac rehabilitation (CR). However, the area of nutrition is frequently overcomplicated with conflicting information [8]. The U.S. Preventive Services Task Force (USPSTF).,2005 found good evidence that medium- to high-intensity dietary counseling for patients with hyperlipidemia and other risk factors for CVD can produce medium to large changes in the intake of the core components of a healthy diet [9]. Further, the USPSTF concludes that such counseling is likely to improve health outcomes if it is delivered by a team that includes nutritionists, dietitians, and specially trained primary health care professionals [6]. A heart-healthy diet is at the core of recommendations for nutrition counseling [10]. The recommended number of servings depends on the person's caloric needs, which depend on age, sex, and activity level. The 2005 guidelines recommend that diets be calorically and nutritionally balanced [9]. The Healthy Eating Pyramid is an alternate model that embodies the 2005 recommendations in an easily understood form [11]. This pyramid describes a palatable diet that is useful for the dietary treatment of general populations, including those at risk of CVD [12],[13].

Aim of the study: The study was designed to show the nutritional status of CVD patients and produce nutritional counseling for patients suffering from CVD in Menoufia Governorate, Egypt.

Subjects and Methods

Subjects

The present study was conducted in the Menoufia governorate. The list of (80) CVD patients, both male and female were collected from patients' clinics at EL Menoufia University Hospitals. All selected CVD subjects aged 40 – 60 years old, willing to participate, and with spare time for interview were enrolled in the study. Unfortunately, only 54 (37 males and 17 females) subjects from the selected ones who completed the study were excluded (26)

because of personal concerns, unrelated to cardiovascular risk factors, and other health problems such as kidney failure, liver, and cancer disease.

Ethical aspects: Written approval was obtained from each subject before being involved in this study.

Methods

Socio-bio–Demographic Questionnaire (SBDQ); provided information on factors relevant to CVD patients regarding their environment. The data collected included age, occupation, marital status, educational level, family size, members, and income type.

Anthropometric Measures: weight was calculated before and after, height was measured, and BMI was calculated before and after dietary counseling for each participant. Weight and height measurement procedures for participants were according to [14]. Body mass index (BMI) was calculated using the following formula: Weight (kg)/height (m)2. The BMI of the participants was classified according to [15]**.** as; Underweight if BMI is less than 18.5 Kg\m 2. Normal if BMI is between 18.5- 24.9 Kg\m 2. Overweight if BMI is between 25-29.9kg\m 2. Obese if BMI is 30.0kg\m 2.

Nutritional knowledge: The questionnaire developed for knowledge was tested for content validity by consulting leading National Nutrition Institute staff members. The questionnaire had content data about cooking methods, type of fat in cooking importance of physical activity, protein, foods rich in cholesterols, and restricted, and admitted foods. The knowledge questionnaire had 30 multiple-choice questions and subjects were asked to choose the most appropriate answer. The questionnaire was pre-tested in the anon-sample area and modified suitably. Knowledge scores were calculated by the total number of correct answers given by the subjects. Each correct answer was given one mark. The subjects were further classified into low less than 34%, medium 35 to 50 %, and high more than 51% knowledge scores based on the formula: Mean ± (0.425 * S.D) according to [5]**.**

Intervention study: Based on the availability of subjects during the study period and willingness to participate in the intervention, (54) subjects were selected. For these selected subjects, an educational intervention was given through face-to-face counseling sessions using visual and audio aids tools. Lipid profiles, Knowledge level, and practices related to food habits and lifestyle were assessed before and after 3 months of repeated nutrition counseling sessions, and the impact on the subject's lipid profiles was reassessed.

Statistical Analysis: was performed by using the computer program statistical package for social science (SPSS) [16] and compared with each other using suitable tests. The means ± SD were indicated. A paired T. test was used to evaluate differences between the groups of patients.

Results and Discussion

Demographic profile of selected cardiovascular disease subjects were presented in table (1) a total of 54 cardiovascular disease subjects (37 males and 17 females) were included in our study. Regarding the subject marital status of male and female subjects were married (35.3%) followed by (29.4%) divorced and (23.5%) were single. Regarding the subject's education levels, the result showed that (41.2%) of them were University graduates followed

by preparatory school (23.5%) and Illiteracy (17.7%). Regarding the family size of the subjects, the majority of male subjects belonged to medium-sized families (91.9%), followed by large families (8.1%), and no male subjects belonged to the small family category. Among females, (76.4%) of them had medium family size, followed by large families (11.8%), and small families (11.8%) category. According to income type, the majority of male subjects have a monthly income (86.5%). Fewer males have daily and weekly income (2.7%) each. (8.1) of males' other types of irregular income. However, among females, the majority of them have monthly income (76.4%) followed by daily and other types of irregular income (11.8%) each. These findings were in accordance with that of These results were consistent with the results of Kanchana Amathe, [5] who found that the demographic profile of the subjects selected for the nutritional counseling study found a relationship between socioeconomic status, where the level of knowledge was associated with age and gender, education level, living area, and monthly income for cardiovascular diseases. Schultz *et al.,* [17] found that socioeconomic status has a measurable and significant effect on cardiovascular health. Biological, behavioral, and psychosocial risk factors prevalent in disadvantaged individuals accentuate the link between socioeconomic status and cardiovascular disease. Four measures have been consistently associated with CVD in high-income countries: income level, educational attainment, employment status, and neighborhood socioeconomic factors. In addition, disparities based on sex have been shown in several studies. Interventions targeting patients with low socioeconomic status have predominantly focused on the modification of traditional CVD risk factors. Promising approaches are emerging that can be implemented on an individual, community, or population basis to reduce disparities in outcomes. Structured physical activity has demonstrated effectiveness in low- socioeconomic status populations. Boateng *et al.,* [18] found that low knowledge of CVDs, risk factors, and clinical symptoms are strongly associated with low levels of educational attainment and rural residency in the region. Higher educational attainment and place of residence had a significant influence on the levels of knowledge of CVDs among Sub-Saharan African populations. In addition to the increased prevalence of risk factors of CVDs in these settings, this rise in CVD deaths reflects the lower availability of population strategies for prevention and health care. As poverty and inequality trigger the upsurge of communicable diseases.

Table (1): Socio-demographic and Economic Characteristics of the Study Group.

Demographical and economic profile	Answer	SEX				Sig*
		Male		Female		
		Count	%	Count	%	
Marital Status	Single	9	24.3	4	23.5	.845
	Married	17	46	6	35.3	
	Divorced	7	18.9	5	29.4	
	Widowed	4	10.8	2	11.8	
Occupation	Working	29	78.4	4	23.5	.878
	Not working	8	21.6	13	76.5	
Education level	Illiteracy	2	5.4	3	17.7	.228

Demographical and economic profile	Answer	SEX				Sig*
		Male		Female		
		Count	%	Count	%	
	Primary school	2	5.4	1	5.9	
	Preparatory school	10	27	4	23.5	
	Intermediate	7	18.9	2	11.8	
	University graduate	15	40.5	7	41.2	
	Postgraduate	1	2.7	0	0	
Family size, members	Small (<4)	0	0	2	11.8	.309
	Medium (4-6)	34	91.8	13	76.4	
	Large (7-9)	3	8.1	2	11.8	
Income type	Daily	1	2.7	2	11.8	.495
	Weekly	1	2.7	0	0	
	Monthly	32	86.5	13	76.5	
	Other	3	8.1	2	11.8	

Table (2) indicates the anthropometric profile of 54 CVD subjects aged (40-60) years old. Regarding weight, data showed that there was a highly significant difference (P≤ 0.001) in Mean ± SD of weight before and after counseling for both male and female subjects (98.39 ± 13.51 vs 89.46 ± 12.41) and (103.42 ± 34.73 vs 93.12 ± 35.18) respectively. On the other hand, the values of BMI were 32.16 ± 4.098 and 36.74 ± 14.07 for male and female subjects respectively.

Sugasry and Laxmi, [19] found that a higher intake of visible fat was expected to have adverse effects on healthy hearts. Unhealthy and faulty dietary habits along with a sedentary lifestyle led to an increase in body weight and an increased risk of CVD. Csige *et al.,* [20] excess weight and obesity are associated with an increased risk of cardiovascular diseases. This is a consequence on the one hand of obesity itself and the other hand of associated medical conditions (hypertension, diabetes, insulin resistance, and sleep apnea syndrome). In the case of already established cardiovascular diseases, the mortality of overweight and obese patients is often lower than that of people with normal body weight.

Table (2): The Anthropometric Measurements of Study Group.

Anthropometric profiles		N	Mean± SD	Sig*
Age	Male	37	51.59 ± 5.79	.823
	Female	17	51.18 ± 7.49	
Height (CM)	Male	37	174.65± 6.84	.000
	Female	17	167.18± 5.84	
Wight Before	Male	37	98.39 ± 13.51	.437
	Female	17	103.42 ± 34.73	
Wight After	Male	37	89.46 ± 12.41	.574
	Female	17	93.12 ± 35.18	
BMI	Male	37	32.16 ± 4.098	*0.451*
Before	Female	17	36.74 ± 14.07	

Anthropometric profiles	N	Mean± SD	Sig*
Paired Samples Test Male &Female	Sig		
Pair	Wight Before – Wight After	.000	

Significant, *** *p≤0.001**= highly significance*

Table (3) Regarding the classification of body mass index for male subjects before counseling results showed that more than half of males were obese 62.15% (37.85% class I, 8.9% class II, and 5.4% class III obesity) respectively. While the rest of the male subjects are overweight 37.85%. After nutritional counseling, there was a significant decrease in obese males by 35.1% (24.3% class I, 8.1% class II, and 2.7% class III obesity) respectively. While overweight males have increased to reach (59.5%). Only (5.4%) of males had a normal weight. Concerning the classification of body mass index for female subjects before counseling, the majority were obese subjects 82.4% (35.3% class I, 35.3% class II, and 11.8% class III obesity) respectively. While 17.6% of female subjects were overweight. After nutritional counseling, there was a significant decrease in obese females 59.1% (35.6% class I, 17.6% class II, and 5.9% class III obesity) respectively. The overweight female subjects represented 35.3% of the total female sample, and only 5.9 % of female subjects had average body weight. Results showed that there was a highly significant difference (P≤ 0.001) in Mean ± SD of BMI before and after counseling for both male and female subjects (2.90126 ± 1.01), and (3.63981± 1.43) respectively. Kanchana Amathe, [5] found that overweight and obese together were three fourth of the CVD subjects. Most of the male patients suffered from general obesity while the females were abdominally obese. Abdominal fat distribution is riskier in terms of hypertension, CVD, hyperinsulinemia, and stroke than lower body obesity. In the later study, upper abdominal obesity was higher among female subjects which is a risk factor for CVD. Similarly, Ankur and Choudry, [21] reported higher abdominal obesity among females compared to males which may be due to visceral fat deposition in the waistline. Atkinson *et al.,* [22] reported that in middle-aged women as age increases, the metabolic rate decreases and the percentage of body fat increases, which leads to the risk of disease. Being overweight and obese contributes to the development of congestive heart failure increasing stroke, cardiac output along with diastolic dysfunction. Similarly, results Wilson *et al.,* [23] reported that being overweight and obese was a risk factor for hypertension and CVD.

Table (3): Classification of CVD Subjects Based on BMI before

Classification	BMI (Kg/m^2) Before	Male (N=37) Count	%	Female (N=17) Count	%	Chi-Square	Sig*
Underweight	<18.5	0	0	0	0	.539	0.45
Normal weight	18.5–24.9	0	0	0	0		
Overweight	25.0–29.9	14	37.85	3	17.6		
Obese class I	30.0–34.9	14	37.85	6	35.3		
Obesity class II	35.0–39.9	7	18.9	6	35.3		
Obesity class III	≥ 40	2	5.4	2	11.8		

Near half of the subjects (53.7%) had knowledge scores of moderate (34 - 50 %) as shown in table (4). Concerning the knowledge level of CVD subjects before nutritional counseling. The majority of the subjects (male and female) have a moderate level of knowledge with values of 56.8% and 47.1%. While the values of a high level of knowledge were 18.9 and 29.4%. Moreover, the low values were 24.3 and 23.5% for low knowledge. knowledge scores based on the formula: Mean ± (0.425 * S.D) according to [5].

Table (4): Knowledge level of the study group

Knowledge Level	Male (N=37)		Female (N=17)		Total (N=54)	
	Count	%	Count	%	Count	%
Low (< 34%)	9	24.3	4	23.5	13	24.1
Moderate (34 - 50%)	21	56.8	8	47.1	29	53.7
High (> 51%)	7	18.9	5	29.4	12	22.2

Results in Table (5) show that more than half of male and female patients are aware that CVD can be controlled by diet and exercise (64.9%) and (64.7%) respectively. US Preventive Services Task Force, [24] found that Physical activity is broadly defined as any activity that enhances or maintains overall health and physical fitness. It is recommended that adults engage in at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic physical activity per week in addition to strength-training activity at least twice per week. Based on current evidence, the USPSTF concludes with moderate certainty that intensive counseling interventions to promote a healthy diet and physical activity in adults with CVD risk factors have a moderate net benefit. In addition, the majority of male patients group know that sedentary life is an important modifiable risk factor (91.9%) and so female patients group (94.1%). Modifiable risk factors can be modified by different interventions. Hypertension, obesity, socioeconomic status, lifestyle, dyslipidemia, and dietary pattern [5]. Nutrition education is therefore needed to motivate and create public awareness to preserve healthy traditional lifestyles and adopt healthy dietary and lifestyle choices to reduce most of the modifiable risk factors of cardiovascular disease [25]. Regarding oil & fat consumption, (75.7%) of the male patients' group stated that they should reduce the quantity followed by the female patients' group (52.9%). Until very recently, most studies of diet and CVD focused on dietary lipids. This focus stemmed from the seminal work of Ancel Keys in the 1950s and 60s showing both ecological associations between fat intake, cholesterol, and CHD, and the responsiveness of blood cholesterol to changes in dietary fat [26]. Moreover, about half of males know that they should restrict whole egg consumption (51.4%) followed by (47.1%) of females. In addition, the majority of females were aware that ghee is a cholesterol-rich food (88.2%). Hosseinabadi and Nasrollahzadeh, [27] showed that ghee which is predominantly saturated fats had an increasing effect on plasma and non-HDL-cholesterol compared with olive oil, adding further evidence to the existing recommendations to replace dietary fats high in SFA with dietary fats high in unsaturated fats to reduce CVD risk. Regarding egg restriction for heart patients because they contain, (83.8%) of the male patients' group stated cholesterol followed by the female patients' group (94.1%). Blesso and Fernandez, [28] epidemiological studies report a lower risk for heart disease with higher concentrations of high-density lipoprotein (HDL)-cholesterol. Eggs are a major source of dietary cholesterol

one large egg yolk contains approximately 200 mg of cholesterol. The consumption of eggs and egg products contributes about a quarter of the daily cholesterol intake in the U.S. [29]. Saturated fat is known to strongly increase serum cholesterol, and eggs, which are relatively low in saturated fat, only contribute about 2.5% of total saturated fatty acid intake among U.S. adults [30]. Qin *et al.,* [31] found no association between egg consumption and the risk of cardiovascular disease in three large US cohorts. Results from the updated meta-analysis lend further support to the overall lack of an association between moderate egg consumption (up to one egg per day) and cardiovascular disease risk. However, evidence of considerable heterogeneity existed between studies, probably caused by discrepancies in the association between egg consumption and cardiovascular disease risk among studies conducted in the US, Europe, and Asia [32]. Hu *et al*., [33] found no association between egg consumption and cardiovascular disease risk in either men or women, which corresponds to previously published analyses of NHS and HPFS. Zhong *et al.,* [34] reported a positive association between egg consumption and cardiovascular disease risk; this finding reignited the debate on eggs, dietary cholesterol, and cardiovascular health. people with higher egg intake were generally less healthy in many ways [35]. Also, about half of male patients knew that a diet rich in fiber is beneficial for CVD patients (56.8%) and so female patients (41.2%). And so, to increase the fiber content of the diet, more than half of both male and female subjects thought that they should eat raw green vegetables & fruits with skin (62.2%) and (58.8%) respectively. McRae *et al.,* [36] suggests that individuals consuming the highest amounts of dietary fiber intake can significantly reduce their incidence and mortality from cardiovascular disease. Mechanistically, these beneficial effects may be due to dietary fibers' actions in reducing total serum and low-density lipoprotein cholesterol. Moreover, the plant protein minority of both males and females were aware that it is important for cardiac patients (24.3%) and (17.6%) respectively. Of interest, dairy or plant protein sources showed a much weaker association when compared with animal protein. Protein provides the main components for muscle synthesis and consensus opinion suggests that protein intakes should be higher in the elderly12 with intakes up to 1.5 g/kg/d being shown to improve body composition in an elderly, frail population [37]. Concerning animal protein, the majority of male subjects thought that fish is good for cardiac patients (89.2%) followed by (76.5%) of females. Fish appeared to be healthier protein sources than eggs, processed meat, unprocessed red meat, and poultry for preventing incident CVD and premature death. The magnitude of lower risk for incident CVD and all-cause mortality was driven by the amount and number of animal protein foods substituted [38]. Although (83.8 %) of males stated that salt should be restricted, only (47.1%) of females agreed with them. Regarding overweight (75.7%) of male patients know that they should reduce their weight followed by (58.8 %) of female patients. In addition, more than half of both males and females thought that they should not exceed 1tsp of salt per/day (56.8%) and (52.9%) respectively. Cappuccio *et al*., [39] showed that salt is one of the most important determinants of high blood pressure and increased cardiovascular risk worldwide. However, a high salt intake has other adverse effects beyond those involving the cardiovascular system, so there is renewed interest in the relationships between high salt intake and other diseases. For a healthy heart, (76.5 %) of

females thought that they should restrict sweets, carbonated beverages, and fast foods followed by (59.5%) of males. regarding dinner, the majority of subjects thought that it should be a light meal (82.4%) and (72.9%) respectively, however, only (47.1%) of females thought that dinner should be taken at least 2 hours before going to bed followed by (37.8 %) of males. From our study, the majority of the study group had very good nutritional knowledge and or good knowledge and this could be explained that a good number of the participants of the study group had a high university education and the rest might have the knowledge from the clinic or the T.V. A study was done by Mcleod *et al.,* [40] in England reported that overall nutrition knowledge was found to be quite high, with mean nutrition knowledge scores of 12.5, 12.7, and 13.7 out of a possible 17, in the low, medium, and high socioeconomic groups, respectively. Similar improvements in the knowledge of patients have been noted by Venkataramanamma and Khader, [41] who have found a positive impact of nutrition education on knowledge.

Table (5): Food awareness and knowledge of the study group

Food awareness		SEX				Sig*
		Male		Female		
		Count	%	Count	%	
Cardiovascular disease can be controlled by?	Diet	9	24.3	5	29.4	.841
	Exercise	4	10.8	1	5.9	
	Combination of diet & exercise	24	64.9	11	64.7	
Which is the modifiable factor for CVD?	Sedentary lifestyle	34	91.9	16	94.1	.375
	Gender	0	0	1	5.9	
	Heredity	3	8.1	0	0	
Which is a good habit for a healthy heart?	Sedentary	37	100	13	76.5	.002
	Smoking	0	0	4	23.5	
Heart patients should make modifications in their consumption of oil & fat should	Reduce the quantity	28	75.7	9	52.9	.100
	Increase the quantity	8	21.6	7	41.2	
	Avoided completely	1	2.7	1	5.9	
Heart patients should be careful while consumption of Eggs& should be restricted.	Whole egg	19	51.4	8	47.1	.726
	Restricted egg white	2	5.4	2	11.8	
	Restricted egg yolk	13	35.1	4	23.5	
	Fried egg	3	8.1	3	17.6	
Foods that can be consumed liberally?	Bakery products	8	21.6	1	5.9	.172
	Fried food	3	8.1	4	23.5	
	Fruits	23	62.2	7	41.1	
	Meat	3	8.1	5	29.4	
Diet for CVD should be rich in?	Fiber	21	56.8	7	41.2	0.211
	Fat	4	10.8	1	5.9	
	Energy	2	5.4	2	11.8	
	Protein	10	27	7	41.1	
Cholesterol-rich foods	Ghee	25	67.6	15	88.2	.106

Food awareness		SEX				Sig*
		Male		Female		
		Count	%	Count	%	
are ---	Oily food	11	29.7	2	11.8	
	Skim milk	1	2.7	0	0	
Last meal before going	Heavy	3	8.1	1	5.9	.623
to bed should be?	Light	27	72.9	14	82.4	
	Could be any one of them	7	18.9	2	11.8	
The egg is restricted to	Protein	5	13.5	1	5.9	.345
heart patients because t	Energy	1	2.7	0	0	
contain?	Cholesterol	31	83.8	16	94.1	
Which proteins are	Vegetable protein	9	24.3	3	17.6	.037
good for heart	Animal protein	5	13.5	0	0	
patients?	Both	22	59.5	8	47.1	
	Nothing	1	2.7	6	35.3	
Salt in the diet of	Restricted	31	83.8	8	47.1	.007
heart patients should	Remain same	3	8.1	5	29.4	
be?	Avoid completely	3	8.1	4	23.5	
If CVD subjects are	Should reduce weight	28	75.7	10	58.8	.155
overweight then they	Should have the same weight	8	21.6	6	35.3	
------	Should not bother about it	1	2.7	0	0	
	Can put on the weight	0	0	1	5.9	
Which is the fiber-rich fo	Salads	2	.6	9	52.9	.275
	Rice	1	2.7	0	0	
	All of the above	11	29.7	8	47.1	
This food should be	Salt &sugar	33	89.2	15	88.2	.880
restricted by heart patie	Whole wheat	0	0	1	5.9	
	Green leafy vegetable	2	5.4	0	0	
	Pulses	2	5.4	1	5.9	
Fast foods should not	Fats	9	24.3	2	11.8	.689
be consumed often beca	Energy	4	10.8	3	17.6	
they contain high?	Protein	1	2.7	2	11.8	
	Carbohydrate	23	62.2	10	58.8	
For a healthy heart,	Sweets	4	10.8	0	0	.183
you should restrict	carbonated beverages	4	10.8	2	11.8	
the.....	Fast foods	7	18.9	2	11.8	
	All	22	59.5	13	76.5	
Which is good for the he	Fish	33	89.2	13	76.5	.189
	Poultry	3	8.1	3	17.6	
	Mutton	1	2.7	0	0	
	Beef	0	0	1	5.9	
Fish is good for the	W3 PUFA	13	35.1	4	23.5	.211

Food awareness		SEX				Sig*
		Male		Female		
		Count	%	Count	%	
heart because it	MUFA	5	13.5	2	11.8	
contains ---------	Both	6	16.2	1	5.9	
	Don't know	13	35.1	10	58.8	
Which type of	Orange juice	0	0	1	5.9	.483
beverage should be	Soft drinks	30	81	14	82.4	
restricted for a	Water	2	5.4	0	0	
healthy heart.....?	Milk	5	13.5	2	11.8	
If you are obese, you shc	Salad & fruits with skin	31	83.8	14	82.4	.573
prefer these	Fried foods	3	8.1	0	0	
foods in your meal.....	None	3	8.1	3	17.6	
Garlic and onion are	Reduce the cholesterol level	26	70.3	9	52.9	.099
good for the heart,	Increase the cholesterol level	1	2.7	0	0	
since them ----------	Decrease the HDL	9	24.3	5	29.4	
	None of the above	1	2.7	3	17.6	
Why fenugreek seed	Reduce the blood glucose level	4	10.8	1	5.9	.792
is prescribed for heart	Reduce cholesterol level	6	16.2	3	17.6	
patients?	Reduce triglycerides	3	8.1	2	11.8	
	All of the above	24	64.9	11	64.7	
Restrict foods like	fried foods	24	64.9	16	94.1	.037
	Roasted foods	10	27	1	5.9	
	Steamed foods	1	2.7	0	0	
	Boiled foods	2	5.4	0	0	
The salt content in the	less than 1 tsp	8	21.6	4	23.5	1.00
whole day should be	1tsp	21	56.8	9	52.9	
	2tsp	8	21.6	4	23.5	
The coconut should be	Saturated fat	13	35.1	4	23.5	.108
restricted because.....	Unsaturated fat	2	5.4	0	0	
	Both	15	40.5	5	29.4	
	None	7	18.9	8	47.1	
Dinner should be taken	30min	5	13.5	1	5.9	.390
at least .. an hour	One-hour	18	48.6	8	47.1	
before going to bed	2 hours	14	37.8	8	47.1	
Milk should be	Whole milk	9	24.3	6	35.3	.985
consumed by patients	Skimmed milk	24	64.9	8	47.1	
	Diluted milk	1	2.7	1	5.9	
	All	3	8.1	2	11.8	
Fats to be restricted by	Butter	3	8.1	2	11.8	.613
heart patients.....	Animal fats	2	5.4	1	5.9	

Food awareness		SEX				Sig*
		Male		Female		
		Count	%	Count	%	
	Hydrogenated fats	10	27	5	29.4	
	All of the above	22	59.5	9	52.9	
To increase the fiber	Raw green vegetable	5	13.5	3	17.6	.764
content of diet one	Fruits with skin	9	24.3	4	23.5	
should eat	All of the above	23	62.2	10	58.8	

Conclusion

Cardiovascular disease is a leading cause of death worldwide and continues to increase in prevalence so it is an opportunity to increase awareness toward healthy nutritional practices for the benefit of CVD. Effective interventions to support them.

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الوعى الغذائى بين مجموعه من مرضى أمراض القلب الوعائيه بمحافظة المنوفيه

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الملخص العربي:

أمراض القلب والأوعية الدموية هي السبب الأكثر شيوعًا للوفاة حول العالم، فهي مسؤولة عن حوالي 30٪ من الوفيات. تهدف استشارات التغذية إلى مساعدة العملاء على فهم المعلومات المهمة حول صحتهم. هدفت الدراسة الحالية إلى تقييم المعرفة الغذائية بين مجموعة من مرضى أمراض القلب الوعائيه في محافظة المنوفية ، مصر، تم تقييم المعلومات العامة والقياسات الجسمية مثل الطول والوزن ومؤشر كتلة الجسم ، وتم تقييم مستوى المعرفة والوعي وممارسات الأشخاص التغذوي. يحتوي الاستبيان على بيانات المحتوى حول طرق الطهي ، ونوع الدهون في الطهى ، وأهمية النشاط البدني ، والبروتين ، والأطعمة الغنية بالكوليسترول ، والأطعمة المقيدة والمقبولة، تم حساب درجات المعرفة من خلال العدد الإجمالي للإجابات الصحيحة المقدمة من الموضوعات. كل إجابة صحيحة أعطيت علامة واحدة. تم تصنيف الموضوعات أيضًا إلى منخفضة أقل من 34٪ ، متوسطة 35 إلى 50٪ ، ومعرفة عالية أكثر من 51٪. وكانت من النتائج المهمة للدراسة أن غالبية الذكور والإناث كانوا متزوجين (35.3 ٪) يليهم (29.4) ٪ (مطلقات (23.5٪). وفيما يتعلق بدرجه التعليم ، فقد أظهر ت الدراسه أن (41.2٪) منهم خريج جامعي يليه المرحلة الإعدادية (23.5٪) ثم الأمية (17.7٪).كما أظهرت النتائج ان متوسط مؤشر كتلة الجسم لجميع المرضى (33.60 ± 8.71). و كان مؤشر كتلة الجسم فى الإناث أعلى بقليل من الذكور (36.74 ± 14.07) مقابل (32.16 ± 4.09). كان لدى غالبية مجموعة الدراسة معرفة غذائية جيدة جدًا و / أو معرفة جيدة.

الكلمات المفتاحية : أمراض القلب ، الخلفية الغذائية ، البيانات الديموغرافية، مؤشر كتلة الجسم ، عوامل الخطر.