

Awareness of Healthier Lifestyle Change among Patients with Coronary Artery Diseases

الوعي الصحي للمرضى المصابين بأمراض الشرايين التاجية حول التغيير لنمط الحياة

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الخلاصة:

الاهداف: تهدف الدراسة تقييم الوعي الصحي للمرضى المصابين بأمراض الشرايين التاجية حول التغيير لنمط الحياة
المنهجية: دراسة ميدانية وصفية أجريت في وحدة العناية القلبية في مستشفى مرجان بمدينة الحلة، تم إعداد استبانته لجمع العينة للفترة ما بين (١٥ حزيران ٢٠١٢ ولغاية ٢٠ آب ٢٠١٢)
النتائج: أشارت نتائج البحث بأن معظم أفراد العينة هم من الذكور بنسبة ٥٣.٧% وان نسبة مدخنين كانت ٦١% وان نسبة ٣٨% منهم يعانون من ارتفاع ضغط الدم، توصلت الدراسة إلى أن معظم المرضى لم يغيروا من نمط حياتهم.
الاستنتاج: وكان أغلب عينة الدراسة من الأميين والذكور وربات البيوت وسكان المدينة. كما وكانت معظم العينة من الذين يعانون من زيادة الوزن، وارتفاع ضغط الدم، والمدخنين، وفيما يخص تناولهم للكحول فكانت أفراد العينة ليسوا ممن يتناولون الكحول
التوصيات: أوصى الباحثان بأن هنالك حاجة ملحة لبناء برنامج تعليمي للمرضى وذلك لتحسين نمط حياتهم وكذلك تطوير معلوماتهم لإحداث التغيير اللازم في سلوكهم باتجاه أنماط حياتية صحية.

Abstract

Objective: presented study aimed to assess the awareness of healthier lifestyle change among patient with coronary artery disease.

Methodology: descriptive design study was conducted at Coronary Care Unit in Marjan hospital in Hillia city, data was gathered by using a questionnaire form the period (June15. 2012 to August 20.2012) .

Results: the results shows that the higher percentage of the sample (53.7%) were male most of them were smoker 61.1%, and 38% of the sample were hypertensive; most of them didn't applied any change in their lifestyle pattern.

Conclusion: Most of the convenient sample of the study was male, illiterate, housewives and city resident. Most of the sample were overweight, with hypertension, smoker, and related to alcohol consuming they were not alcoholic

Recommendation: the researchers recommended that there is a serious need to health education, which properly structured to promote patient education in order to enhance their lifestyle pattern, by improving knowledge and bring about a change in attitudes.

Key Words: Awareness, Lifestyle, Coronary Artery Disease ,Diet ,physical activities

INTRODUCTION

Coronary artery disease is a narrowing or blockage of the arteries and vessels that provide oxygen and nutrients to the heart. It is caused by atherosclerosis, an accumulation of fatty materials on the inner linings of arteries. The resulting blockage restricts blood flow to the heart. When the blood flow is completely cut off, the result is a heart attack ⁽¹⁾. On the basis of 2007 mortality rate data, more than 2200 Americans die of CVD each day, an average of 1 death every 39 seconds. More than 150 000 Americans killed by CVD (I00–I99) in 2007 were <65 years of age. In 2007, nearly 33% of deaths due to CVD occurred before the age of 75 years, which is well before the average life expectancy of 77.9 years. Coronary heart disease caused ≈1 of every 6 deaths in the United States in 2007. Coronary heart disease mortality in 2007 was 406 351. Each year, an estimated 785 000 Americans will have a new coronary attack, and ≈470 000 will have a recurrent attack. It is estimated that an additional 195 000 silent first myocardial infarctions occur each year⁽²⁾. In Iraq between 1989 and 1999, there was a 65% increase in hospital admissions for CVDs. Organized

programmers for the prevention of CVD do not exist and management and secondary care are grossly inadequate⁽³⁾. Maintaining a healthy weight within a body mass index $<25\text{kg/m}^2$, stop smoking, following proper dietary habits and engagement in moderate to vigorous physical activity for ≥ 30 minutes per day undertaking regular physical activity are important to optimize a cardiac patient's physical, psychological and social functioning in addition to stabilizing, slowing, or even reversing the progression of the underlying atherosclerotic processes, thereby reducing morbidity⁽⁴⁾. Comprehensive lifestyle changes may be able to bring about regression of even severe coronary atherosclerosis after only 1 year, without use of lipid-lowering drugs⁽⁵⁾. Overweight and obesity are complex health problems that affect more than two-thirds of U.S. adults. There are many health conditions associated with overweight and obesity including hypertension, coronary heart disease, and type 2 diabetes. A 10- to 20-pound weight loss often improves blood pressure, blood cholesterol, and triglyceride levels. Weight loss is also an effective therapy for reducing the risk of cardiac disease⁽⁶⁾. Coronary artery diseases (CAD) are directly related to blood cholesterol levels. It is estimated that 45% of deaths from CAD in men and 47% in women are due to raised blood cholesterol levels. The mean cholesterol level for adults over 18 years in England is 5.5 mmol/l for men and 5.6 mmol/l for women. Physical activity has favorable effects on several aspects of the blood lipid profile. Moderate activity appears to increase HDL levels, and a single activity session can result in improved blood lipid profile with effect for several days. Exercise training has also been shown to reduce elevated levels of triglycerides⁽⁷⁾. Fiber plays an important role in maintaining the health of the digestive system and is typically classified by its ability to absorb water: Soluble fiber absorbs water (soluble in water) and turns into a gel-like substance in the intestines that helps block cholesterol and fats from being absorbed through the intestinal wall into the blood system. Soluble fiber can be found in foods such as apples, oats, kidney beans, and barley. Insoluble fiber does not absorb water (insoluble in water) and essentially moves through the intestines un-dissolved so insoluble fiber helps to maintain the function of the digestive system by promoting the proper movement of food through the intestines. This form of dietary fiber is primarily found in whole grains such as whole wheat and popcorn and vegetables such as cauliflower, broccoli, and green beans⁽⁸⁾. Regarding to Fish Consumption, Omega-3 fats are a specific type of polyunsaturated fat known to reduce the risk for sudden death and death from coronary artery disease. The beneficial effects of fish consumption have been observed at levels of two 4-ounce servings of fish (especially oily fish such as salmon, tuna, and mackerel) be consumed each week⁽⁹⁾. On the other hand, the dietary salt (sodium chloride) intake is associated with increased blood pressure. Observational follow-up study found that a 25% to 35% reduction in dietary salt intake reduced the risk of myocardial infarction, stroke, revascularization, or cardiovascular death by 25% compared to those with no sodium reduction⁽¹⁰⁾. The evidence is compelling and has established physical inactivity as one of the major modifiable risk factors for CHD. A recent analysis suggests that 37% of deaths from CHD are attributable to physical inactivity; this is second only to raised blood cholesterol⁽¹¹⁾. The benefits of regular exercise include improvement in myocardial contraction and its electrical stability, and an increase in stroke volume at rest and during exercise, leading to a higher maximal cardiac output. Heart rate is decreased at rest, and at any given level of submaximal cardiac output. Endothelial function is improved, leading to better flow-mediated dilatation⁽⁷⁾. In addition, the diameter and dilatory capacity of coronary arteries are increased. Regular exercise also has effects on the tendency of blood to clot. Changes include reduced platelet

aggregation and increased fibrinolytic activity. In addition, regular physical activity lowers inflammatory factors such as plasma fibrinogen concentrations, and white cell count. Metabolic adaptations include stimulation of lipid oxidation during activity and in post-exercise recovery. There are alterations in the transport of blood lipids, with a higher ratio of high-density lipoprotein (HDL) to low-density lipoprotein (LDL) and increased lipoprotein lipase activity, which increases the use of circulating triglycerides as fuel and increases their clearance even at rest ⁽¹²⁾. Walking is described as 'the commonest and most natural exercise and the only sustained aerobic activity. Walking is easily adopted, adhered to, and convenient for the vast majority of people. It requires no special skills or equipment and is inherently safe. Walking is ideal as a gentle starting point for the sedentary and is the main option for increasing physical activity in sedentary populations ⁽¹³⁾. The traditional high-fiber diet, low in fat and cholesterol, has changed rapidly. Daily fat consumption has increased. Over 67 per cent of Iraqi civilian are overweight or obese. Physical inactivity (less than 10 minutes per day) is nearly 60 percent in Iraq ⁽³⁾. In order to provide realistic vision to the overall phenomena and improve the quality of the activities which are performed by the health practitioners toward the patients' healthier lifestyle with CAD.

OBJECTIVES:

To assess the biographical characteristic of the convenient sample

- 1-To find out the awareness level for healthier lifestyle change among patients with coronary artery diseases
- 2-To assess the awareness of healthier lifestyle change among patients with coronary artery diseases, related to smoking, dietary habits and sedentary behaviors of the sample.

METHODOLOGY:

- 1- **Design of the study:** descriptive study
- 2- **Setting of the study:** single center Marjan hospital in Hillah city.
- 3- **The sample of the study:** A purposive (non-probability) sample of 108 patients distributed as (58 male – 50 female) was selected.

The sample was selected according to special criteria as patients who admitted to coronary care unit, diagnosed with coronary artery diseases, they are oriented to person, place, and time. Questionnaire was used as a mean of data collection; the data collection was carried out from the period of June. 15. 2012 to Aug. 20. 2012). The questionnaire was developed than distributed consisting of three parts. Part I: Demographical data concerning the respondent specific characteristic: age, gender, educational level, marital status, Address, and occupation. Part II: extended to general information as smoking, alcohol consumption, chronic diseases, body weight and height, while part III consist of (18) items related to the patient awareness of the sample regarding their disease, nutrition, exercise and activities. Two likert rating scale was used as yes and no the levels of the scale were scored as (2) for yes and (1) for no.

- 4- **Statistical analysis:** Data were analyzed through applying descriptive analysis as; frequency, percentage and mean score

RESULT

Table 1: Distribution of Patients According to the Demographic data of the sample

Demographic data	Frequency	Percentage
Gender		
Male	58	53.8%
Female	50	46.2%
Age		
<50	28	25.9%
51-61	28	25.9%
62-72	32	29.6%
73-83	16	14.8%
84 and above	4	3.8%
Education level		
Illiterate	53	49.0%
Primary	19	17.6%
Intermitted	9	8.3%
Secondary	23	21.3%
High education	4	3.8%
Occupation		
Official work	23	21.3%
Private work	25	23.2%
Retire	1	0.9%
Housewives	49	45.4%
Without work	10	9.2%
Residence		
City	55	51.0%
Rural	53	49.0%
Marital status		
Single	1	0.9%
Marriage	94	87.1%
Widow& Divorce	13	12.0%

Table 1: presented that the 58(53.7%) were male, according to the age the highest percentage 32(29.6%) were between (62-72) age group, 53(49.0%) were illiterate, while the highest percentage 49(45.3%) were housewives, the table shows that the 55(50.9%) were city resident and 94(87.0%) of the sample were married.

Table 2: Distribution of the patients according to chronic illness, Smoking and Alcohol Consuming

Chronic Illness	Frequency	Percentage
Diabetes Mellitus	21	19.4%
Hypertension	41	38.0%
Diabetes& Hypertension	20	18.5%
Free of diseases	26	24.0%
Smoker	66	61.1%
Alcoholic	0	0

Table 2 Shows that the highest percentage of the sample group 41 (38 %) were hypertensive and the highest percentage of the sample 66 (61.1 %) were smoker, related to alcohol consuming 108(100%) were not alcoholic.

Table 3: Frequency and Percentage of Patients Body Mass Index

Body Mass Index	Frequent	Percentage	Mean
Under Weight< 18.5	6	5.55%	17.9
Normal Weight 18.5- 25.0	46	42.9%	22.5
Over Weight 25.0-30.0	45	41.6%	26.7
Obese > 30.0	11	10.1%	30.9
Total	108	100%	

Table 3 Shows that 56 (51.8%) of the sample were overweight and obese

Table 4: Awareness of Patients According to disease

Awareness about Disease	Yes		No		MS	L
	F	%	F	%		
Do you have knowledge related to the sign and symptoms of cardiac attaches	32	29.6%	76	70.3%	1.29	HL
Do you visit health agency when you feel sick	105	97.2%	3	2.7%	1.97	HL
Do you visit health physician clinic when you feel sick	105	97.2%	3	2.7%	1.97	HL
Are you follow visiting schedule for routine check up	16	14.8%	92	85.1%	1.14	HL
Are you follow medication schedule regularly at time	64	59.2%	44	40.7%	1.59	HL

Ms: mean Score HL: Highly level M: Medium L: Low

Table 4: This table presents that the highest percentage of the sample 105(97.2%) were ask for medical consultations only when they feel sick.

Table (5) Awareness of patients Nutritional

Awareness about Nutrition	Yes		No		MS	L
	F	%	F	%		
Have meal in specific regular time	75	69.4%	33	30.5%	1.69	HL
Prefer fast food	55	50.9%	53	49.0%	1.50	HL
Prefer to have food outside	17	15.7%	91	84.2%	1.15	HL
Used to eat red meat daily	46	42.5%	62	57.4%	1.42	HL
Eat vegetable	90	83.3%	18	16.6%	1.83	HL
Used to read labels of content before buying any product	15	13.8%	93	86.1%	1.13	HL
Follow nutritional program which scheduled to avoid some of food kind	72	66.65%	36	33.3%	1.66	HL
Depend on food paradigm to plan nutritional program	0	108	108	100%		

Ms: mean Score HL: Highly level M: Medium L: Low

Table 5 This table present that the highest percentage of the sample 108(100%) were didn't plan their nutritional regimen and they ignore the content of the food paradigm

Table (6)Awareness of Patients According to Exercise and Activity

Awareness about Exercise and Activity	Yes		No		MS	L
	F	%	F	%		
Did you perform daily activities and work without any problems	18	16.6%	80	47.0%	1.07	M
Easley become tired when performing daily activities and work	89	82.4%	19	71.5%	1.82	HL
Do you involved in daily exercise	0	0	108	100%	1.82	HL
Do you involved in exercise for specific period daily	0	0	108	100%	1.0	M

Ms: mean Score HL: Highly level M: Medium L: Low

Table 6 This table presents that the highest percentage of the sample 108(100%) didn't used to involved to daily exercise sessions

DISCUSSION:

The demographical data which presented in table (1) shows that the higher percentage of the sample were male (53.6 %) and (29.6 %) of them were between (62-72) years of age , this results was parallel with Harvey who viewed that, Men have a greater risk for coronary artery disease and are more likely to have heart attacks earlier in life than women. Women's risk for heart disease increases after menopause, and they are more likely to have angina than men, regarding to the age, they revealed that about 85% of people who are over the age of 65 are most likely to undergo coronary diseases.⁽¹⁴⁾ A study in 2010, stated that "individual with low educational level, low economic status and married were more label to expose to accidental angina pectoris"⁽¹⁵⁾, this results were agree with our finding which pointed on high percentage (49%) of the sample were illiterate, (87%) were married and (45.35%) were housewives also the table shows that most of the sample (50.9%) were city resident. The finding which presented in table (2) shows that the higher percentage (38%) of the participant was hypertensive; several epidemiologic studies have demonstrated that systolic and diastolic blood pressures have a "strong, continuous, graded and etiologically significant" positive association with cardiovascular-disease outcomes. These relations are consistent in both men and women, in young, middle-aged, and older subjects, among different racial and ethnic groups, and within and between countries⁽¹⁶⁾. (61.1%) of the participant were smokers, these results agreeing with a study which carried out at 2007 stated that, hypertension and smoking are major risk factors for death due to cardiovascular disease (CVD). The CVD mortality due to smoking or hypertension was 35.1% for men and 22.1% for women The CVD mortality was higher in participants <60 years of age (57.4% for men and 40.7% for women)⁽¹⁷⁾. Prospective study appears that women in aged 40 years with a BMI >23 but <25 had a 50% increase in risk of nonfatal or fatal coronary heart disease and men aged 40 to 65 years with a BMI >25 but <29 had a 72% increased risk of mortality⁽¹⁸⁾, table (3) presents that overweight (41.6%) and obese (10.1%) records higher percentage (51.7%) of the study sample. Regarding to the patients knowledge and practice toward their disease table(4) records that the higher (70.3%)have no idea about heart attack ,(97.2%) were visit clinic only when they feel sick ,(85.1%)were unfamiliar to follow routine checkup visits. Patients' knowledge about their disease can be comprised of their awareness about the general pathophysiology, risk factors, symptoms, prevention, and treatment associated with their condition. Knowledge of heart disease can strongly influence symptom recognition, advocacy for physician screening, attitudes towards the disease, and provide motivation for individual behavior changes. Likewise, inadequate understanding of the disease may cause inappropriate coping behavior, non-compliance with medical advice, and unnecessary disease progression⁽¹⁹⁾. The results in Table (5) presented that the higher percentage (83.3%) eat vegetable, (86.1%) have no interest to read food label and (100%) were didn't have any information relater food pyramids. a much earlier study by Morrison' found that moderate reductions in fat and cholesterol intake improved cardiac survival: after 12 years, the entire control group patients had died compared with only 62% of experimental group patients in a nonrandomized trial. Those who were adherent to the diet reported substantially fewer cardiac events than those who were not adherent⁽²⁰⁾. Healthy balanced diets that will help prevent non-communicable

diseases such as heart disease and cancer. Common recommendations include eating plenty of fruits, vegetables and complex carbohydrates, and choosing foods, which are lower in saturated fat, salt and sugar. The use of food groups, as in food pyramids and circles, ensures the inclusion of all basic foods and gives positive messages about what we should be eating. Food labels can also provide useful details on the amounts of the different nutrients contained in a food ⁽²¹⁾. A nutrition education program may be effective in improving self-efficacy, diet behavior pattern and cardiovascular risk factors for patients with cardiovascular disease. The major protective effect of physical fitness is a reduction in cardiovascular events. In helping to set up a fitness program, the health professional should discuss with the patient how the program can be set up and what types of exercise might be considered⁽²²⁾. Patients should identify training activities that are most acceptable to them and most likely to be carried out on a regular basis--e.g., running, walking, climbing stairs, swimming. A specific time of day should be set aside for exercise, e.g., either before or after work. Patients on an exercise program should start slowly, especially if they have been sedentary: 10 minutes of exercise each day is recommended initially, although 20 minutes per day may be appropriate for an individual who has a more active lifestyle. Increases in exercise duration should be 5-10 minutes daily each week until a total exercise time of 30-40 minutes/day is reached ⁽²³⁾. Logistic regression analyses were performed to quantify the impact of change in self-efficacy on physical activity, smoking behavior, alcohol consumption, and food choices. Improved self-efficacy was associated with improved adherence to guidelines for physical activity 95% and food choices 95%. No such improvement was seen regarding adherence to guidelines for smoking or alcohol intake ⁽²⁴⁾.

CONCLUSION:

Most of the convenient sample of the study was male, illiterate, housewives and city resident. Most of the sample were overweight, with hypertension, smoker, and related to alcohol consuming they were not alcoholic.

They ask for medical consultations only when they feel sick. They didn't plan their nutritional regimen and they suffer from limitation to perform daily activities, all of them didn't used to involved to regular daily exercise sessions.

RECOMMENDATIONS

- 1- There is a strong need to promote patient education in order to enhance their lifestyle pattern, by improving knowledge and bring them about a change in attitudes.
- 2- Tailored educational approaches may be necessary for those of low socioeconomic status, particularly with regard to the nature of disease , and treatments
- 3- Health practitioner desire training and resources to better help patients adopt diet and exercise regimens directed specifically to their health literacy and their access to healthy foods, along with their readiness to change

REFERENCES:

- 1- Moton P.G., Fontaine D.K., Hudak C.M. and Gallo B.M., Critical care Nursing, A Holistic Approach, 8th ed, Lippincott Williams & Wilkins, 2005, p:422

- 2- Véronique L. Roger , Alan S. , Donald M. Lloyd, Robert J. Adams, et al: Heart Disease and Stroke Statistics- 2011 update, A Report from the American Heart Association, **Circulation**, 2012; pp:125:188-197
- 3- Alwan A. :The Current Situation, Our Vision for the Future and Areas of Work , Second ed. , Ministry of Health, December ,2004 with Coronary Heart Disease: Systematic Review and Meta-analysis of Randomized Controlled Trials , **Am J Med**. 2004;116 , pp:682– 692.
- 4- Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Final report, **Circulation**. 2002; 106 (25), pp: 3143–3421
- 5- Gaziano T.: Prevention and treatment of chronic diseases in developing countries, Population Division, Expert Paper , United Nations , Department of Economic and Social Affairs ;No. 2011/2
- 6- Sangster J., Furber S., Allman-F., Haas M., et.al :A population-based lifestyle intervention to promote healthy weight and physical activity in people with cardiac disease: The PANACHE (Physical Activity, Nutrition And Cardiac Health) study protocol, Cardiovascular Disorders , 2010 ; 10 : 17
- 7- Ornish D., Browm S.E. , Billings J.H., ScherwitzL.W. , et al , Intensive Lifestyle Changes for Reversal of Coronary Heart Disease **JAMA**. 2012; 308 (17), pp: 1768-1774.
- 8- HammanRF, Wing RR, Edelstein SL, LachinJM, Bray GA, Delahanty L, et al., Effect of weight loss with lifestyle intervention on risk of diabetes. **Diabetes Care**. 2006; 29 (9), pp:2102–2107
- 9- Taylor R.S., Brown A., Ebrahim E. , Jolliffe J., Noorani H., Skidmore B., et al , Exercise-Based Rehabilitation for Patients
- 10- Lichtenstein AH, AppelLJ, Brands M, Carnethon M, Daniels S, Franch HA, et al. Diet and lifestyle recommendations revision 2006: a scientific statement from the American Heart Association Nutrition Committee, *Circulation*. 2006; 114 (1), pp: 82–96.
- 11- Cook NR, Cutler JA, Obarzanek E, Buring JE, Rexrode KM, Kumanyika SK, et al. , Long term effects of dietary sodium reduction on cardiovascular disease outcomes: Observational follow-up of the Trials of Hypertension Prevention (TOHP). **BMJ**. 2007; 334 (7599) ,p:885.
- 12- Press V., Freestone I., George G.F., Physical activity: the evidence of benefit in the prevention of coronary heart disease, **International Journal of Medicine QJM** (2003) 96 (4),pp: 245-251
- 13- Thompson P.D., Buchner D., Pina I., Balady G.J., Williams M.A., Marcus B.H., Berra K., Exercise and Physical Activity in the Prevention and Treatment of Atherosclerotic Cardiovascular Disease ,Arteriosclerosis, Thrombosis, and Vascular Biology. 2003; 23, pp: 42-49. MedlineWeb of Science
- 14- Thompson P.D. Exercise Prescription and Proscription for Patient with Coronary Artery Disease, **Circulation**, 2005, 112, pp: 2354-2363
- 15- Harvey S. and David Z., Coronary Heart Disease, The New York Times, Wednesday, October 24, 2012
- 16- Norton A., Lower education level risk, New York, Dec 13, 2010 <http://www.reters.com/artical\2010\12\13\us-education-heart-id>
- 17- Vasan R.S., Larson M.G., LeipE.p., Evans J.C., OdonnellC.J., KannelW.B., and Levy D., Impact of High –Normal Blood Pressure on the Risk of Cardiovascular Disease, **Engl J Med**, 2001, Vol. 345, No. 18.www.nejm.org
- 18- Hozawa A, Okamura T, Murakami Y, Kadowaki T, Nakamura K, Hayakawa T, Kita Y., Joint impact of smoking and hypertension on cardiovascular disease and

- all-cause mortality in Japan: NIPPON DATA80, a 19-year follow-up. **Hypertension Res.** 2007 Dec; 30(12), pp: 1169-75.
- 19- Corral R., Montori V.M., Somers V.K, Korinek J., Thomas R.J. Allison T.G., Mookadam F. and Lopez J. Association of bodyweight with total mortality and with cardiovascular events in coronary artery disease: a systematic review of cohort studies, **Lancet**, 2006 ,Volume 368, Issue 9536, Pp.: 666-678
 - 20- Herman A. Taylor, Gail D. Hughes, and Robert J. Garrison, Cardiovascular Disease Among Women Residing in Rural America: **Epidemiology**, Explanations, and Challenges, *Am J Public Health*. 2002 April; 92(4), pp: 548–551.
 - 21- Sheena K. , Chris A. , Jane W. , Cynthia P. , Stephanie B. , Paul O. , Donna E. Stewart, and Sherry L. Grace, Degree and Correlates of Cardiac Knowledge and Awareness among Cardiac Inpatients , **Patient Educ Couns.** 2009 April; 75(1), pp: 99–107.
 - 22- World Health Organization European Region. Food based dietary guidelines in the WHO European Region. Copenhagen: WHO, Europe, 2003
 - 23- Camprubi M., Cabrera S. , Sans J. , Vidal G. , Salvado T., and Bardaji A. Body Mass Index and Hospital Mortality in Patients with Coronary Syndrome receiving in a University Hospital , **Journal of obesity** ,2012, vol.2012
 - 24- Berna G.M., Yolanda V.G., Rutger V.P .and Frank L.J. ,The Effect of Self-Efficacy on Cardiovascular lifestyle, **Eur J Cardiovasc Nurs**, Sep.2011, vol.10, No (3), pp:180-186