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Educational program for Sudanese population in Algazira state regarding the cardiac rehabilitation

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***Abstract*---**Background: Cardiovascular disease (CVD) is one of the main causes of death or disability in world. Low- and middle-income countries (LMIC) have the highest mortality and morbidity rate of countries. Cardiac rehabilitation (CR) reduced cardiovascular mortality and the number of acute hospitalizations, while improved functional capacity and perceived quality of life. Rehabilitation is importance and The World Health Organization was developed a package of rehabilitation interventions to implement as part of the entire continuum of universal health care. It consists of five parts, namely nutritional counseling, risk factor modification, psychosocial management, patient education, and exercise training. Cardiac rehabilitation is custom designed to patient. Cardiac rehabilitation indicates for all patient with cardiovascular illnesses including ischemic coronary heart disease, coronary heart failure, myocardial infarctions, or sufferers who've passed through cardiovascular interventions including coronary angioplasty or coronary artery skip grafting. Cardiac rehabilitation packages purpose to restriction the mental and physiological stresses related to cardiovascular disease, lessen the chance of related mortality, and enhance cardiovascular feature to assist sufferers optimize their excellent of life. Methods: The Prevention and Rehabilitation of Cardiac Problems educational program on the level of knowledge and intention to screen among Sudanese Population in algazira state was examined using a quasiexperimental. Participants were randomly assigned to the intervention. Level of knowledge were measured at baseline and at 2 months between pre and posttest, involved a systematic collection, analysis and interpretation of data to evaluate the current knowledge. The sample consist of 100 persons and that who were available during study period. Result: The current study was done in algazira state in hospital clinic and in society. The sample size of 100 nurses were those of 45.60% males and 54.40% females. The mean age of the

study sample is 60 years. Table (1) clarified that good knowledge of the study group regarding the exercise during cardiac rehabilitation (CR) increased from (31.3%) in pretest to (68.7%) after the intervention with. P – value .000 and Chi-Square 41.087a. In table (2) study group has don know before conduct of the program (81.8 %) and after conduct of program the decrease to (18.2 %) with P – value .000 and Chi-Square 30.328a. In table (3) good knowledge of the study group regarding the psychological and social problems during cardiac rehabilitation (CR) increased from (5.38%) in pretest to (94.2%) after the intervention with. P – value .000 and Chi-Square 62.195a. Conclusion: CR has been available in Sudan for almost 20 years. But the patients of cardiac problems not known about this program and the fund is the main causes to not successively like same of all middle-income countries (LMIC) and the patients were limiting access to the program. also CR need for special training team unfortunately unavailable in Sudan. Finally based on the results of current study, we concluded help enhance knowledge among Sudanese societies. Recommendation: Introduction of Cardiac Rehabilitation, CR programs must be included in the cardiac problems management protocol, degrease the cost of CR programs, assessments of Cardiac Rehabilitation and reassessment of the program and update with new WHO guideline lastly educational workshops about the importance of cardiac Rehabilitation (CR) in the society and in media to encourage of patients to participate in this program to decrease the mortality and morbidity for patients with cardiac diseases.

***Keywords*---**cardiovascular disease (CVD), cardiac rehabilitation (CR), Sudanese societies, middle-income countries (LMIC), heart failure (HF).

Introduction

Cardiovascular disease (CVD) continues to be a major cause of morbidity and mortality around the globe and the leading cause of death in the United States lead for disability for more of patient in in 2015, there were 422.7 million CVD cases around the world. [1,2,3.4] Cardiac rehabilitation (CR) content of five components, namely nutritional, risk factor modification, psychosocial treatment, patient and family education, and exercise training. [5,6] Cardiac rehabilitation is actively accomplished in lots of Western countries, in which its effectiveness and protection have already been established, for CR had been advanced in attention of every country's circumstances, and clinical and medical proof documenting CR has been systematically prepared to tell clinical professionals' decision-making in the Sudan unfortunately have not use like all middle-income countries (LMIC) the purpose of this research is to develop and increase the knowledge about CR in Sudan. [7-8] The time of begin CR a few tenets like England's guideline are begin as quickly as feasible after admission and earlier than discharge from hospital. Patients need to be invited to a CR consultation inside 10 days in their discharge from hospital (NICE 2013) [9].

Cardiac rehabilitation (CR) administrations are an indication within the continuum of care for patients with cardiovascular infection (CVD).[10,11] A Course IA suggestion, referral to CR is 1 of 9 execution measures for auxiliary avoidance set up by the American Heart Affiliation and American College of Cardiology, after myocardial dead tissue (MI)[12,13,14] percutaneous coronary intervention, or coronary course bypass graft surgery or within the setting of steady angina or symptomatic fringe arterial disease (ie, discontinuous claudication). [15,16,17,18,19,20] Referral to CR is additionally prescribed after heart valve surgery or cardiac transplantation or within the setting of unremitting heart failure (HF) with decreased discharge division. [21]

Cardiac rehabilitation (CR) divided to three phases inpatient outpatient and independent maintenance, the phase one in condition of open heart surgery and take days to week the patient most identify about the mobility and doing some activity after discharge in phase tow the patient need for physician observation and education program and in phase three the patient is take free program and a utilizing their claim domestic hardware or a nearby wellbeing club. [22,23]

When discuss the component of the (CR) have found many point need to explain firstly the patient should be doing assessment this assessment assist patient to evaluate the ability and safety for him and after that start by the exercise is recommended for men, women and older adult patient with CVD, [24,25,26,27] in the part of nutritional management program in (CR) the patient should be frequently assess of the dietary/weight management through education and counseling weekly or daily by telephone or home visit [28, 29,30,31,32,33] the overweight lead for many diseases to decrease the risk of this diseases patient need to ideal weight through a combination of decreased caloric intake and increased caloric expenditure, all patient with cardiac problems complain of psychological and social problems that can affect both morbidity and mortality Depression, anxiety is the main psychological problems for this patient and in the (CR) should be follow up all patient screening for anxiety, depression and family problems to assess and management through medical and psychological treatment to return the patient to normal life[34] the benefits of cardiac rehabilitation decrease the rate of morbidity and mortality by (28%) reduction the risk factor, inflammatory.[35] Other important benefits of cardiac rehabilitation include life quality to patient. The barriers to cardiac rehabilitation many factors social, psychological, medical, age, sex, race, physician recommendation and patients' beliefs about their illness all of this factors affect in (CR) practitioner on patient. [36,37]

Table 1: Study group knowledge pre and posttest regarding exercise in CR

The exercise		Sample		
		Pre test	Post test	Total
good knowledge	Count	31	68	99
	% within exercise during CR	31.3%	68.7%	100.0%
	% within Sample	31.0%	68.0%	49.5%

suffocations knowledge	Count	20	22	42
	% within exercise during CR	47.6%	52.4%	100.0%
	% within Sample	20.0%	22.0%	21.0%
poor knowledge	Count	39	10	49
	% within exercise during CR	79.6%	20.4%	100.0%
	% within Sample	39.0%	10.0%	24.5%
done know	Count	10	0	10
	% within exercise during CR	100.0%	.0%	100.0%
	% within Sample	10.0%	.0%	5.0%
Total	Count	100	100	200
	% within exercise during CR	50.0%	50.0%	100.0%
	% within Sample	100.0%	100.0%	100.0%
Pearson Chi-Square	41.087[a]	P – value	.000	

Table 2: Study group knowledge pre and posttest regarding dietary/weight management in CR

The dietary/weight management		Sample		Total
		Pre test	Post test	
good knowledge	Count	29	67	96
	% within dietary/weight management	30.2%	69.8%	100.0%
	% within Sample	29.0%	67.0%	48.0%
Suffocations knowledge	Count	23	14	37
	% within dietary/weight management	62.2%	37.8%	100.0%
	% within Sample	23.0%	14.0%	18.5%
poor knowledge	Count	39	17	56
	% within dietary/weight management	69.6%	30.4%	100.0%
	% within Sample	39.0%	17.0%	28.0%
done know	Count	9	2	11
	% within dietary/weight management	81.8%	18.2%	100.0%
	% within Sample	9.0%	2.0%	5.5%
	Count	100	100	200
	% within dietary/weight management	50.0%	50.0%	100.0%
	% within Sample	100.0%	100.0%	100.0%

Pearson Chi-Square	30.328[a]	P – value	.000	

Table 3: Study group knowledge pre and posttest regarding Psychological and social problems in CR

Psychological and social problems		Sample		Total
		Pre test	Post test	
good knowledge	Count	3	49	52
	% within psychological and social problems	5.8%	94.2%	100.0%
	% within Sample	3.0%	49.0%	26.0%
Suffocations knowledge	Count	8	12	20
	% within psychological and social problems	40.0%	60.0%	100.0%
	% within Sample	8.0%	12.0%	10.0%
poor knowledge	Count	67	33	100
	% within psychological and social problems	67.0%	33.0%	100.0%
	% within Sample	67.0%	33.0%	50.0%
done know	Count	22	6	28
	% within psychological and social problems	78.6%	21.4%	100.0%
	% within Sample	22.0%	6.0%	14.0%
	Count	100	100	200
	% within psychological and social problems	50.0%	50.0%	100.0%
	% within Sample	100.0%	100.0%	100.0%
Pearson Chi-Square	62.195[a]	P_value	.000	

Discussion

The study reveals the age of patients with cardiac problems between 50 to65 years and the women more than men. Cardiac rehabilitation program designed for patients with cardiac problems (CHF, MI) and other cardiac diseases is practiced for many years and many studies have shown that when the patients were good knowledge and applied correctly of the CR program lead to decrease of the mortality and mobility. [38] This study revealed in table (1) the distribution of the result pretest to poor or Suffocations knowledge for patient's and was obvious that there was an improvement in patient's knowledge in posttest of Intervention CR program. All the components of knowledge were significantly improved in the posttest compared with the pretest evaluation. The good knowledge about the exercise program posttest significantly ($p<0.000$) increased compared to this attribute in the pretest. This finding was consistent with the previous research which reported that the importance of exercise in CR for men and women with cardiac diseases the patient also increases the knowledge about how to assess physical fitness and practice standards, guidelines for physical activity and

exercise activities of daily living (ADL) guidance and support [24,25.39.40].the participants posttest knowing about period of exercise at least 20-30 minutes (preferably 45-60 minutes/week), three days a week (preferably 6-7 days/week)

Also, the patients were not well aware of the importance of dietary/weight management in the pretest but after the intervention of the CR program, they substantially became fully aware of the importance of dietary/weight management program in the posttest the patient's become aware of all steps of the adherence with a cardio protective diet, assessment of daily caloric intake and dietary content of fat, saturated fat, sodium, and other nutrients, measurement of their weight, body mass index BMI (18.5-24.9kg/m2). and waist circumference, misinterpretations approximately nourishment, eating and weight cycling should be tended to and redressed the patents also increase the knowledge about assess lipid profile, measure blood pressure frequently at rest if found high lifestyle modifications are recommended. quit of smoking to maintain of weight all forms of tobacco permanently. Follow-up, referral to special programs, and/or pharmacotherapy are recommended, doing some physical activities and exercise to loss of weight, and finally refer to pharmacy and surgical to manage weight loss. [28,29,30,41,42,43,44,45] Following this result, a recent study stated the World Health Organization (WHO) recommendation is committed to guaranteeing the complete continuum of care, including rehabilitation, is advertised in each country as part of universal health coverage, as outlined in their Rehabilitation 2030 initiative. [46] Furthermore, patient's knowledge about the Psychological and social problems of CR significantly increased after the intervention of the program. When to look for the table (3) fined the most of participant is poor knowledge or done know regarding of the Psychological and social problems of CR in the pretest period but most of them increase the knowledge in all Psychological and social problems include of the how to assess depression and anxiety level, anger social isolation**,** occupational or marital distress, sexual dysfunction and knowing about education and counselling individual or in group to improve of the psychological states quiet instruction to assist patients adapt with their illness, move forward their health-related quality of life and guarantee compliance with pharmacological and non-pharmacological treatment. All of the Psychological and social problems of CR in this study is recommendation in previous research and matching with this research regarding of the importance to patient knowing about this. [47]

Ethical aspects and Conflict of interest Statement

The research team requested informed consent from all the participants and their confidentiality was preserved. The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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