

# Effectiveness of educational program on Nutrition and Medications knowledge for patient undergoing open heart surgeries in the middle Euphrates governorate

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## Abstract

Cardiovascular disease (CVD) is the most widespread most prevalent significant health issue and the main reason of mortality worldwide. The condition may result in physical impairment and impose a substantial financial burden on afflicted persons and the national healthcare system. According to the World Health Organization, coronary artery disease was responsible for 15,3 million deaths (30% of all deaths) and 10.3% of the total disability adjusted life years (DALY) lost in 1998. The World Health Organization calculated that cardiovascular diseases were responsible for 28.5% of all fatalities in developing nations. To meet the objectives of this study, a quantitative study quasi-experimental design with pre- and post-testing for both the studied and control groups was employed. This research applied in two cardiac centers in Shaheed almehrab and alnajef cardiac centers. were the designated sites for data collection. Non-probability purposive sample selected from the target population who are met the specific criteria during specific time interval. The study sample consists of (60) patients undergoing open heart surgery having the same inclusion criteria. Those patients are divided into two groups: (28) patients act as study group and the other (32) patients act as a control group the patients were frequent visits to these centers for follow up and consultation. questionnaire was developed to assess the knowledge toward self-care. Most of participants in both groups 14(43.8) were between 50-59 age group, 14 (43.8%) were more than 59 years age group, 18 (64.3%) ,17 (53.1%), were male. Related to educational status 7 (25.0%) were intermediate school in study group, while 11 (34.4%) were secondary school in the control group, Both group recorded high percentage 27 (96.4%) ,25 (78.1%) , were married . shows the differences between pre-test and post-test of the research sample following participation in the educational program are highly significant at p-value (0.001)., while no significant differences recorded among control group members. The finding shows good effect of the educational program on the patient's knowledge. Patients undergoing cardiac surgery should have access to information resources before to surgery, as well as explanations of the risks associated with cardiac surgery throughout hospitalization and at home and implementation of the educational program should be performed by nurses for patients undergoing open heart surgery before and reinforcement of education during the follow-up period concerning to the patients' needs.

**Keywords:** Nutrition, Knowledge, Patient, Open heart surgeries

## 1. Introduction

Cardiovascular disease (CVD) is the most widespread most prevalent significant health issue and the main reason of mortality worldwide. The condition may result in physical impairment and impose a substantial financial burden on afflicted persons and the national healthcare system. According to the World Health Organization, coronary artery disease was responsible for 15,3 million deaths (30% of all deaths) and 10.3% of the total disability adjusted life years (DALY) lost in 1998. [2] The World Health Organization calculated that cardiovascular diseases were responsible for 28.5% of all fatalities in developing nations (3) According to the most recent data given by the World Health Organization (WHO) in 2018, coronary heart disease caused 18.92% of all deaths in Iraq. The Global Burden of Disease Study indicates the cardiovascular disease would grow by 55 percent between 2010 and 2030. (3).

Average annualized loss in emerging markets from 1990 through 2020. The term quality of life refers to a concept and an outcome that have become more crucial to the fields of health and health care. Concerning medical and public health-related quality of life refers to an individual's or group's perception of their physical and mental health throughout time (5). The purpose of coronary artery bypass graft (CABG) to improve circulation to the heart. As a result, the patient experiences less chest pain and ischemia, has a higher quality of life, and may even live longer. It is intended that the patient will be able to lead a more normal life after the treatment, and that the risk of a heart attack would be diminished. (1).

## 2. Objectives of the study

1. To assess patient knowledge toward self-care management before and after conducting special educational program

2. To evaluate the effectiveness of the self-care management educational program on the patient's knowledge who undergoing open heart surgeries

### 3. Methodology

To meet the objectives of this study, a quasi-experimental design with pre- and post-testing for both the studied and control groups was employed. This research applied in two cardiac centers in Shaheed almehrab and alnajef cardiac centers started from 20<sup>th</sup> August 2021 to 10th September 2022. The total number of selected patients in the Shaheed almehrab for cardiac disease and surgery are (28) patients and AL-Najaf Center for Cardiac are (32) patients and that leads to consist of (60) patients totally.

A total sample of (85) patients refer to the centers for treatment and consultation during the study period, participants must have met the study's requirements and consent to participation .10

patients for pilot study were excluded from the study .

Ten patients for assessment need .33patients the study group selected from Shaheed Almehrab for cardiac disease and surgery and thirty two were assigned to the control group selected from AL-Najaf Center for Cardiac .four patients for the study group were dropped out of the study for the following reasons : two patients who going to the ibn albitar hospital for doing surgery in this center ; two patients not complete the session of education program and one patient going to the India for surgery .Now a total are (60) patients in the study .

Non-probability purposive sample selected from the target population who are met the specific criteria during specific time interval.

To accomplish this phase of the study, we used a multiple choices questionnaire format. The content of the format was based on the review of related literature and subjective experiences of the knowledge questions of the researcher.

### 4. Result

Demographic characteristics	Rating and intervals	Control group		Study group	
		F	%	F	%
Age / Years	Less than 40	4	12.5	8	28.6
	40-49	5	15.6	6	21.4
	50-59	9	28.1	13	46.4
	More than 59	14	43.8	1	3.6
	Total	32	100.0	28	100.0
Gender	male	17	53.1	18	64.3
	female	15	46.9	10	35.7
	Total	32	100.0	28	100.0
Education Status	able to read and write	2	6.25	3	10.7
	primary school	4	12.5	5	17.85
	intermediate school	9	28.1	7	25.0
	secondary school	11	34.4	5	17.85
	Institutes	4	12.5	2	7.15
	college	2	6.25	6	21.45
	Master or Doctorate	0	0	0	0
Total	32	100.0	28	100.0	
Marital Status	Single	2	6.3	0	0
	Married	25	78.1	27	96.4
	Widow	0	0	1	3.6
	Divorced	5	15.6	0	0
	separated	0	0	0	0
	Total	32	100.0	28	100.0
occupation	employer	10	31.3	7	25.0
	unemployed	8	25.0	16	57.1
	house wife	12	37.5	5	17.9
	retied	2	6.3	0	0.00
	Total	32	100.0	28	100.0
Address	rural	17	53.1	19	67.9
	urban	15	46.9	9	32.1
	Total	32	100.0	28	100.0

The demographic data is shown in this table for (60) patients their undergoing to open heart surgery who agree to participate in the study, (28) patients act as study group and the other (32) act as control group.

The table shows that most of participants in both groups 14 (43.8) were between 50-59 age group, 14 (43.8%) were more than 59 years age group, 18 (64.3%) ,17 (53.1%), were male. Related to

educational status 7 (25.0%) were intermediate school in study group, while 11 (34.4%) were secondary school in the control group, Both group recorded high percentage 27 (96.4%) ,25 (78.1%) , were married , The patients who participate in the

study group recorded high percentage 16 (57.1%) were unemployment , while the result of the control group patients show that 12 (37.5%) were house wife. Both groups recorded 19 (67.9%) ,17 (53.1%), were rural as residency area.

**Table 2: Allocation of the clinical information of the study sample (interventional and control group)**

clinical information	Rating and intervals	Control group		Study group	
		F	%	F	%
Chronic diseases	no have any chronic diseases	6	18.8	4	14.25
	DM	5	15.8	9	32.1
	HTN	7	21.9	5	17.9
	ASTMA	0	0	1	3.6
	RH	3	9.4	5	17.9
	Dm & HTN	11	34.1	4	14.25
	Total	32	100.0	28	100.0
Smoking	No	20	62.5	13	46.4
	Yes	12	37.5	15	53.6
	Total	32	100.0	28	100.0
Previous hospitalization	1	3	9.4	7	25.0
	2	13	40.6	10	35.7
	3	7	21.9	4	14.3
	4	9	28.1	7	25.0
	Total	32	100.0	28	100.0
Self-care education	No	29	90.7	21	75.0
	social media	1	3.1	7	25.0
	Nurse	1	3.1	0	0
	Physician	1	3.1	0	0
	Total	32	100.0	28	100.0
Types of surgery	CABG	12	37.5	9	32.1
	VALVULAR DIS	17	53.1	15	53.6
	CABG & VALVULAR	3	9.4	4	14.3
	Total	32	100.0	28	100.0

This table presents the distribution of clinical information for (60) patients, (9) patients were participant with study group suffer from diabetic mellitus and (11) patients from control group suffer from diabetic and hypertension as chronic disease, both group the high percentage were not smoking.

previous hospitalization related heart diseases both groups were 2 admissions to hospital, self-care education the high percentage of control and study group not receive education about self-care. the both groups were undergoing to valvular surgery related to types of surgery.

**Table 3: Nutrition and medication**

N	Items	Control group		Interventional group	
		Pretest	Posttest 1	Pretest	Posttest 1
		M ± Std	M ± Std	M ± Std	M ± Std
	1. eat food low cholesterol to prevent heart diseases	1.47 0.507	1.41 0.499	1.43 0.573	1.89 0.315
	2. eat food low salt to maintain normal blood pressure	1.41 0.499	1.50 0.508	1.46 0.508	1.93 0.262
	3. eat five portions of fresh fruits and vegetables a day and whole grains can reduce the risk of heart disease	1.25 0.440	1.41 0.499	1.39 0.497	1.79 0.418
	4. Olive oil contains antioxidants that can reduce the risk of heart disease	1.38 0.492	1.31 0.471	1.46 0.508	1.82 0.390
	5. Increasing the intake of green leafy vegetables helps reduce the risk of heart disease	1.34 0.483	1.38 0.492	1.39 0.497	1.75 0.518
	6. Diuretics have an onset of action 2 hours after taking them and last for 6-8 hours.	1.34 0.483	1.25 0.440	1.43 0.504	1.89 0.315
	7. Diuretics are taken during the early morning	1.16 0.369	1.28 0.457	1.25 0.441	1.86 0.356
	8. When taking blood-thinning medications and the appearance of black or blue spots on the skin or the appearance of blood in the urine or the change in the color of the urine to dark, the medication should be stop	1.25 0.440	1.22 0.420	1.32 0.476	1.82 0.390
	9. Digoxin is taken after food	1.19 0.397	1.19 0.397	1.21 0.418	1.79 0.568
	General mean and SD	1.31 0.048	1.32 0.039	1.37 0.044	1.84 0.098
	Assessment	poor	poor	poor	good
	No.	32	32	28	28

This table presents the statistical analysis of patients undergoing to open heart surgery knowledge about

Nutrition and medication, the general mean and SD for interventional group ( $1.37 \pm 0.044$ ) in their pre-test, while significant change is clearly presented in the following post-test ( $1.84 \pm 0.098$ ). this indicate significant improvement in patients' knowledge regarding heart anatomy after their attendance to

the educational program session, while the results shows that the general mean and SD for control group ( $1.31 \pm 0.048$ ) in their pre-test, while no significant change is presented in the following post-test ( $1.32 \pm 0.039$ ).

**Table 5: comparison between the mean score of the of both groups' knowledge for both study group and control group**

t-test: Independent							
	Groups	No.	M	Std.	Std. E	P- value	Assessment
Pretest	Control	32	11.78	2.075	.367	0.282	N. S
	Study	28	12.36	2.022	.382		
Posttest	Control	32	11.94	1.625	.287	0.004	H. S
	Study	28	16.54	1.319	.249		

No= (number of study sample), M= mean, Std= (stander deviation), Std. E= (stander error), P. value= (probability value), N. S= (non-Significant)

## 5. Discussion

Interpretation and discussion of results obtained from the current study were presented in three main sections; the first section described the patients' demographic data and medical history of the study subjects. The second section was concerned with patients' level of knowledge.

### Socio-demographic characteristics

Table (1) which presented the results related to the demographical characteristic of the study sample shows that most of participants in both groups 13(43.8) were between 50-59 age group, 14 (43.8%) were more than 59 years age group,. This result supported by study carried out by (Lemaire A, et al 2020) titled as "The impact of age on outcomes of coronary artery bypass grafting", the finding revealed that most of the participants A total of 67,568 patients were identified who were  $\geq 70$  years old and underwent CABG. Most of the patients were reviewing to our patient's department in cardiac center were more than 50 years age group. This mean age of the present study may be due to aging which is an un-modifiable risk factor for CAD. The WHO reports that the principal cause of death of people over 65 years is CAD, and CAD risk increase as age increases. This may be due to increased life stressors even among people.

This result is in accordance with Leathy & Jada (2015), Moreover a study conducted by Amaal F et al, (2017) revealed that the average age of the studied sample was ranged between 50- and 59-years Regarding gender, the present study clarified most of the study and control group were males. This finding is in line with Mohammed (2014) who found that more than half of both the study and control group patient were males. Also, the result of the present study is supported by Abdeaal, etal (2013) & Amin (2015) who indicates that 64% of coronary artery disease cases weremen. On the other hand, this result may be not in line with Beltrame, etal (2012) who reported that CAD is the leading cause of mortality for both adult males and females alike worldwide.

Although the initial manifestation of CAD is delayed in females by about ten years compared to males, there is no abrupt increase in CAD mortality rates for females immediately following menopause but a progressive increase over subsequent years. Relation to marital status, the findings of the present study represent that all the patients were married. This result was agreed with a study which determined that most of their patients in their study were married. The finding of present study's supportive evidence is available in the study reported that CAG was

the most frequent surgery and cardiac valve surgery was increasingly performed on the patients (Ali, S., & Jacoub, S. 2018).

Regarding residence, the current study showed that more than half of studied patients were from rural areas, this may be due to lack of health care provided, take more time to diagnosed, and low educational level in rural area. This result was in the same line with Kapwata & Manda, (2018) who found that, when increase distance from health care facilities, the cardiovascular disease was increased and morbidity and mortality also worsen. Moreover, our findings were in the same line with another study conducted by Amaal F et al, (2017) who revealed that majority of the studied patients were from rural area.

Table 4 This table presents the statistical analysis of patients undergoing to open heart surgery knowledge about nutrition and medication, the general mean and SD for interventional group ( $1.13 \pm 0.072$ ) in their pre-test, while significant change is clearly presented in the following post-test ( $1.91 \pm 0.169$ ). this indicate significant improvement in patients' knowledge regarding nutrition after their attendance to the educational program session, while the results shows that the general mean and SD for control group ( $1.21 \pm 0.059$ ) in their pre-test, while no significant change is presented in the following post-test ( $1.25 \pm 0.441$ ).

The finding of present study's supportive evidence is available in the study Role of nutrition support in adult cardiac surgery: a consensus statement from an International Multidisciplinary Expert Group on Nutrition in Cardiac Surgery. Targeting preoperative optimization of the nutritional state may result in improved postoperative outcome. Structured scoring tools should be validated and implemented as part of preoperative assessment and to monitor the efficacy of nutrition therapy and In identified patients, the feasibility and clinical significance of early-initiated postoperative nutrition support needs to be evaluated (toppe C, Goetzenich etal 2017).

Table (5) This tables show simple significant changing in overall mean of score and stander deviation for interventional group between pretest, posttest with good assessment. while there is no change in mean of score for control group with poor assessment. This result due to increase the knowledge from intended to the educational program.

## 6. Conclusion

Most of participants in both groups 14(43.8) were between 50-59 age group, 14 (43.8%) were more than 59 years age group, 18 (64.3%) ,17 (53.1%), were male. Related to

educational status 7 (25.0%) were intermediate school in study group, while 11 (34.4%) were secondary school in the control group, both groups recorded high percentage 27 (96.4%) ,25 (78.1%), were married.

## 7. Recommendations

1. Patients undergoing cardiac surgery should have access to information resources before to surgery, as well as explanations of the risks associated with cardiac surgery throughout hospitalization and at home.
2. Implementation of the educational program should be performed by nurses for patients undergoing open heart surgery before.

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