

Impact of Educational Sessions Concerning Activity and Movement on Knowledge of Patients Undergoing Cardiac Surgeries in Middle Euphrates Governorate

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Abstract

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: Activity, Knowledge, Patients, Cardiac surgeries

1. Introduction

Cardiovascular disorders are the top global cause of mortality Many nations' high rates of morbidity and mortality can be ascribed to cardiovascular disease as one of the primary reasons for hospitalization (WHO, 2018). By 2030, it is expected that the prevalence of coronary artery disease (CAD) in the United States would rise to 18%. Reportedly, over 397 thousand coronary artery bypass graft (CABG) surgeries are performed annually in the United States. In Iran, where over 50,000 cardiac surgeries are performed annually, 4 CVDs account for 33–38% of fatalities and 23% of disability. The prevalence of VHD is rising. In the United States, approximately 2.5% of adults are deaf. (American heart association 2019). Although the frequency of VHD is going down in the Western world, it is far more common in developing countries where rheumatic heart disease is more common (Timmis A, Townsend N et al. 2018). The VHD prevalence increases to about 1 in 10

people over the age of 65 as a result of the degenerative changes in valve structure that occur with age (Bucholz EM.2018). Post-operative treatment and recovery of the cardiac surgery patient are reliant on the patient's health education (National Audit of Cardiac Rehabilitation 2018).

Investing time in pre-operative preparation for heart surgery patients helps eliminate gaps of information and avoids post-operative problems (Shuldham, Fleming & Goodman 2015). In spite of this, pre-operative health education for cardiac surgery remains a challenging aspect of the procedure. Orem believes that the capacity linked in self-care behaviors is central of the regulatory self-care function. (Luttik M et al.2005). Self-care is described as a method for coping with life events and difficulties generated by an increase in the aging process and reliance, Self-care entails taking particular actions to alleviate symptoms, maintain and improve health. Self-care is one of the common consequently essential aspects of the cardiac surgery

patient’s treatment (McAlister FA and Stewart S. 2013).

Self-care comprises of weight daily assessment; physician contacting when witnessing the ankle, legs, foot, or abdomen swelling; checking the urine amount of produced daily; eating fluids as prescribed by a physician; and avoiding excessive fluid intake (Sayers SL & Barbara R., 2008). There are numerous factors that influence the overall self-care performance among open heart surgery patients, including education level, hospitalization variety, awareness and perceived social support (Sayers SL and Barbara Riigel DNSC.2008). Patients diagnosed with heart disease who have a strong social support system have greater mental health and are more likely to stick to their prescribed treatment (Ghaem-magham Farahani Z et al. 2013). Due to the debilitating nature of this condition, the treatment plan for these individuals must consider all aspects of life, such as social assistance. (Christensen, et al. 2014).

Patients who are encouraged to participate in self-care during the course of their rehabilitation will have a reduced risk of experiencing a relapse. Patients who have had heart surgery have a substantial correlation between their level of life motivation and their level of self-care, and this correlation may play a role in the control of symptom development, the shortening of recovery time, and the prevention of sickness recurrence (Graven, et al. 2014). The majority of care chores linked to heart surgery are performed at the patient's residence by the patient

themselves, their relatives, or additional informal care takers patients who have undergone heart surgery must therefore engage in self-care despite the risks involved. fact that the majority of practitioners lack the knowledge to provide their patients with the tools necessary to engage in high-quality self-care (National Health Service) (2019).

2. Methodology

A quasi-experimental design with pre- and post-testing for both the studied and control groups was employed. This research applied in Shaheed almehrab cardiac center started from 25th April 2021 to 20th September 2022. The total number of selected patients in the Shaheed almehrab for cardiac disease and surgery are (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.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.

Table 1: Allocation of the Demographic characteristics of the study sample (interventional and control group)

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

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.

3. Result

Many statistical methods were used to find out the

outcome and detect if these are significant differences between symptoms severity variables after applying an educational program which prepared for this reason among the participants.

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.

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.

Table 3: Patient Activity and Movement and walking In-hospital: after discharge from ICU

N	Items	Control group		Interventional group	
		Pretest	Posttest	Pretest	Posttest
		M ± Std	M ± Std	M ± Std	M ± Std
	1.The patient can move after disconnected from devices from him and gradually increase movement during his stay in the hospital	1.18 0.246	1.16 0.369	1.25 0.440	1.89 0.315
	2. After discharge from hospital walking inside the house	1.13 0.336	1.34 0.397	1.44 0.418	1.86 0.356
	3. Walking outside the house	1.32 0.369	1.25 0.440	1.32 0.441	1.82 0.390
	4. After the operation, the patient can do arm stretching exercises and do personal care by himself such as ADLs	1.20 0.296	1.19 0.397	1.18 0.341	1.79 0.418
	General mean and SD	1.207 0.053	1.235 0.020	1.297 0.054	1.84 0.044
	Evaluation	poor	poor	poor	good
	No.	32	32	28	28

M= mean of scores, Std= (stander deviation), cut off point= 0.5, mean of scores = 1.5, (poor knowledge= 1-1.49), (Good knowledge = 1.50-2)

This table presents the statistical analysis of patients undergoing to open heart surgery knowledge about Patient Activity and Movement and walking In-hospital, the general mean and SD for interventional group (1.297 ± 0.054) in their pre-test, while

significant change is clearly presented in the following post-test (1.84 ± 0.044). 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 (1.207± 0.053) in their pre-test, while no

significant change is presented in the following post-test (1.235 ± 0.020).

Table 4: 1 to 4 weeks after surgery

N	Items	Control group		Interventional group	
		Pretest	Posttest	Pretest	Posttest
		M ± Std	M ± Std	M ± Std	M ± Std
	1. Walking at a slow pace	1.25 0.440	1.42 0.336	1.11 0.315	1.93 0.262
	2. Washing your hands and body	1.31 0.336	1.45 0.369	1.50 0.000	1.89 0.315
	3. Combing your hair while sitting or standing	1.09 0.296	1.06 0.246	1.07 0.262	1.86 0.356
	4. Showering with warm water while sitting or standing in the shower	1.03 0.177	1.03 0.177	1.04 0.189	1.82 0.390
	5. patient is able to change clothes	1.07 0.262	1.16 0.369	1.11 0.315	1.96 0.189
	6. Hobbies like playing card games, needlework, playing the piano, reading	1.00 0.000	1.09 0.296	1.13 0.336	1.79 0.418
General mean and SD		1.125 0.107	1.201 0.076	1.160 0.103	1.88 0.085
Assessment		poor	poor	poor	good
No.		32	32	28	28
M= mean of scores, Std= (stander deviation), cut off point= 0.5, mean of scores = 1.5, (poor knowledge= 1-1.49), (Good knowledge = 1.50-2)					

This table presents the statistical analysis of patients undergoing to open heart surgery knowledge about Patient Activity 1 to 4 weeks after surgery, the general mean and SD for interventional group (1.160± 0.103) in their pre-test, while significant change is clearly presented in the following post-test (1.88± 0.058). 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 (1.125 ± 0.107) in their pre-test, while no significant change is presented in the following post-test (1.201 ± 0.076).

Table 5: 4 to 6 weeks after surgery

N	Items	Control group		Interventional group	
		Pretest	Posttes t	Pretes t	Posttes t
		M ± Std	M ± Std	M ± Std	M ± Std
	1. Walking at a moderate pace	1.09 0.296	1.16 0.39	1.11 0.315	1.93 0.262
	2. Lifting items that weigh less than 10 pounds (4.5 kilograms)	1.07 0.262	1.03 0.177	1.04 0.189	1.96 0.189
	3. Preparing light meals. For example: chopping salad while sitting	1.06 0.246	1.13 0.336	1.07 0.262	1.89 0.315
	4. Washing the dishes, making the bed and doing light housekeeping such as dusting or light gardening	1.19 0.397	1.22 0.420	1.13 0.336	1.86 0.448
General mean and SD		1.102 0.164	1.130 0.104	1.087 0.117	1.91 0.110
Assessment		poor	poor	Poor	good
No.		32	32	28	28
M= mean of scores, Std= (stander deviation), cut off point= 0.5, mean of scores = 1.5, (poor knowledge= 1-1.49), (Good knowledge = 1.50-2)					

This table presents the statistical analysis of patients undergoing to open heart surgery knowledge about Patient Activity 4 to 6 weeks after, the general mean and SD for interventional group (1.087± 0.117) in

their pre-test, while significant change is clearly presented in the following post-test (1.91± 0.110). this indicate significant improvement in patient's 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 (1.102 ± 0.164) in their pre-test,

while no significant change is presented in the following post-test (1.130 ± 0.104).

Table 6: 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	28.06	1.865	.330	0.120	N. S
	Study	28	28.68	.945	.179		
Posttest	Control	32	28.78	2.366	.418	0.043	S
	Study	28	46.32	2.919	.552		

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

4. 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 ≥ 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.

Table 3 This table presents the statistical analysis of patients undergoing to open heart surgery knowledge about Patient Activity 1 to 4 weeks after surgery, the general mean and SD for interventional group (1.125 ± 0.107) in their pre-test, while significant change is clearly presented in the following post-test (1.88 ± 0.058). 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 (1.160 ± 0.103) in their pre-test, while no significant change is presented in the following post-test (1.25 ± 0.107).

The reported mean life expectancy a week after the intervention was significantly higher in the intervention group (176.76 ± 43.38) compared to the control group (159.50 ± 41.87) ($P=0.035$). They also reported the mean score of life expectancy (post-intervention) had significantly increased in the intervention group compared to pre-intervention (mean difference of 13.35 ± 14.07 , $P < 0.001$). Similar to our study, their participants were mainly male patients (63%) and had an undergraduate degree (67%). However, they only conducted three sessions of intervention with training.

5. 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 group recorded high percentage 27 (96.4%) ,25 (78.1%) , were married.

6. 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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