

## **Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate**

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**Abstract:** The purpose of this study was to evaluate home self-care management program for studied patients with open heart surgery in Kalyubia Governorate. **Design:** A Quasi experimental design was utilized for this study. **Setting:** The study was conducted at Chest & Heart Surgical Outpatient Clinic in Benha University Hospital to collect the sample and followed by home visits. **The sample** study involved 70 patients who had open heart surgeries. **Two** instruments were used in the study: A structured questionnaire was used by the researcher to collect data above. **These studies recommended** that home self-care program should be designed to support and provide follow up care for open heart patients in outpatient clinics by a specialized team in order to prevent complication, improve knowledge & practices.

**Key Words:** Home Self-care, Management Program, Open Heart Surgery.

### **Introduction**

Open-Heart Surgery (OHS) is any type of surgery where the chest is open and surgery is performed on the muscles, valves, and arteries of the heart. The Coronary Artery Bypass Grafting (CABG) is the most common type of heart surgery done on adults. During this surgery, a healthy artery or vein is grafted (attached) to a blocked coronary artery; this allows the grafted artery to “bypass” the blocked artery and bring fresh blood to the heart. OHS is sometimes called traditional heart surgery, today many new heart procedures can be performed with only small incisions, not wide openings, therefore, the term OHS can be misleading (National Heart, Lung, and Blood Institute, 2017).

Home health care is a wide range of health care services that can be given to patients with OHS in home after discharge from hospital. Home health care is usually less expensive, more

convenient, and effective as care patient get in a hospital or skilled nursing facility. The goal of home health care is to prevent any complication after OHS, help patient get better, regain independence, and become as self-sufficient as possible (Conkey et al., 2017).

Self-care is a very active and powerful choice to engage in the activities that are required to gain or maintain an optimal level of overall health, and in this case, overall health includes not just the physical, but the psychological, emotional, social, and spiritual components of patient’s well-being (Meridian, 2017).

The role of Community Health Nurse (CHN) is to provide health education about OHS and recovery, the CHN instructs patients to avoid certain activities, including lifting more than 5 kilos, pushing and pulling heavy objects, and standing in one place for

more than 15 minutes until medically cleared to do so. Patients should also avoid driving a car during that time, but riding in a vehicle as a passenger is acceptable. Climbing stairs and walking are also allowed, unless doctor's orders restrict the patient. Surgery does not prevent artery blockage from happening again but patient can help improve heart health by eating a healthy diet, cutting back on foods high in salt, fat, and sugar, leading a more active lifestyle, not smoking, controlling high blood pressure and high cholesterol (Warkus , 2016).

### **Significance of study**

Yaequb made the first OHS in 1980 and made 25000 case from beginning to this moment, 2500 from them heart transplantation (Yaequb, 2016).

Number of cases that had open heart in all Hospitals in Egypt 3760 in year of (2015), and in Kalyubia Governorate, Benha University Hospital made 2 cases every week and on average 96 case in (2016), and 115 case on (2017) so study had done to introduce home self-care management program for patients with open heart surgery and prevent any complication after surgery (Abdelhamed, 2017)

### **Purpose of the study**

1. Assessing knowledge of patients related to OHS and home self-care.
2. Determining home self-care practices of patients after surgery.
3. Assessing home environment of patients with OHS
4. Designing and implementing self-care management program based on the previously detected needs of the patients.
5. Evaluating the effect of self-care management program on knowledge and practices for patients with OHS.

### **Hypotheses:**

- 1) patients who receive home self-care program with have higher level of knowledge about home self-care on posttest than pretest.
- 2) Patients who receive home self-care program with have higher level of practices about home self-care on posttest than pretest.

### **Methods**

#### **Research design:**

A Quasi experimental design was utilized to conduct the aim of this study.

#### **Setting**

The study was conducted at Cardiothoracic Surgical Outpatient Clinics at Benha University Hospital to collect the sample and followed by home visits to conduct the management program. The investigator chose these settings because this place is the only made open heart surgery in kalyubia governorate

#### **Sampling**

All patients who attended previous setting to have OHS were included in the study. The number of patients who shared in the study was 70 cases, all patients had coronary artery bypass graft, or and valve replacement, discharged from Hospital and followed by home visits, collected through 6 months.

#### **Instruments**

Two instruments were used to collect the data.

**Instrument one:** A structured interview questionnaire. It was developed by the investigator based on reviewing related literatures, and it was written in simple clear Arabic language. It comprised of four parts:

**Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate**

- **Part one:** - It was concerned with social characteristics of studied sample. It was divided into 8 items about: residence, sex, age, and marital status, level of education, job, income and type of operation.
- **Part two:** - It was concerned with medical history of chronic disease. It was divided into 15 items.
- **Part three:** - It was concerned with knowledge of patients regarding OHS. It was divided into 7 items about OHS.
- **Part four:** - It was concerned with knowledge of patients regarding home self-care. It was divided into 23 items.

**Scoring system:**

<b>Good</b>	>70
<b>Average</b>	60-70%
<b>Poor</b>	<60%

**Instrument two:-** observational checklist were filled by investigator during home visits, which covered two parts:-

- **Part one:** It was concerned with practices of studied sample regarding recovery after OHS to prevent complications. It included 11 items.

**Scoring system:**

Satisfactory	> 70%
Unsatisfactory	<70%

- **Part two:** - It was concerned with home environment. It included 12 items.

**Scoring system:**

<b>Good</b>	>70
<b>Average</b>	60-70%
<b>Poor</b>	<60%

**Content validity:**

Instruments were checked by two experts' community nursing and one medical surgical nursing to check

clarity, relevance, comprehensiveness, and applicability.

**Ethical considerations**

Approval of faculty ethical research committee was obtained oral consent has been obtained from each working patients before conducting the interview. Also patients receive a brief orientation to the purpose of the study. They were also reassured that all information gathered would be treated confidentially and used only for the purpose of the study. Patients were told that they had right to withdraw from the study at any time without giving any reason.

**Pilot study:**

Pilot study was carried out on 10% of the studied sample equal 7 patients to test the practicability, applicability and timing of data collection. Reliability was assessed to determine the extent to which the items in the questionnaire related to each other. No modifications were done to the questionnaire; therefore, the sample of the pilot study was included in the total study sample.

**Procedure:**

- 1) Preparation of the study design and data collection tools was based on reviewing current , past, local and international related literature about open heart surgery by using the periodical journal , magazines, books and computer search to contrast the tools and the home health care intervention.
- 2) Official letters were obtained and delivered from the Dean of Faculty of Nursing, Benha University directed to the Director of Benha University administration, then to security manager, and the security officers. The letter contained expansion of the title, objectives, instruments and the study technique.

***Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate***

- 3) Investigator introduced herself to the patient and ask the questions using simple Arabic language to collect data , patient interviewed in Cardio theoretic Outpatient Clinic one day/week : Thursdays to collect Socio demographic characteristics, past and present history , then studied patients was met before operation in Chest & Heart Surgical department : Saturdays & Wednesdays to collect pre knowledge about surgery and home self -care at 10 am to 12 pm , then patient was met one week after the operation to collect post knowledge, one week after discharge patient was met in home, this visit took 2 hours from 10 am-12pm to observe pre practices and give health education according needs, then this visit repeated after a week to assess post practices. The actual field work was carried out over a period of 6 months from the beginning of January 2017 to the end of June 2017.
- 4) Home health care program development included three phases: Phase (1): Home health care program preparation .An interview was conducted to collect the baseline data about patient's knowledge related to open heart surgery. Afterwards; patients practices about the care after recovery. Areas of weakness in patients' knowledge and practices were identified and program objectives were set.
- 5) The investigator planned the home health care program after a review of literature built on the assessment of patients' knowledge obtained from the structured questionnaire sheet (tool one), and observations obtained by investigator observation checklist (tool two). This program included 8 sessions), contents and methods of teaching.
- 6) The home health care program was implemented at the Cardio theoretic Department in Benha University Hospital. The total time used in the program sessions is 7 hours (5 theoretical hours and 2 practical hours), program was conducted in 8 sessions and the session lasts 30-60 minutes. Patients' educational and training needs were assessed in order to be met, and booklet was designed as teaching methods.
- 7) After the implementation of the program, the post-test was administered which were the same formats of pre-test in order to compare patients' knowledge and practices before and after program, this helped to evaluate the effect of the implemented program.

### **Statistical design**

The collected data were organized, tabulated and statistically analyzed using Statistical Package for the Social Sciences (SPSS) version 13, which was used frequencies and percentages for qualitative descriptive data, and x<sup>2</sup> was used for relation tests, and mean and standard deviation was used for quantitative data, spearman correlation test (r) was used for correlation analysis and degree of Significance was identified.

**Associations between items were considered as the following: (p value)**

- Highly statistically significant  
P < 0.001
- Statistically Significant  
P < 0.05
- Not significant P > 0.05

### **Results**

**Table (1):** Describes that 70.0 % of patients were male, 62.9% of them their age >41 or more with mean age was 44.2± 14.1, 55.7% cannot read &

***Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate***

write, and 84.3 % of them had insufficient income

**Figure (1):** Indicated that 22.9 % of studied patients had good knowledge about open heart surgery, 42.9% of patients had average knowledge, and 34.2% of them hadn't known in pre-program, while 54.3% of them had good in post program

**Figure (2):** Indicates that 27.1% of studied patients had good knowledge about home self-care, 34.3% of patients had average knowledge, and 38.6% of them hadn't known in pre-program, while 42.9% of them had good knowledge in post program

**Figure (3):** Indicated that 4.3% of patients had good total knowledge, 25.7% of patients had average knowledge, and 70.0% of them hadn't known in pre-program, while 52.9% of them had good knowledge in post program

**Figure (4):** Indicated that 40.0% of patients had satisfactory practices, and 60.0% of them had don't satisfactory in pre-program, while 61.4% of them had satisfactory practices in post program

**Table(2):** Shows that 17.1% of patients had complete done practices in keep wound dry and clean in pre-program, while this percentage increased reach to 62.9% in post program , also 4.3% of them had complete practices in follow up healthy diet system to help wound healing in pre-program, while this percentage increased reach to 51.4% in post program

**Table (3):** Shows that 52.9% of patients had complete done practices in talk to doctor before taking any other medicines or supplements, including painkillers, coughs or colds in pre-program, while this percentage increased reach to 55.7% in post program, also 37.1 % of them had complete done practices in take medicines that are prescribed when discharged from hospital in pre-program, while this percentage increased reach to 65.7% in post program

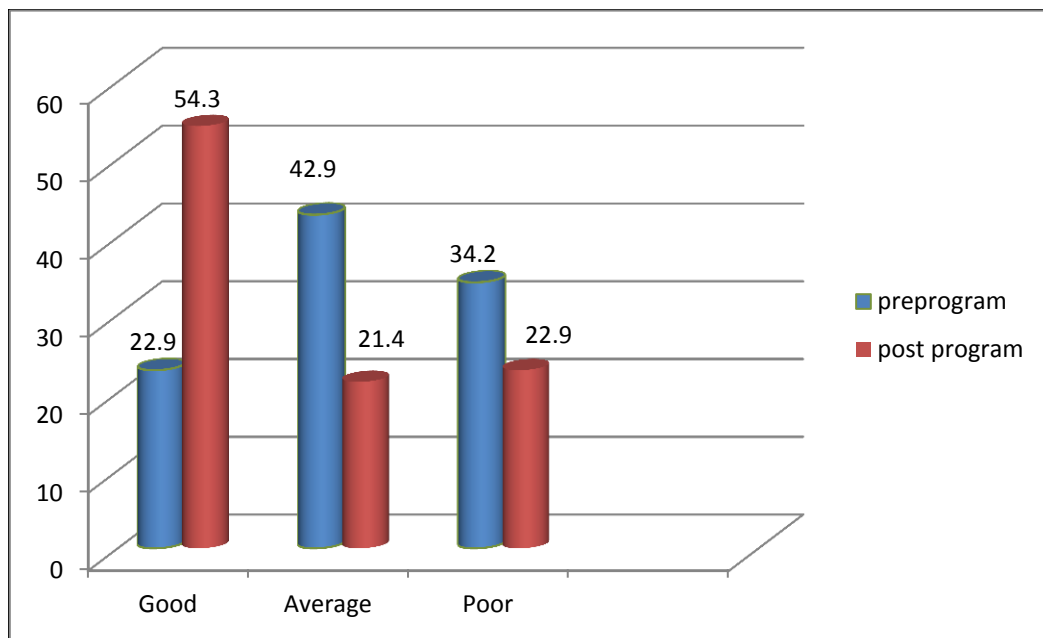
**Table (4):** Illustrates that 34.3% from patients live in good house, 22.9% of them number of room enough for member of family, 44.3% have average in ventilation & 51.4% average in house cleaning, 40.0% average in drink from taps, 40.0% of patients have average in sewage , and 38.6% of them good in cleaning bathroom, 45.7% from patients average in kitchen cleaning, and 32.9% from patients collecting garbage in the street for housekeeping, 48.6% of them average in ground from cement and covered with mats, 37.1% of them good in furniture arranged & coordinated, and 31.4% from houses good in light . According to research hypothesis patients with OHS who receive self-care management program knowledge and practices were improved after program.

**Table (5):** shows a positive statistical correlation was found between total knowledge and practices of patients through program

**Table (1): Frequency distribution of socio demographic characteristics of studied patients (N=70)**

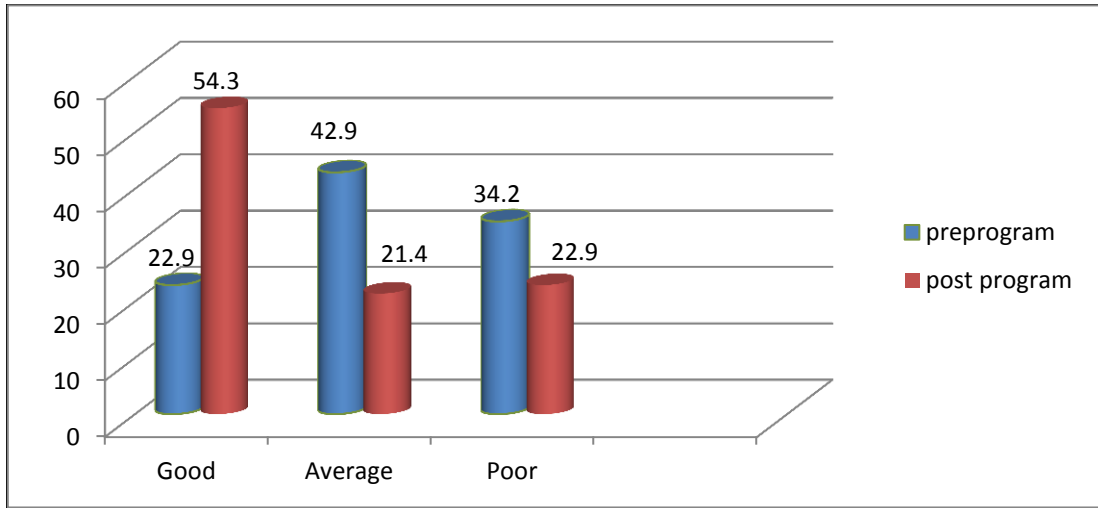
**Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate**

Items	No.	%
<b>Sex</b>		
Male	49	70.0
Female	21	30.0
<b>Age in years</b>		
20-30	8	11.4
31-40	18	25.7
>41	44	62.9
<b>Level of education</b>		
Cannot read & write	39	55.7
Primary	6	8.6
Secondary/diploma	24	34.3
University	1	1.4
Post graduated	-	-
Not work	27	38.6
<b>Family income</b>		
Sufficient	11	15.7
Insufficient	59	84.3

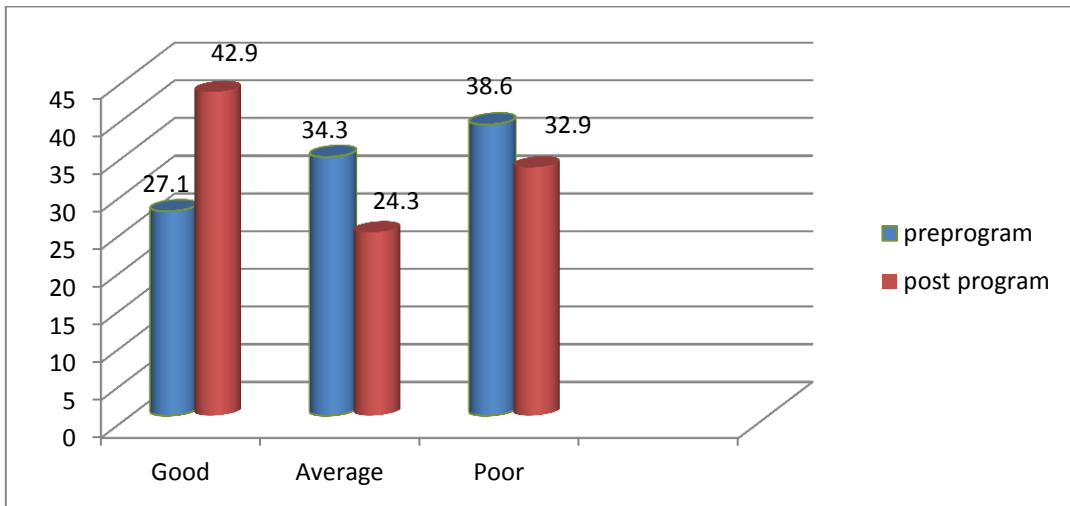


**Figure (1): Frequency distribution of the studied patients according to total knowledge score regarding open heart surgery (pre-post) program (No=70)**

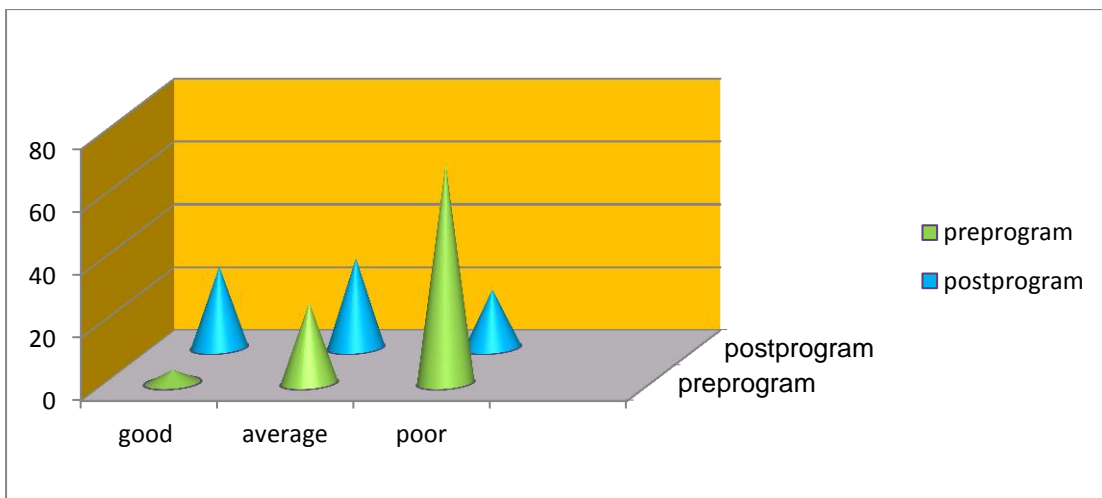
*Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate*



**Figure (2):** Frequency distribution of the studied patients according to total knowledge score regarding daily home self- care(pre-post) program (No=70)



**Figure (3):** Frequency distribution of the studied patients according to total knowledge about OHS & home self -care score (pre-post) program (No=70)



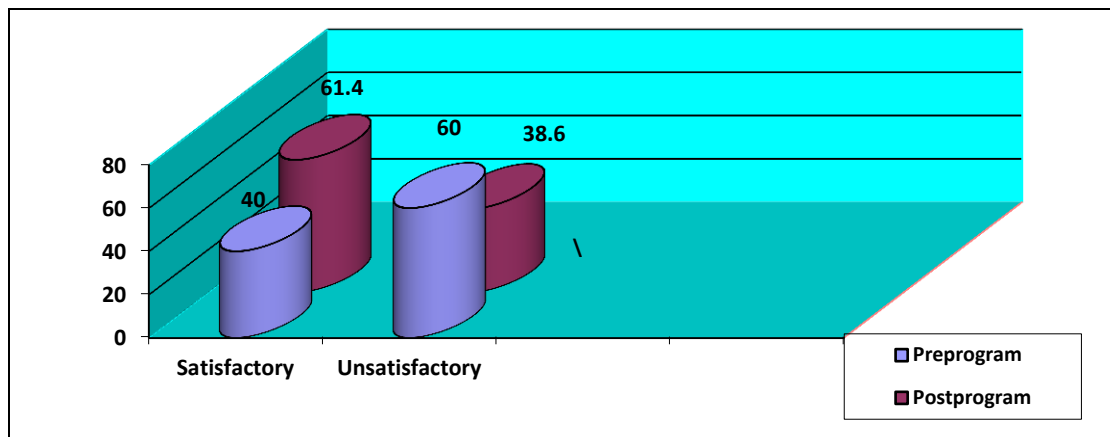
*Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate*

**Table (2): Frequency distribution of the studied patients regarding wound care after surgery (pre& post program) (N=70)**

Items	Pre program				Post program				X <sup>2</sup>	P
	Complete done		Not done		Complete done		Not done			
	No.	%	No.	%	No.	%	No.	%		
Make sure from understanding the names of the special medicines the dosage and the method of taking, how many times taken per day	26	37.1	44	62.9	44	62.9	26	37.1	4.62	.03*
Take medication that are prescribed when discharged from hospital	26	37.1	44	62.9	46	65.7	24	34.3	6.914	.009
Talk to doctor before continuing any medications taken before surgery.	22	31.4	48	68.9	52	74.3	18	25.7	16.5	.000**
Talk to doctor before taking any other medicines or supplements, Including painkillers, coughs or colds	38	52.9	32	47.1	39	55.7	31	44.3	.914	.03

\*Statistically significant difference  $p < .05$

\*\*Highly significant difference  $p < .001$



**Table (3): Frequency distribution of the studied patients regarding talking medication after surgery (pre& post -test) (N=70)**

Items	Pre program				Post program				X <sup>2</sup>	P
	Complete done		Not done		Complete done		Not done			
	No.	%	No.	%	No.	%	No.	%		
Keep wound dry and clean	12	17.1	58	82.9	44	62.9	26	37.1	4.62	.03*
Use soap and water only to clean wound	12	17.1	58	82.9	50	71.4	20	28.6	12.85	.000**
Use ointment. Oil or wound band by doctor order	3	4.3	67	95.7	44	62.9	26	37.1	4.629	.03*
Follow up healthy diet system to help wound healing	3	4.3	67	95.7	36	51.4	34	48.6	.811	.05*

\*Statistically significant difference  $p < .05$

\*\*Highly significant difference  $p < .001$



*Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate*

**Table (4): Frequency distribution of observational checklist of studied patients according to home environment (N=70)**

Housing condition	Good		Average		Poor	
	No.	%	No.	%	No.	%
Type of house	24	34.3	26	37.1	20.0	28.6
Number of room	16	22.9	31	44.3	23	32.9
Ventilation	27	38.6	31	44.3	12	17.1
House cleaning	16	22.9	36	51.4	18	25.7
Water supply	17	24.3	28	40.0	25	35.7
sewage	21	30.0	28	40.0	21	30.0
Toilet	16	22.9	27	38.6	27	38.6
Kitchen	18	25.7	32	45.7	20	28.6
Collecting garbage	30	42.9	23	32.9	17	24.3
Ground	21	30.0	34	48.6	15	21.4
Home furniture	27	38.6	26	37.1	17	24.3
Light	32	45.7	22	31.4	16	22.9

**Table (5): Correlation between total knowledge score and total practice score of patients about open heart surgery**

parameter	Knowledge			
	Pre program		Post program	
	r	P	r	P
Pre practices	.178	.001**	--	--
Post practices	--	--	.27	0.02*

\*Statistically significant difference  $p < 0.0$  \*\*Highly significant difference  $p < 0.001$

**DISCUSSION**

***Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate***

Coronary Artery Bypass Graft (CABG) and Valve Replacement (VR) are the most common heart surgeries used in the treatment of cardiovascular disease consist of a variety of open heart surgical procedures and have been shown to be effective in enhancing quality of life. Despite their advantages, CABG and VR are associated with the occurrence of symptoms within the first three weeks following surgery (Heart and Stroke Foundation of Canada , 2017).

Self-care involves personal health maintenance performed by the individual and does not require shared management or assistance from caregiver. It is the engagement in activities that are learned and aimed at promoting healthy functioning. The activities are reflective of an individual's beliefs, health status, and traits. Following cardiac surgery, self-care is crucial for preventing complications, hospital readmissions, and emergency room visits (Orem, 2011).

The current study revealed that more than quarter of studied patients had poor knowledge about OHS in pretest; while this percent improved in posttest (Figure 1). This result agree with study about structured postoperative teaching and knowledge after cardiac surgery done in Abidjan by Smeltzer & Brenda, (2014), found that knowledge of patients about open heart surgery concerned with complication after surgery and increase level of death, re hospitalization as result of decrease level of awareness of patients about surgery and by improve knowledge complication would decreased. It may be due to most patients couldn't read & write, live in rural, and age more than 40years.

Investigating the total knowledge of studied patients about daily home self-care the result indicated that more than third of studied patients had poor

knowledge about daily home self-care in pretest, while this percent decreased in posttest (Figure 2). These finding agree with study about Patients' experiences with symptoms and needs in the early rehabilitation phase after coronary artery bypass grafting done in Ethiopia by Lie et al. (2012), who reported that it has been proved that cardiovascular surgery education improves patients' posttest outcomes. It may be due to no source of information either in pictures or explanation in written paper, no people give the patient information about self-care after the operation and also for the old age and the low level of education. Investigating the total knowledge of studied patients indicated that less than quarter had poor knowledge in pretest, while more than half had good knowledge in posttest (Figure 3).Results agree with study about the Surgical infection prevention and surgical care improvement projects done Sudan by Bratzler (2016), who reported that theirs significant improvements in knowledge points toward effective education being delivered during the intervention. Cardiac rehabilitation has proved to be effective in changing lifestyle habits in a holistic way and this study further shows an improvement in knowledge based on sound educational principles. As regard total practices, it indicated that less than half of patients had satisfactory practices in pre- program, while three fifths of patients had satisfactory in post program (figure4), this result agreement with study about heart disease in the family history done in United States by Harvard (2014), who reported that training about practices after cardiac surgery in home and given practice variations considerable opportunities exist for improving outcomes and preventing readmissions.

***Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate***

Regarding distribution of the studied patients about wound care after surgery at home, study showed that more than two third of patients hadn't done steps keep wound dry and clean in wound care in pretest, while in posttest more than half of patients had complete done this practices (table 2 ).These results were agreement with study about aframe work for professional practices for open heart surgery done in Jordan by Masters, (2011), who reported about practices of studied patients after recovery, it indicated those patients complete done practices such as wound care 29.59% pretest, while this percentage increased reach to 100% posttest.

Considering distribution of the studied patients regarding taking medication after surgery, this study was showed that less than half of patients had complete done practices in talk to doctor before taking any other medicines or supplements, including painkillers, coughs or colds in pre-program, while this percentage increased in post program (table3). Finding agree with study about impact on knowledge and anxiety after coronary artery bypass graft surgery done in Saudi Arabia by Liao et al.(2011), who found that those patients complete done practices such as talking medication 25.22% pretest, while this percentage increased reach to 49.57% posttest.

Concerning to observation of home environment, the result revealed that more than quarter of patients live in good house, , and less than half had poor in home environment (figure 4) .This result was agreement with Kadda (2017), who found that home modification is important for people with open heart surgery and safely at home and may be done after observation.

According to research hypothesis patients with OHS who receive self –

care management program knowledge and practices were improved after program , and finding showed a positive statistical correlation was found between total knowledge and practices of patients through program, (table 5), this result not agreement with study about evaluation of nurses' practices provided to the patients who undergo OHS done in Egypt by Aziz, (2014), who found that there was significant statistical correlation between total knowledge score and total practice score. It might due to the patients had poor knowledge and unsatisfactory practices about care after open heart surgery which could effect on home self –care, and through health education and training knowledge and practices improved .

**Conclusion:**

The home self –care management program improve knowledge and practices for patients with open heart surgery. There was positive statistically significant correlation between patients total knowledge scores and total practices scores pre and post program.

**Recommendation:**

- 1) Home self -care programs should be basic components of nursing educational programs especially those related to pre and post-operative care of open heart patients.
- 2) Health educational programs about open heart surgery should be provided to patients to provide knowledge; practices about OHS, home self- care & prevent complication after surgery.
- 3) Patient should maintain an exercise program for physical, mental, social, and psychological well-being. Exercising with others can create added motivation.

*Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate*

- 4) Emphasize the importance of providing support and appropriate follow up care for open heart patients in outpatient clinics by a specialized team in order to prevent complication
- 5) Written booklets, posters and videos should be available in each Cardio Thoracic Department Unit in hospital to acknowledge patients about open heart surgery.
- 6) Future researches should be applied for large number of patients to provide home self-care management program after open heart surgery.

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*Home Self-Care Management Program for Patients with Open Heart Surgery in Kalyubia Governorate*

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