

# Impact of Patient Family Education on Self Care at Home Post CABG and Post Valve Replacement Patients using Multi-Lingual Video-Assisted Teaching

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**Abstract:** Cardiovascular diseases (CVDs) are a group of disorders of the heart and blood vessels. Heart attacks are usually acute events and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. The most common reason for this is a build-up of fatty deposits on the inner walls of the blood vessels that supply the heart which leads to death globally. An estimated 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. Of these deaths, 85% were due to heart attack. Coronary Artery Bypass Grafting (CABG) is a critical surgical procedure aimed at improving blood flow to the heart. It is commonly performed in patients suffering from severe coronary artery disease (CAD), where plaque buildup causes narrowing and blockage of the coronary arteries. Valve replacement surgery is a procedure performed to treat patients with damaged or diseased heart valves. The heart contains four valves—mitral, aortic, tricuspid, and pulmonary—that regulate the flow of blood between chambers.

**Statement of the problem:** “A study to assess the impact of patient family education on self-care at home post CABG and post Valve Replacement using multi-lingual video assisted teaching in post-operative cardiac units of selected hospitals at Chennai district”.

**Objectives:** It aims to assess the impact of multi-lingual video-assisted teaching module on self-care at home post CABG and post Valve Replacement. **Methodology:** The methodology used in this study is Quantitative and it is Quasi Experimental study and the Research Design used is One-Group pretest and posttest Research Design.

Postoperative recovery following Coronary Artery Bypass Grafting (CABG) and Valve replacement surgeries involves significant challenges, requiring both medical management and patient participation in self-care. Self-care education also emphasizes Dietary changes, and exercise, all of which play a vital role in preventing further cardiovascular events. Effective education empowers patients and families to actively engage in care, improving both physical healing and self-care confidence after surgery. In Apollo main Hospitals, post CABG and post Valve Replacement patients were interviewed for their Queries/challenges of self-care at home in the aspect of wound care, Medications and follow-up care. So, Patient family education video assisted module on self-care at home after CABG and Valve Replacement was created in multilingual languages and Patient Family Education focuses on empowering patients and families with essential knowledge using video-assisted teaching. It includes recognizing signs of infection, managing medications, and understanding dietary restrictions and exercise to ensure safe recovery. Studies indicate that patients who are educated on managing medications,



*recognizing early signs of complications (such as infection or chest pain) and adhering to activity restrictions are better equipped to manage their recovery at home. In our Hospital, whenever CABG and valve Replacement, QR code is shared to the patient so that they can access the Patient Family Education video at any time in their home in their Regional Languages.*

**Keywords:** Impact, Self-care at home after Discharge, Health Education, Post CABG, Post Valve Replacement, Patient Family Education, Multi-lingual Video assisted teaching

## **I. INTRODUCTION**

Coronary Artery Disease (CAD) is one of the leading causes of death worldwide. It affects millions of people, especially in aging populations. According to the American Heart Association (AHA), in the United States alone, more than 370,000 CABG surgeries are performed annually. CABG is typically recommended for patients with severe CAD who have significant blockages (usually more than 70%) in one or more coronary arteries. A study by the *Journal of the American College of Cardiology* indicates that CABG is often recommended when medications and angioplasty are insufficient, or when multiple arteries are blocked. As with any major surgery, CABG carries risks such as infection, stroke, heart attack, or arrhythmias (irregular heart rhythms). These risks are higher in older patients or those with pre-existing conditions like diabetes and lead to other complications.

CAD restricts blood flow, depriving the heart muscle of oxygen and increasing the risk of heart attack or heart failure. CABG involves creating a bypass around the blocked coronary arteries using a healthy blood vessel, often taken from the patient's chest, leg, or arm. This surgical intervention restores adequate blood supply to the heart, alleviates symptoms such as chest pain (angina), and can enhance overall heart function. CABG is considered a life-saving procedure and is often recommended when lifestyle changes, medications, and other interventions fail to adequately manage CAD.

When one valve or more of these valves become narrowed (stenosis), leaky (regurgitation), or infected, it can result in significant complications, including heart failure, stroke, or arrhythmias. Both CABG and valve replacement surgeries are critical in managing cardiovascular diseases, with the goal of improving heart health and preventing life-threatening complications. These procedures are typically recommended when non-surgical treatments are ineffective, and they require careful post-surgical care to ensure optimal recovery. Valve diseases, such as aortic stenosis and mitral regurgitation, are common in older adults. The *European Society of Cardiology* reports that over 1.5 million people in the U.S. are affected by severe aortic stenosis, and the need for valve replacement surgery continues to rise as populations age. Valve replacement is indicated in patients who experience significant symptoms such as shortness of breath, chest pain, or fatigue, or who have severe valve dysfunction that is not amenable to other treatments. Valve replacement carries risks, including infection (endocarditis), bleeding, arrhythmias, and stroke. Infections can occur in 1-2% of patients, and strokes may occur in up to 5% of patients undergoing surgery and can lead to other complications.

Postoperative recovery following Coronary Artery Bypass Grafting (CABG) and Valve replacement surgeries involves significant challenges, requiring both medical management and patient participation in self-care. Research has consistently shown that comprehensive patient and family education can significantly enhance recovery outcomes, reduce hospital readmissions, and promote long-term health. Studies indicate that patients who are educated on managing medications, recognizing early signs of complications (such as infection or chest pain) and adhering to activity restrictions are better equipped to manage their recovery at home. Self-care education also emphasizes Dietary changes, and exercise, all of which play a vital role in preventing further cardiovascular events. Effective education empowers patients and families to actively engage in care, improving both physical healing and self-care confidence after surgery. In Apollo main Hospitals, Post CABG and Post Valve Replacement Patients were interviewed for their Queries/challenges faced during their Recovery period at home and it was faced a challenges of self-care at home in the aspect of wound care, Medications and follow-up care.



### **Need for the Study**

The need for patient and family education on self-care after Coronary Artery Bypass Grafting (CABG) and heart valve replacement surgery is critical to improving recovery outcomes and preventing complications. Postoperative recovery can be complex, with risks such as infection, medication side effects, and cardiac distress. Without proper education, patients may struggle to recognize warning signs, follow medication regimens, or adopt necessary lifestyle changes, which can lead to readmissions or prolonged recovery.

Research has shown that informed patients are more likely to adhere to post-discharge care guidelines, leading to reduced hospital readmissions, fewer complications, and enhanced overall recovery. Most people experience some anxiety, trouble thinking and emotional strains as they recover from surgery. This project has been taken in the focus to improve their queries of the patients. Adequate information reduces the anxiety and clarifies the queries of the patients. This study is essential to fill the gap in self-care knowledge, ensuring patients and families are equipped to manage care effectively, promote healing, and enhance long-term heart health outcomes after surgery

## **II. REVIEW OF LITERATURE**

Yacoub made the first OHS in 1980 and made 25000 cases from beginning to this moment, 2500 from them heart transplantation (Yacoub, 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 an average 96 cases in (2016), and 115 cases in (2017) to study the introduction of home self-care management program for patients with open heart surgery and prevent any complication after surgery (Abdelhamed, 2017).

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## **III. METHODOLOGY**

### **Statement of the problem**

“A study to assess the impact of patient family education on self-care at home post CABG and post Valve Replacement using multi-lingual video assisted teaching in post-operative cardiac units of selected hospitals at Chennai district”.

### **Objectives:**

It aims to assess the impact of multi-lingual video-assisted teaching module on self-care at home post CABG and post Valve Replacement.

### **Delimitation**

The study is delimited to Patients with post CABG and Post Valve Replacement patients admitted in cardiac units in Apollo Main hospitals.

### **Materials and Methods**

Postoperative cardiac Units of selected hospitals at Apollo Main Hospital, Chennai.

### **Research Approach and Research Design**

Quantitative research approach was used for this study. Quasi Experimental one group pretest post-test design is the most appropriate design for measuring the impact of patient family education.



### **Independent Variable**

In the present study the independent variable is video assisted teaching on post-operative management of patients with CABG/valve replacement.

### **Dependent Variable**

In the present study it refers to the knowledge of patients about self-care at home of patients with CABG/valve replacement. In the present study the demographic variables are Residence, Age, Sex, Marital status, Education, Language, Job, Income and Type of Surgery.

### **Hypothesis**

H1-There will be a significant Difference between the pretest and posttest knowledge before and after the Multi-lingual video assisted teaching.

H0-There will be no significant association between the pretest and posttest knowledge before and after the Multi-lingual video assisted teaching

### **Setting of the study**

Study is conducted in the Apollo Main Hospitals at Chennai District.

### **Population**

In the present study population consist of patients who have undergone post CABG and Valve Replacement patients in cardiac units of selected hospitals at Chennai district.

### **Methods of data collection**

#### **Sampling Technique**

Purposive sampling is will be used for the study.

#### **Sample Size**

The sample for the present study consisted of 30 post CABG and post Valve Replacement who met the inclusion criteria.

### **Criteria for Sample Selection**

#### **Inclusive Criteria**

Patients in Postoperative Cardiac Units

- 1) Who are in the age group of 30-80years
- 2) Who are willing to participate in the study
- 3) Who are available at the time of data collection period.

#### **Exclusive Criteria**

Patients in Postoperative Cardiac Units

Who have undergone Atrial Septal closure, Ventricular Septic Closure and Aneurysm Repair.

### **Tool for the Data Collection**

To fulfill the objectives of the study a closed-ended structured questionnaire was The tool was constructed in two parts. Part I consists of demographic variables. Part II consists of 10 items on CABG/Valve Replacement.

**Part I:** Includes 6 items of demographic variables such as Age, Sex, Marital status, Education, Language, and Type of Surgery.

**Part II:** It consists of total 10 items related to knowledge regarding self-care at home after CABG/Valve Replacement.

### **Methods of Data Analysis and Interpretation**

After getting the verbal consent, total 30 patients interviewed through telephone after 24- 48 hours from the time of Hospital discharge and the data was collected. Patient's Queries (Wound Care, Medications, Diet, Exercise, Follow-up) were considered as Non –compliance, where there was a need in bridging the gap of their Queries through Multi-lingual Effective Health education through Technology Innovative usage of Video-assisted Teaching. Video assisted teaching with the information required to inform a post cardiac patient about self-care at home was prepared and it was corrected/acknowledged by the cardiothoracic team in the Apollo Main Hospitals, Chennai and it was showed to nurses in cardiac unit for the reassurance. Patients under the inclusion criteria who admitted in the cardiac unit were assessed for the knowledge of self-care at home after surgery. Video assisted teaching module in their own languages given to the patients. Post Exposure to the teaching video, the knowledge of the patient was assessed.



#### IV. RESULTS

Table (1): Describes that 60 % of them were in the age >41 or more, 67 % of patients were male and 33 % were female, 93 % were married and 7 % were unmarried, 73 % were Literate and 27 % illiterate, 27 % were able to understand English, 27 % were Tamil, 23 % Hindi, 13 % Bengali and 10 % Malayalam, and 80 % have had were underwent CABG and 20 % Valve Replacement.

**Table (1): Impact of patient family education on self-care at home post CABG and post Valve replacement patients using multi-lingual video-assisted teaching -Demographic variables of the patients**

Items	Frequency	%
<b>Age</b>		
20-30 years	3	10
31-40 Years	9	30
>41 years	18	60
<b>Sex</b>		
Male	20	67
Female	10	33
<b>Marital status</b>		
Married	28	93
Unmarried	2	7
<b>Education</b>		
Literate	22	73
Illiterate	8	27
<b>Language</b>		
English	8	27
Tamil	8	27
Hindi	7	23
Bengali	4	13
Malayalam	3	10
<b>Type of surgery</b>		
CABG	24	80
Valve Replacement	6	20

Figure (1): Impact of patient family education on self-care at home post CABG and post Valve replacement patients using multi-lingual video-assisted teaching - Knowledge of patients on self-care at home post CABG and post Valve Replacement



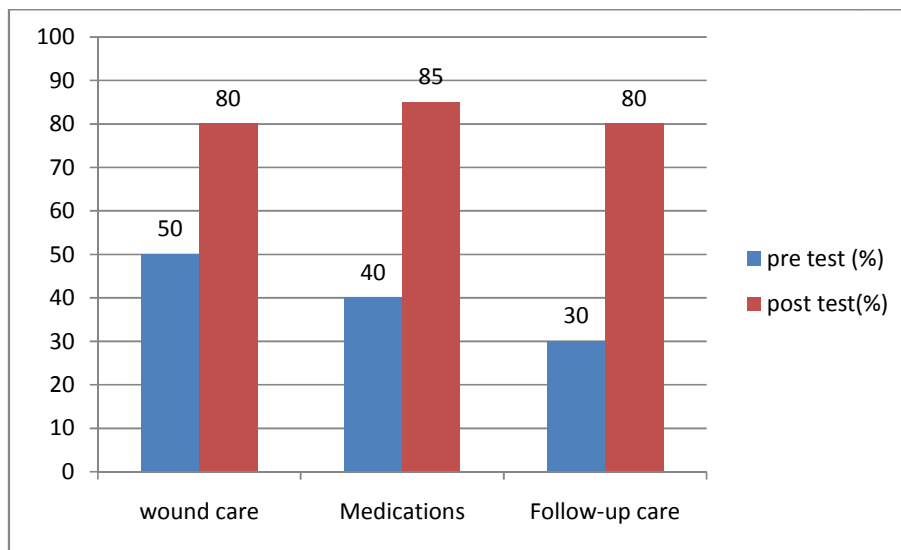
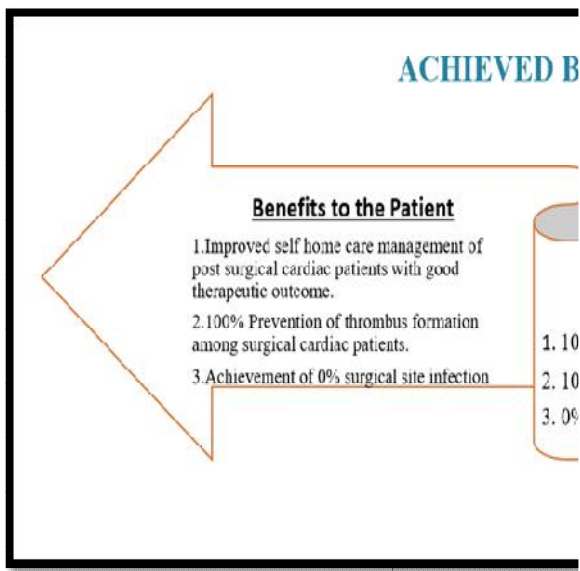


Figure (1): Among 300 participants, 50% has knowledge in wound care, 40% knowledge in Medication and Remaining 30 % knowledge in follow-up care in pretest and there has been improved knowledge in wound care(80%) , Medication(85%) and 80 % in follow-up care in posttest.

Figure (2): Achieved Benefits



A noticeable reduction in postoperative complications was observed in patients who received thorough family-centered education. In particular, infection rates at surgical sites and incidences of chest pain or shortness of breath were lower among educated patients. Feedback from both patients and family members indicated high satisfaction with the video assisted educational program. Participants felt more prepared to manage self-care at home and family members also expressed greater confidence in supporting their loved ones' recovery. The findings highlight the positive impact of structured patient and family education on self-care at home following CABG and valve replacement surgeries. The education program significantly improved knowledge, self-care practices, emotional well-being, and long-term health outcomes, while reducing complications and hospital readmissions. This suggests that comprehensive, family-centered education is a critical component in promoting recovery and preventing post-surgery complications.





## **V. DISCUSSION**

The results of this educational initiative has the positive impact on the importance of patient and family involvement in post-surgical cardiac care for optimal recovery. The increase in patient knowledge and adherence to self-care practices, such as medication management and recognizing complications, reflects the efficacy of video assisted teaching. By providing clear, accessible information on managing recovery at home, patients felt more empowered and confident in their ability to navigate the postoperative period, reducing the likelihood of complications and readmissions. Adequate knowledge of staff nurses on providing health education for post-surgical cardiac patients to enhance good therapeutic outcomes.

The reduction in complications, including infection rates and chest pain occurrences, aligns with previous studies that emphasize the role of education in preventing adverse outcomes after CABG and valve replacement surgeries.

Moreover, the improvement in emotional well-being highlights the psychological benefits of well-informed patients, as they were more equipped to handle the stresses associated with recovery. Adherence to lifestyle changes, including healthier diets and exercise, also points to the potential for long-term cardiovascular health improvements.

These findings indicate that educating patients and families on heart-healthy habits not only benefits short-term recovery but also supports ongoing wellness.

Adopting patient family education on self-care management at home for post-surgical cardiac patients using 5 different Languages in English, Tamil, Hindi, Bengali and Malayalam as a best practice offers transformative benefits for patients and knowledge among nurses. Enhancing self-care management and standardizing care processes, this approach not only improves clinical excellence but also sets a benchmark for service excellence.

Interhospitals collaboration ensures that this initiative can be scaled and sustained, making it a cornerstone of patient-centered care in the long term benefits will be envisaged.

As this video was shared in their own language during discharge, patient is able to understand easily and can access the video at any time.

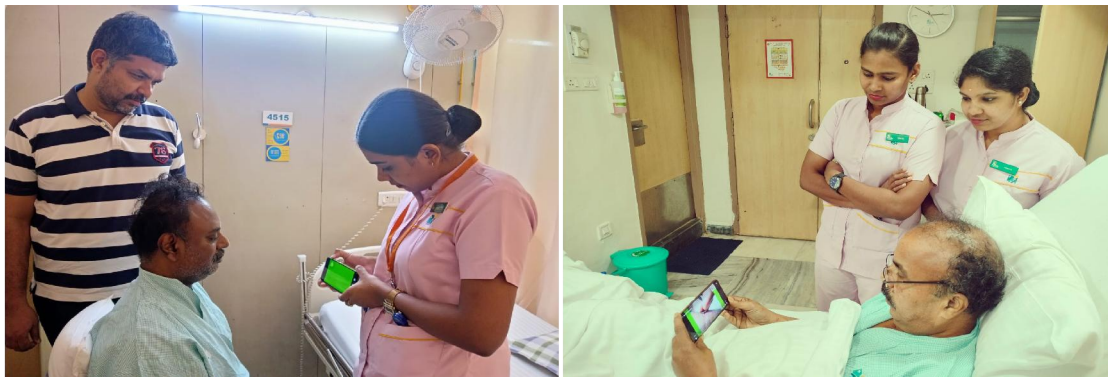
## **VI. CONCLUSION**

Post-education assessments demonstrated a significant increase in patient and family understanding of key self-care topics, including medication management, recognizing complications (e.g., chest pain, shortness of breath), wound care, and activity restrictions. Most participants reported a higher level of confidence in managing care at home after receiving video assisted health education. A noticeable reduction in postoperative complications was observed in patients who received thorough family-centered education. In particular, infection rates at surgical sites and incidences of chest pain or shortness of breath were lower among educated patients. Feedback from both patients and family members indicated high satisfaction with the video assisted educational program. Participants felt more prepared to manage self-care at home and family members also expressed greater confidence in supporting their loved ones' recovery.

This study reinforces that comprehensive, family-centered education is crucial for successful home recovery after CABG and valve replacement surgeries. The findings demonstrate that well-informed patients experience fewer complications, better emotional well-being, and greater long-term health outcomes. Implementing such educational programs should be considered a standard practice in postoperative care to enhance patient recovery, reduce healthcare utilization, and improve quality of life. The findings highlight the positive impact of structured patient and family education on self-care at home following CABG and valve replacement surgeries. The education program significantly improved knowledge, self-care practices, emotional well-being, and long-term health outcomes, while reducing complications and hospital readmissions. This suggests that comprehensive, family-centered education is a critical component in promoting recovery and preventing post-surgery complications. In our Hospital, whenever CABG and valve Replacement, QR code is shared to the patient, so that they can access the Patient Family Education video at any time in their home in their Regional Languages.



## VII. ANNEXURE



## VIII. ACKNOWLEDGMENT

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