

Knowledge and Self – efficacy of Post Coronary Artery Bypass Graft Surgery patients

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Abstract

Background: Coronary Artery Bypass Graft is a surgical procedure that diverts blood flow away from the narrowed and clogged arteries to improve blood supply to the heart. Patient education after CABG aids the patients to deal with their condition and with new alterations in their life style to inhibit repeated revascularization. **The aim** of this study was to assess the level of knowledge and self-efficacy for post CABG surgery patients. **Design:** A descriptive research design was utilized, **Setting:** the study was conducted at the Cardio-Thoracic Surgery outpatient Clinic in Suez Canal University Hospitals, **Sample:** A purposive sample of 64 patients, **Tools:** Tool (1) Structured interview questionnaire: It included four parts: **Part 1:** Socio-demographic characteristics assessment, **Part 2:** Medical history assessment - **Part 3:** Smoking history **Part 4:** Assessment the level of knowledge about disease, risk factors, and it's treatment. Tool (2): Assessment of self-efficacy for post CABG surgery patients' questionnaire. **Results:** The study revealed that all of the studied patients had unsatisfactory knowledge about disease and its' treatment and unconfident in their self-efficacy **Conclusion:** Level of patient's knowledge was un satisfactory and Patient's self- efficacy was un confident. **Recommendations:** Develop posters and booklets for patient about treatment and complications of CABG to improve level of knowledge and develop an individualized care plan for each patient to increase their self-efficacy.

Key words: Coronary Artery Bypass Graft surgery, Knowledge, self-efficacy.

1. Introduction

Cardiovascular Diseases are the number one cause of death universally, more people die yearly from CVDs than from any other cause. A predictable 11.1 million people died from CHD in 2020, representing 31% of all deaths (**Heart Disease & Stroke Statistics, 2022**). Coronary Artery Disease has been alleviated by myocardial revascularization

since 1960, and the most common CABG techniques have been implemented for more than 35 years. CABG surgery is the standard care in the treatment of advanced coronary artery disease (**Ibrahim et al., 2020**).

CABG is a surgical procedure in which blood vessel is grafted to an obstructed coronary artery so that blood can flow beyond the occlusion. Number of CABG surgery that

had been accomplished in the United States every year was 395.000 (Center for Disease and Control Prevention, 2015). The CABG is more effective than medical therapy for refining survival in patients with left main or 3- vessel CAD, dismissing angina symptoms, treatment for impediments from an unsuccessful PCI and avoidance and treatment of MI, dysrhythmias, or heart failure (Shahani, 2022).

The greater saphenous vein, the lesser saphenous vein, the Cephalic and Basilic veins, the right and left internal mammary, and rarely the radial and gastroepiploic arteries are also used as vessels for CABG. (NHS, 2021).

Having adequate knowledge may help patients make better judgments about their treatments, follow complicated instructions, and take care of themselves. Therefore, a loss in knowledge can have an impact on a patient's status, follow-up, prognosis, and complexity. (Devi et al., 2018).

For patients to adhere to their therapy, change their behavior, and so avoid disruption in their case, education is crucial. The determination of a patient's level of knowledge is crucial because it helps to strike a balance between what the patient needs and what needs to be taught when choosing the

topics for training programs. (Khoramabadi et al., 2016).

Self-efficacy refers to one's self-assurance to accomplish the necessary health-related action or it is the belief of an individual that he or she can perform, or learn to perform a exact activity or behavior. It's necessary for nurses to assess patient's self- efficacy and considered it as an important accept to improve their level of knowledge and compliance with treatment regimen (Eşlik & Çetinkaya., 2019).

Significance of the study:

Health care workers in all settings continue to struggle with an important issue: an inadequate patient's level of knowledge about diseases and recommended treatments. According to earlier studies, poor knowledge level of patients poses a hazard to a satisfactory result. It affects the patient's morbidity and mortality, increases treatment expenses over time, and requires more work from the caregivers. (Devi et al., 2018).

A person's self-assurance in their own ability to make variations to their lifestyle, coupled with their perception of barriers to these changes, can considerably impact their ability to adhere a management plan. Patients who have self confidence in their capabilities to cope their illness are more likely to make

beneficial changes and are more likely to experience better long term health outcomes. Otherwise, patients with low sense of self efficacy are more likely to have worse health outcomes, mood disturbance and worse quality of life (O'Neil et al., 2016).

The aim of the study: The existing study aims to: Assess the knowledge of post CABG surgery patients and self-efficacy of post CABG surgery patients.

2. Subject and Methods

Study design: a descriptive study was used for the study. That involves observing and collecting data on a given topic without attempting to infer cause-and-effect relationships. that aims to systematically obtain information to describe a phenomenon, situation, or population

Study setting: This study was conducted at the Cardio-Thoracic Surgery outpatient Clinic affiliated to the Suez Canal University Hospitals, at the outpatient clinics building.

Placed at the right side from the main hospital entrance, lies in the ground floor and located centrally between the dermatology clinic and neuropsychiatry clinic. It composed of three rooms; one of them was waiting room for patients where the researcher interviewed

with them, it had one a disk and three chairs, another room had a dressing change equipment trolley , sink and patients records and the last room was the examination room which had one a disk, two chairs, examination bed and curtains. In the outpatient clinic, one nurse works in it and she assisted the researcher more in persuasion the patients in collecting data process.

The Subject: A purposive sample of sixty four adult patients after CABG admitted in the previous mentioned setting with specify inclusion and exclusion criteria were included in this study. Inclusion criteria include: Adult patients who had follow up after one month of surgery and within 6 months or less after CABG. Conscious patients and able to converse and accepted to take part in the study.

Exclusion criteria include Patients who had repetitive revascularization, patients who had disabling ailments and cognitive disorders, patients with severe chronic illness as a third stage of cancer, liver cirrhosis, rheumatoid arthritis and thyroid disorder, and patients confirmed to have complications after CABG such as arrhythmias, stroke, infection, and bleeding.

Sample size:

Sample size was determined to be 64 patients based on the patients flow rate all over the years according to the following equation by **(Kim, et al. 2016)**.

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

Where α is the selected level of significance and $Z_{1-\alpha/2}$ is the value from the standard normal distribution holding $1 - \alpha/2$ below it. For $\alpha=0.05$, then $1 - \alpha/2 = 0.975$ and $Z=1.96$. $1 - \beta$ is the selected power, and $Z_{1-\beta}$ is the value from the standard normal distribution holding $1 - \beta$ below it. The $Z_{1-\beta}$ values for 95% power $Z_{0.95} = 1.64$

$$= \left(\frac{1.96 + 1.64}{0.50} \right)^2 = 53$$

With 10-20% attrition rate the required total sample size is 64 participants.

Tools of data collection:

Tool (1): A structured interview questionnaire:

It included four parts: **Part 1:** Socio-demographic characteristics assessment: which included thirteen closed ended questions about age, gender, marital status, job, job with effort, level of education, place of residence, family income, treatment fees, type of transportation, who's you live?, In

which floor you live? And Is elevator present in your place of residence?

Part 2: Medical history assessment: composed of eight closed ended Yes or No questions asking about: presence of comorbid diseases as; Angina, HTN, Rheumatoid Fever, Renal Failure, Liver disease and viruses, DM and Chronic Chest disease (Asthma – COPD).

Part 3: Smoking history: Which included three yes or no questions about; Are you smoke? Are you previously smoke? and Is any family member smoke?.

Part 4: Assessment the level of knowledge about disease, risk factors, and it's treatment: which include 14 questions regarding ; definition of coronary artery disease, smoking is the only cause of CAD, smoking again lead to, manifestations of coronary artery disease, cardiac catheterization is one of diagnostic and therapeutic method for CAD, Aspirin can used alone or with clopidogrel in reduction of MI, definition of CABG, Indications of CABG, the required duration of recovery, the required duration for ribs healing, complications of CABG, importance of taking Plavix, using of aspirin or Plavix or both for and side effects of prescribed medications.

Tool (2): Assessment of self-efficacy for post CABG surgery patients Questionnaire: (Taha, et al., 2018; Sullvian, et al., 1998; Charles, et al., 1993 and Grembowski, et al., 1993)

All 33 items of assessment of self-efficacy for post CABG surgery patients used the 5 point Likert scale format; 5=strongly agree, 4=agree, 3= neither agree nor disagree (neutral), 2=disagree, and 1=strongly disagree. It includes 33 items concerned with self-efficacy (which referred to a person's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments). The tool designed as four items for pain control including: Control chest pain with medications, Control chest pain with deep breathing exercise, Support wound and Control fatigue with medications. five items for exercise regimen including: Walking daily, Ascends stairs slowly, Lose weight, Range of motions exercise for arm and Range of motions exercise for neck. ,seven items for medications regimen including: Medication on time, Prescribed dose of medication, Don't take medication, Don't stop medications, Side effects of medication, Take the exchanged medication, and Increase or decrease dose. , 13 items for diet regimen including: Meals on

regular time, Small frequent meals, Low salt in diet, Don't eat Pickles, Don't eat preserved foods, Salt alternatives, Corn oil, Low cholesterol, White meats, Low fatty diet, Fresh vegetables, Fresh fruits and Boiled and grilled food. and finally, four items for daily living activity including: Follow precautions of wound care, Control fatigue with activity level, Usual daily living activities, and Social activities.

Scoring system:

For the knowledge items, a correct response = one and the incorrect response = zero. the total score of the knowledge was 14 points. these scores were converted into a percent score. 60% was considered a satisfactory level of knowledge (eight points or more). < 60% was considered an unsatisfactory level of knowledge (seven points or less) (Taha et al., 2018).

The score range for self- efficacy as follow: Consequently, the score range for pain control was 4-20 which was divided into two categories as follow: which was divided into two categories as follow: $\geq 60\%$ was graded as confident when total grades ranged as (12-20), < 60% was graded as un- confident when total grade (<12) based on statistical analysis. Furthermore, the score range for exercise regimen was 5-25 which was *divided* into two

categories as follow: $\geq 60\%$ was graded as confident when total grades ranged as (15-25), $< 60\%$ was graded as un-confident when total grade (< 15) based on statistical analysis.

Besides, the score range for medications regimen was 7-35 which was divided into two categories as follow: $\geq 60\%$ was graded as confident when total grades ranged as (21-35). $< 60\%$ was graded as un-confident when total grade (< 21) based on statistical analysis. the score range for diet regimen was 13-65 which was divided into two categories as follow: $\geq 60\%$ was graded as confident when total grades ranged as (39-65). $< 60\%$ was graded as un-confident when total grade (< 39) based on statistical analysis and the score range for daily living activity was 4-20 which was divided into two categories as follow: $\geq 60\%$ was graded as confident when total grades ranged as (12-20). $< 60\%$ was graded as un-confident when total grade (< 12) based on statistical analysis.

It was conducted with the sum of items was 135 grades. These scores were converted into a percent score. Patients were considered high self- efficacy and high confident if the percent score was 60% or more and low self- efficacy and low confident if less than 60%. Which is divided into two categories as follow: $\geq 60\%$ was graded as high self-efficacy

when total grade ranged as (81-135). $< 60\%$ was graded as low self-efficacy when total grade (< 81) based on statistical analysis (**Abdel-Salam and Mahmoud, 2018**).

It was established by a jury of five Experts in the field of Critical, Medical-Surgical Nursing and cardiology department in faculty of medicine - Suez canal university who revised the instruments for clarity, comprehensiveness, relevance, understanding, applicability and easiness for administration. Minor modifications were performed.

Reliability of the Tools:

Reliability was done by Cronbach's Alpha Coefficient Test, which shown that each item of the utilized tools contained relatively homogeneous items. A commonly accepted rule of thumb for describing internal consistency using Cronbach's alpha for the; knowledge questionnaire was 0.7. It demonstrated good level of reliability (**Salkind, 2015**)

Cronbach's alpha for the self- efficacy questionnaire was as follow: Pain control was 0.74 - Exercise regimen was 0.75 - Medications regimen was 0.81 - Diet regimen was 0.79 - Daily living activity was 0.77.

2.4.5. Pilot Study

A pilot study was conducted on 10% of the studied patients, their number was seven male and female patients with coronary artery disease after CABG to check and ensure the clarity, applicability, relevance and feasibility of the tools, to identify the troubles that may be faced during the application and to estimate the time required to fill the questionnaire. Along with the results of the pilot study, some items were modified, omitted and added. Patients who shared in the pilot study were excluded from the main study sample.

Field work:

In order to learn more about the topic thoroughly and be able to create the best data gathering methods, the researcher began by reading relevant literature. This took around five months. After that, the instruments were validated by experts in cardiology and nursing; this stage took two months to complete. After pilot testing, the tools were refined, and then the actual fieldwork began. After attaining official permissions, the researcher presented herself and clarified the aim and the purpose of the study to contributor patients in order to gain their cooperation and they were reassured that the information gained were firmly confidential.

Data were collected in the Cardio Thoracic Surgery Outpatient Clinic at Suez Canal University Hospitals,

Data were collected for three months (from beginning of July 2021 to ending of September 2021). The researcher visited the clinic for 2 days per week (Saturday & Tuesday) from 9 am to 12pm but most visits had done when the researcher had day off work, with the rate of follow up 2-4patients had CABG a day, but in some visits the researcher hadn't found the needed subject with desired inclusion and exclusion criteria. The researcher used the previous mentioned tools to collect the data, The structured interview and self- efficacy questionnaires were administered to patients discretely in the clinic, each patient took about 30-45 minutes to complete the questionnaire.

Administrative design:

To carry out this study, official permission was gotten from the outpatient clinics director. this was prepared by submission of a formal letter from the vice dean of the faculty of nursing for post- graduate and research affairs and dean of the faculty of nursing with explaining the objectives of the study. Meeting and discussion were held between the researcher and the nurse who worked in the

outpatient clinic to make her aware about the purpose of the study.

Ethical considerations:

To fulfill this study, ethical approval was attained from Research Ethics Committee with code (58). At the initial interview, each patient was informed about the nature, purpose and benefits of the study and informed that his/her involvement was voluntary. Confidentiality and anonymity of the subject were also assured through coding all data. The researcher guaranteed that, all the collected data would be confidential and would be used only to progress their health and for the objective of the study.

Statistical design:

After assembling of data, it was revised, coded and fed to statistical software statistical package for the social sciences (SPSS version 20). Chi square - test was utilized to determine whether there is a statistically significant difference between the predictable frequencies and the observed frequencies in one or more categories of a contingency table.

3. Results:

Table (1): Divulges that 51.5 % of the studied patients were at age of 58-63 years old,

64.1 % were males, 81.2% were married, 71.9% had have work, while, 81.2 % of their work doesn't require effort. In relation to educational level 65.6 % were educated. Concerning to residence, 90.6% of the studied patients were lived in rural areas. Furthermore, income was not enough for 73.5 % of studied patients and about 82.8 % depended on governmental coverage and only 17.2% had health insurance. Moreover, 87.5 % used the bus for transportation, 90.6 % live with their family, 79.7% lived in second floor, and all of the studied patients don't have an elevator in the building where they lived.

Table (2) Denotes that 96.8 % of the studied patients had have angina and 73.4% of the studied patients had hypertension. Only, 26.5 % of the studied patients had history of renal failure. Whereas, 15.6% of the studied patients had a history of rheumatic fever and diabetes mellitus. As well, 10.9 % of the studied patients had history of chronic chest disease with no cases had history of liver disease and/or viruses.

As regards to the history of smoking, 21.9 % of the studied patients were current smoker, 40.6 % had a history of previous smoking, while, 79.7 % had a smoker family member.

Table (3): Illustrates that all of the studied patients had a knowledge about cardiac catheterization as a diagnostic and treatment method for CAD, the total percentage of patient's knowledge regarding disease, disease, risk factors, CABG and treatment was (25%).

Table (4): Represents that the mean score of control chest pain with medications was 3.7 ± 0.7 . Correspondingly, with the mean score of control chest pain with medications was 3.7 ± 0.7 . In relation to control chest pain with deep breathing exercise the mean score was 3.7 ± 0.9 .

Table (5): Exposes that 45.3 % of the studied patients were disagree regarding lose weight if obese. Moreover, the total percentage of agree regarding exercise regimen was 25%. the mean score of weight loss was 3.7 ± 0.6 . the mean score of range of motions exercise for neck was 3.6 ± 0.9 .

Table (6): Clarifies that 48.4 % of the studied patients were disagree regarding don't stop medications without doctor order. Additionally, the total percentage of agree regarding medications regimen was 22%. Regarding the mean score of prescribed dose of medication was 3.8 ± 0.7 . the mean score of don't take medication was 3.9 ± 0.7 .

Table (7): Shows that 56.3 % of the studied patients were disagree regarding taking meals on regular time. Furthermore, the total percentage of agree related to diet regimen was 10%. the mean score of meals on regular time was 3.8 ± 0.6 . Concerning the mean score of small frequent meals was 3.2 ± 0.9 . the mean score of low salt in diet was 3.7 ± 0.9 .

Table (8): Portrays that 51.6 % of the studied patients were disagree regarding control fatigue with activity level. Furthermore, the total percentage of agree related to daily living activity was 13.7. the mean score of follow precautions of wound care was 4 ± 0.7 . Relating to the mean score of control fatigue with activity level was 3.1 ± 0.7 .

Table (9): Shows that all of the studied patients were un confident with pain control, exercise regimen, medications regimen and diet regimen.

Table (10): Displays that there was no statistically significant correlation between knowledge and socio-demographic characteristics of the studied patients.

Table (11) Discloses that there was no statistically significant correlation between self-efficacy and sociodemographic data.

Table (12) Reveals that there was no statistically significant correlation between knowledge and self- efficacy among the studied patients.

4. Discussion

The current study revealed that, the age range of the studied patients were 52-64 years, this finding approved with **CDC, (2021)** in a study titled " Coronary Artery Disease" and **Hajar, (2017)** in USA in a study titled " Risk Factors for Coronary Artery Disease: Historical Perspectives" reported that age is major uncontrollable risk factor for CAD and incidence of CAD is increased with advanced age. The researcher point of view, coronary artery disease' incidence increase with age because of the anatomic structure of coronary arteries differs with advanced age, increasing susceptibility to plaques formation and developing atherosclerosis.

In respect of gender, the current study results exposed that, more than half of the studied patients were males, this finding was in harmony with **Pačarić et al. (2020)** in Osijek in study about " Assessment of the Quality of Life in Patients before and after Coronary Artery Bypass Grafting (CABG): A Prospective Study" as well as with **Wang et al. (2014)** in the Mazankowski Alberta Heart Institute in a study about " the Association

between older age and outcome after cardiac surgery", stated that around three quarter of patients were males.

Likewise, this finding agreed with **Balkhy et al. (2020)** in a study "Robotic totally endoscopic beating-heart bypass to the right coronary artery: first worldwide experience" which reported that about more than half of patients were males. From the researcher point of view, males exposed to stressful situations and more smokers than females.

Though, **Sallam et al. (2022)** in Egypt in their study titled " Relation Between Compliance of Patients Post Coronary Artery Bypass Surgery Towards Symptoms Management Strategies and Experienced Discomforts " informed that more than half of patients were females. In relation to marital status the present study results displayed that the most of the studied patients were married. This finding was in accordance with **Nielsen et al. (2019)** in their study entitled "Social Factors, Sex, and Mortality Risk after Coronary Artery Bypass Grafting: A Population-Based Cohort Study " reported that the majority of the studied patients were married. This finding may be due to the study patients' age which ranged from 40 to 60 years and socially in this phase of age the most of the people became married.

Regarding the occupation, the finding of the present study revealed that more than three quarters of the studied patients were working, this finding agreed with **Blokzijl et al. (2021)** in a study conducted in Groningen-the Netherland, titled " Barriers That Obstruct Return to Work After Coronary Bypass Surgery: A Qualitative Study " which conveyed that the majority of the studied patients were working. In the researcher point of view, this may be due to patients tolerated a job that suitable with their health condition and didn't require high labored work.

On the other hand, this finding disagreed with **Irfan et al. (2013)** in Dhaka in a study about "Health Related Quality of Life Among Coronary Artery Bypass Graft Patients Attended at Combined Military Hospital" reported that the majority of the studied patients were un employed. This may be due to many factors such as having difficulty with daily activities as daily working, walking, climbing stairs, psychological status such as depression, fatigue and general weakness.

Regarding to educational level this study signified that above two thirds of the studied patients were educated, this finding agreed with **Bsharat & Karadağ (2019)** in Palestine in a study titled "The Impact of Patient Education on Quality of Life of

Patients Undergoing Coronary Artery Bypass Grafting (CABG) in the West Bank of Palestine", described that about half of the studied patients were primary and technical education. In contrast, **Soroush et al. (2017)** in Iran in a study "Coronary Artery Bypass Graft Patients' Perception about the Risk Factors of Illness: Educational Necessities of Second Prevention", conveyed that the majority of the study patients were illiterate.

The result of the present study represented that most of the studied patients were lived in rural area which could be attributed the geographic location of the Ismailia city as it surrounded by a lot of villages, changes in rural areas life style, unhealthy practices, and unavailability of capacitated health care services. Current finding agreed with **Baljepally & Wilson., (2021)** in USA in study titled" Gender-Based Disparities in Rural Versus Urban Patients Undergoing Cardiac Procedures" reported that about a half of the studied patients were lived in rural area.

Conversely, **Mahmoud et al. (2016)** in Alexandria in their study " Relation between Quality of Life and Sex of Patients Post Coronary Artery Bypass Surgery", reported that more than two thirds of the studied patients were lived in urban area.

Concerning the income, the finding of the current study indicated that nearly three quarter of the studied patients had an insufficient income, this finding was in accordance with **Nielsen et al. (2020)** in Sweden in their study titled "Socioeconomic Factors, Secondary Prevention Medication, and Long-Term Survival After Coronary Artery Bypass Grafting: A Population-Based Cohort Study From the SWEDEHEART Registry" stated that about half of the studied patients were had low income.

Regarding the treatment fees, the findings of the present study represented that most of the studied patients depended on governmental coverage, this finding agreed with **Gupta, et al. (2022)** in India in their study titled "Association of health insurance status with coronary risk factors, coronary artery disease, interventions and outcomes" concluded that cost of treatment after CABG were expensive and the three quarter of the studied patients depend on governmental insurance. Besides, **Kwesigabo et al. (2012)** in Tanzania in a study titled "Tanzania's Health System and Work force crisis" founded that about three quarters of the patients were treated by health insurance service.

With regard to transportation, the current study displayed that most of the studied

patients came to cardio-thoracic outpatient clinic for follow up by public transportation, this finding agreed with **Anees, et al. (2014)** in Pakistan in their study titled " Demographic Factors Affecting Quality of Life of CABG patients" founded that nearly half of patients came by public transportation for medical care follow up.

Concerning living with family or relative, the present study shown that most of the studied patients live with their family such finding agreed with **Abo-El- Ata, et al. (2021)** in Portsaid, Egypt in their study titled " Quality of Life for Patients after Coronary Artery Bypass Grafting" and **Baroli et al. (2012)** in Karachi in their study about " Coronary artery bypass grafting: Quality of life of patients in Karachi " concluded that nearly the majority of the studied sample live with their family and presence of family support can promote progress and recovery following CABG surgery. The researcher point of view, presence of family and loved one with the patients inspire them to follow up after surgery.

On the other hand, the existing study finding disagreed with **Robinson, (2002)** in Louisiana in his study about " Older women's experiences of living alone after heart surgery" founded that most of the studied patients lived

alone after CABG surgery, which can effect on post-operative outcomes and these patients had more depressive symptoms than who lived with their family.

As regards the presence of the elevator, the present study indicated that all of the studied patients hadn't have an elevator in their building, this finding agreed with **Abo-El- Ata et al. (2021)** in Port said, Egypt in study about " Quality of Life for Patients after Coronary Artery Bypass Grafting" which shown that the majority of the studied patients don't have an elevator. This may be due to the most of the studied patients in this study lived in rural area with maximum floor numbers are two.

Concerning to past medical history, the current study presented that all of the studied patients had a history of angina, this finding agreed with **Thielmann et al. (2021)** in Federal State of North-Rhine Westphalia in a study " Coronary Artery Bypass Graft Surgery in Patients With Acute Coronary Syndromes After Primary Percutaneous Coronary Intervention: A Current Report From the North-Rhine Westphalia Surgical Myocardial Infarction Registry" and with **Giustino & Mehran, (2015)** in USA in a study titled "CABG Surgery Versus PCI in Coronary Artery Disease" this indicate that

CABG is the main stone treatment for unstable angina if PCI and other lines of treatment failed and it is the most effective one.

In relation to Hypertension, the findings revealed that most of the studied patients had a history of hypertension, this finding was in accordance with **Fuchs & Whelto, (2019)** in a study entitled "High Blood Pressure and Cardiovascular Disease" this indicates that hypertension is the major risk factor for coronary artery disease.

Relating to DM, the present study results presented that three quarters of the studied patients had a history of DM, this finding agreed with many studies; **Gupta et al. (2022)** in Alain City United Arab Emirates in a study about " Diabetes and the heart: coronary artery disease" stated that DM associated with atherosclerosis complications, **Al-Nozha, et al. (2016)** in Taibah University in study " Coronary artery disease and diabetes mellitus" conveyed that the prevalence of diabetes in patients with CAD was up to half percent in many countries.

Furthermore, with **Aronson & Edelman, (2014)** in Roma in a study to "Identify Incidence of coronary Artery Disease among Diabetic Patients", reported that the majority of CAD had a diabetes mellitus.

This may be due to diabetes has a silent effect on the heart vessels triggering endothelial dysfunction, platelet dysfunction, hypercoagulability, and atherogenic dyslipidemia which is related with hyperglycemia.

The current study displayed that nearby three quarters of the studied patients were a previous smoker, this finding was agreed with **Sandin & Malm (2021)** in Sweden in a study titled "Smoking and Postoperative Risk in Cardiac Surgery Patients", founded that about a half of the studied patients were previous smokers and **Bahadur et al. (2019)** in Nepal in a study titled "Association of smoking with coronary artery disease in Nepalese populations: a case control study", concluded that there was a positive correlation between smoking and incidence coronary artery disease and approved by the Food and Drug Administration (FDA) that about one-third of cardiovascular disease mortalities are attributed to smoking **Brown et al. (2023)**.

From the researcher point of view, most of the patients in our society gave up smoking when their status become complicated and became have worries and apprehensive thoughts regarding CABG

surgical short or long complications due to prolonged smoking period.

The current study displayed that most of the studied patients were had unsatisfactory level of knowledge about their disease and it's treatment. This finding was harmonized with **Said et al. (2022)** in Egypt in study titled "Assessment of Patients' Knowledge and Lifestyle Before Coronary Artery Bypass Grafting Surgery" and with **Taha et al. (2018)** in Egypt in study about "Factors Affecting Compliance with Therapeutic Regimen for Patients with Coronary Artery Bypass Graft: Suggested Nursing Guidelines", reported that most of the studied patients were had poor level of knowledge about CAD and it's treatment.

Correspondingly, with **Rahman et al. (2013)** in India in study titled "Level of Knowledge about Coronary Artery Disease is Poor Among Bangladeshi Hospitalized Patients Following Acute Coronary Syndrome" revealed that the majority of the studied patients were had poor level of knowledge related their disease. The researcher point of view, unsatisfactory knowledge may be due to lack clarity of instructions, misunderstanding of information, the health care provider didn't have enough time to provide information for them, effect of

culture, level of education and their residence. When patients have sufficient knowledge, they would have proper strategies to advance their compliance.

In the existing study, the studied patients were in confident self-efficacy domains which include pain control, exercise regimen, medications regimen, diet regimen, daily living activities.

This was in corroborator with **Keating et al. (2023)** in study titled " Adherence to secondary prevention recommendations after coronary artery bypass graft surgery" which conveyed that Compliance with diet and exercise modifications was suboptimal and the patients were in confident. And harmoniously with **Nair & et al. (2018)** in India in study on " Lifestyle practices, health problems, and quality of life after coronary artery bypass grafting" which concluded that the studied patients had a deprived quality of life after CABG which can lead to psychological disturbance and necessitate for aggressive and continuing health education to improve patient awareness about adopting healthy lifestyle practices.

The present study elucidated that there was no statistically significant correlation between knowledge and socio-demographic

characteristics of the studied patients. This may be due to the majority of the studied patients were male, middle educated and employed that make them no having time to increase their level of knowledge. This was reinforced with **Al-Gburi et al. (2023)** in study " Assessing knowledge, attitudes, and practices toward sexually transmitted infections among Baghdad undergraduate students for research-guided sexual health education".

On the other hand, this was in contrast with **Boakye et al. (2023)** in study on " Sociodemographic determinants of knowledge, attitude and practices of Ghanaian nurses towards persons living with HIV and AIDS in Kumasi" and with **Saeed et al. (2021)** in a study about " Socio-demographic correlate of knowledge and practice toward COVID-19 among people living in Mosul-Iraq: A cross-sectional study" which may be due to the majority of the studied patients in these study were highly educated, younger and female that had a willing to learn to able to perform daily living activities without restrain.

The existent study enlightened that there was no statistically significant correlation between self-efficacy and socio-demographic data. This may be due to self - efficacy based on mainly persons' belief, capacity in refining

their health regardless any domain in socio-demographic data. This was in agreement with **Ferrari et al. (2019)** in study about "Is there a relationship between self-efficacy, disability, pain and socio-demographic characteristics in chronic low back pain? A multicenter retrospective analysis" which concluded that there was no relation between self-efficacy and socio-demographic characteristics.

This finding was in contrast with **Andi et al. (2019)** in study about "The relationship between self-efficacy and some demographic and socioeconomic variables among Iranian Medical Sciences students" which indicated that there was a significant correlation between socio-demographic data among the studied sample with self-efficacy.

5. Conclusion:

In view of the present study findings, it can be concluded that, Level of patient's knowledge was unsatisfactory. Patient's self-efficacy was Un confident. There was no statistically significant difference between knowledge and socio-demographic characteristics of the studied patients. As well, there was no statistically significant difference between patient's self- efficacy and socio-demographic characteristics of the studied patients.

6. Recommendations:

Based on the results of the present study, the following recommendations were proposed: Increase awareness of patients about risks after CABG to empower and motivate them to adopt healthy lifestyle to prevent failing of graft. This can be attained through mass media and health education programs about CABG and it's out come and the importance of adopting healthy lifestyle such as consumption of healthy diet and maintaining physical activity.

Develop posters and booklets for patient about treatment and complications of CABG to improve level of knowledge.

Develop an individualized care plan for each patient to increase their self efficacy.

Educational nutritional intervention based on proper model for patients after CABG.

Duplication of the study on a larger probability sample selected from different geographical areas in Egypt is recommended to obtain more generalizable data.

Table (1): Percentage distribution regarding Socio- demographic characteristics of post CABG surgery patients (n=64).

Demographic Characteristics	No	%
Age:		
52 – 57	26	40.6
58 – 63	33	51.5
≥ 64	5	7.9
Range	52-64	
Mean ± SD	58.31 ± 2.70	
Median	58	
Male	41	64.1
Female	23	35.9
Married	52	81.2
Divorced	6	9.4
Widowed	6	9.4
Work		
Yes	46	71.9
No	18	28.1
Hard effort		
Yes	12	18.8
No	52	81.2
Educated	42	65.6
Illiterate	22	34.4
Rural.	58	90.6
Urban.	6	9.4
Income		
Enough.	17	26.5
Not-enough.	47	73.5
Treatment Fees.		
Governmental Coverage.	53	82.8
Health insurance.	11	17.2
Transportation		
Taxi	8	12.5
Bus	56	87.5
Lives with:		
Family	58	90.6
Relative	6	9.4
floor you live:		
Second floor	51	79.7
Third floor	13	20.3
Presence of Elevator:		
No	64	100

Table (2): Distribution of post CABG surgery patients' medical history (n=64)

Medical History	No	%
Presence of medical history	64	100
History of Angina	62	96.8
History of HTN	47	73.4
History of Rheumatic Fever	10	15.6
History of Renal Failure	17	26.5
History of Diabetes Mellitus	10	15.6
History of Chronic Chest Disease (Asthma & COPD)	7	10.9
Smoking History		
Present Smoking	14	21.9
Previous Smoking	26	40.6
Family member smoker	51	79.7

Table (3): Percentage distribution of post CABG surgery patients' correct knowledge about the disease and treatment (n= 64).

Knowledge Items	No	%
Definition of CAD	10	15.6
Smoking is only the cause	14	21.9
Smoking again	10	15.6
Manifestations of CAD	9	14.1
Cardiac catheterization	64	100
Aspirin	20	31.3
Definition of CABG.	8	12.5
Indications of CABG.	14	21.9
Duration for recovery.	13	18.8
Duration for ribs healing.	34	53.1
Complications of CABG.	10	15.6
Importance of taking Plavix.	10	15.6
Aspirin or Plavix or both.	5	7.8
Side effects	7	10.9
Total Score	228	25.0

Table (4): Percentage distribution of pain control for post CABG surgery patients (n=64).

Items	SA (F %)	A (F %)	N (F %)	D (F %)	SD (F %)	Mean ± SD Median
Control chest pain with medications.	8(12.5)	30(46.9)	9(14.1)	17(26.6)	0	3.7 ± 0.74
Control chest pain with deep breathing exercise.	0	0	11(17.2)	36(56.3)	17(26.6)	3.7 ± 0.94
Support wound	0	6(9.4)	27(42.2)	15(23.4)	16(25)	3.8 ± 0.74
Control fatigue with medications.	0	0	20(31.3)	31(48.4)	13(20.3)	3.6 ± 0.84
Total Percentage	17.18		26.18	56.6		

SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree, F=Frequency, %=Percentage

Table (5): Percentage distribution of exercise regimen for post CABG surgery patients (n=64).

Items	SA (F %)	A (F %)	N (F %)	D (F %)	SD (F %)	Mean ± SD Median
Walking daily.	0	13(20.3)	10(15.6)	25(39.1)	16(25)	3.5 ± 0.9 3
Ascends stairs slowly	14(21.9)	28(43.8)	22(34.4)	0	0	0.7 ± 3.9 4
Lose weight	0	6(9.4)	11(17.2)	29(45.3)	18(28.1)	3.7 ± 0.6 4
Range of motions exercise for arm.	0	6(9.4)	16(25)	27(42.2)	15(23.4)	3.7 ± 0.8 4
Range of motions exercise for neck	0	13(20.3)	10(15.6)	22(34.4)	19(29.7)	3.6 ± 0.9 4
Total Percentage	25		21.5	53.5		

SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree, F=Frequency, %=Percentage

Table (6): Percentage distribution of medications regimen for post CABG surgery patients (n=64).

Items	A (F %)	N (F %)	D (F %)	SD (F %)	Mean ± SD Median
Medication on time.	9(14.1)	24(37.5)	18(28.1)	13(20.3)	3.8 ± 0.7 4
Prescribed dose of medication.	22(34.4)	15(23.4)	27(42.2)	0	3.8 ± 0.7 4
Don't Take medication	15(23.4)	26(40.6)	15(23.4)	8(12.5)	3.9 ± 0.7 4
Don't stop medications	11(17.2)	10(15.6)	31(48.4)	12(18.8)	3.7 ± 0.9 4
Side effects of medication	14(21.9)	16(25)	26(40.6)	8(12.5)	3.8 ± 0.8 4
Take the exchanged medication	18(28.1)	12(18.8)	22(34.4)	12(18.8)	3.8 ± 0.7 4
Increase or decrease dose.	9(14.1)	19(29.7)	27(42.2)	9(14.1)	3.7 ± 0.8 4
Total Percentage	22	27	51		

SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree, F=Frequency, %=Percentage

Table (7): Percentage distribution of diet regimen for post CABG surgery patients (n=64).

Items	A (F %)	N (F %)	D (F %)	SD (F %)	Mean ± SD Median
Meals on regular time.	11(17.2)	17(26.6)	36(56.3)	0	3.8 ± 0.6 4
Small frequent meals	7(10.9)	16(25)	31(48.4)	10(15.6)	3.2 ± 0.9 3.5
Low salt in diet.	0	26(40.6)	21(32.8)	17(26.6)	3.7 ± 0.9 4
Don't eat Pickles.	12(18.8)	31(48.4)	14(21.9)	7(10.9)	3.5 ± 0.8 4
Don't eat preserved foods.	0	18(28.1)	29(45.3)	17(26.6)	3.3 ± 0.9 3
Salt alternatives	0	17(26.6)	33(51.6)	14(21.9)	3.7 ± 0.8 4
Corn oil	0	18(28.1)	29(45.3)	17(26.6)	3.6 ± 0.8 4
Low cholesterol.	12(18.8)	21(32.8)	26(40.6)	5(7.8)	3.5 ± 0.8 4

White meats	7(10.9)	18(28.1)	33(51.6)	6(9.4)	3.8 ± 0.9 4
Low fatty Diet.	8(12.5)	15(23.4)	22(34.4)	19(29.7)	3.8 ± 0.8 4
Fresh vegetables.	10(15.6)	23(35.9)	17(26.6)	14(21.9)	3.4 ± 0.8 3
Fresh fruits.	7(10.9)	18(25)	28(43.8)	13(20.3)	3.6 ± 0.9 4
Boiled and grilled food	7(10.9)	12(18.8)	24(37.5)	21(32.8)	3.9 ± 0.7 4
Total Percentage	10	30	60		

SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree, F=Frequency, %=Percentage

Table (8): Percentage distribution of daily living activities for post CABG surgery patients (n=64).

Items	A (F %)	N (F %)	D (F %)	SD (F %)	Mean ± SD Median
Follow precautions of wound care	22(34.4)	0	26(40.6)	16(25)	4 ± 0.7 4
Control fatigue with activity level.	0	12(18.8)	33(51.6)	19(29.7)	3.1 ± 0.7 4
Usual daily living activities.	8(12.5)	22(34.4)	23(35.9)	11(17.2)	3.5 ± 0.9 5
Social activities.	5(7.8)	35(54.7)	14(21.9)	10(15.6)	3.06 ± 0.8 3
Total Percentage	13.7	27	59.3		

SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree, F=Frequency, %=Percentage

Table (9): Distribution of overall post CABG patients' self- efficacy (n= 64).

Items	No	%
Pain control	14	21.9
Exercise regimen	13	20.3
Medications regimen	7	10.9
Diet regimen	0	0
Daily living activity	10	15.6

Table (10): Relation between level of knowledge and socio-demographic data (n=64).

knowledge						
Variables	Pre		Post		Follow up	
	X ²	Sig.	X ²	Sig.	X ²	Sig.
Age	38.6	0.8	66	0.8	77.7	0.5
Gender	3.2	0.7	13	0.1	10.2	0.4
level of education	5.09	0.5	9	0.4	8.3	0.5
Marital status	11.8	0.4	23.4	0.1	18.3	0.5
Work	5.6	0.4	9.8	0.3	15.5	0.1

X² is chi-square test.

* P ≤ 0.05 (significant)

Table (11): Relation between self-efficacy and socio-demographic data (n=64).

Self-efficacy						
socio-demographic data	Pre		Post		Follow up	
	X ²	Sig.	X ²	Sig.	X ²	Sig.
Age	170.3	0.1	147.2	0.4	125.1	0.7
Gender	13.1	0.8	17.6	0.4	11.17	0.8
level of education	21.6	0.3	15.9	0.5	18.8	0.3
Marital status	24.6	0.9	12.03	0.2	31.6	0.5
Work	25.7	0.1	21.03	0.2	13.4	0.7

X² is chi-square test.

* P ≤ 0.05 (significant)

Table (12): Correlation of knowledge and self- efficacy for post CABG patients (n=64).

Item	Pearson correlation (r test)	Sig. (2-tailed)
Self-efficacy	- 0.01	0.8

* $P \leq 0.05$ (significant)

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