Self-Efficacy, Quality of Life and Coping Strategies among Patients with Coronary Artery Bypass Graft Surgery

Noha Mohammed Ibrahim

Faculty of Nursing, Medical-Surgical Nursing Lecturer,
Port Said University, Egypt

Abstract: Coronary artery bypass grafting stays the best quality level of care. Recovery after CABG surgery is a stressful process. Self-efficacy might accelerate the recovery of cardiovascular function in the post-operative process by easing coping for post-CABG surgery patients thus improve life quality. The present study was conducted to assess self-efficacy, quality of life and coping strategies among patients with coronary artery bypass graft surgery. This descriptive research design included a hundred patients with CABG surgery. A convenient sample of available adult patients was conducted at a specialized center of the heart and digestive system in Damietta, Egypt, from January 2016 to September 2016. The data were collected via four tools (A self- structured questionnaire, Barnason Efficacy Expectation Scale, Short-form Health Survey (SF-36) and Coping Strategy Indicator). The study indicated a total score of self-efficacy, quality of life and coping strategies among patients pre-CABG surgery were (61.13±9.37, 46.87±4.59 and 33.93±8.53 respectively) while indicating a total score of self-efficacy, quality of life and coping strategies among patients post CABG surgery were (67.77±7.85, 58.97±5.74and43.17±9.91 respectively). Conclusions: there was an improvement in self- efficacy, quality of life and coping strategies among patients with CABG post-surgery. The study recommended that an educational program should be implemented to improve patients' self-efficacy, quality of life and coping strategies concerning CABG.

Key words: Quality Of Life · Coping Strategies · Self-Efficacy · Coronary Artery Bypass Graft

INTRODUCTION

CABG surgery is a medical procedure used to treat coronary artery disease and has been in use for almost 50 years [1]. Coronary artery disease caused by decreased Blood flow to the muscle of the heart caused by the arterial wall deposits of development [2]. Coronary artery disease (CAD) is a cardiovascular disease with the highest awareness [3]. Stable and unstable angina, infarction of the myocardium and the sudden death of heart are the kinds of coronary artery diseases [4]. Pain in the chest or discomfort is a common symptom that can radiate into the shoulder, arm, back, neck, or jaw. Sometimes, it sounds like indigestion to the patient. Generally, exercise or emotional stress may precipitate symptoms that may last a little a few minutes. Patients may be asymptomatic or suffer from shortness of breath and have no symptoms of rest [5].

Today, coronary artery bypass graft surgery is the most well-known cardiovascular procedure. From its current state of affairs in the mid-nineteenth century, CABG witnessed both practical and clinical developments. Patient profiles with fewer complications and adverse events can be achieved by intra-operating system changes and peri-operative consideration given to CABG patients [6].

Some of the main considerations are the degree of angina, ventricular function (LV), the risk of ischemia and coronary anatomy, according to the coronary bypass surgery decision [7]. A coronary bypass is the only recovery technique for revascularizing the heart muscle. The heart muscle revascularization prolongs life and raises living standards. The general condition of patients is the determining factor in choosing the most suitable procedure for revascularization [8].

Corresponding Author: Noha Mohammed Ibrahim, Medical-Surgical Nursing, Faculty of Nursing,
Port Said University, Port Said, Egypt.

Nevertheless, patients experience complaints as weakness, sleep disturbance and impaired nutrition after surgery [9]. Living with a chronic disease interferes with normal lifestyles so that living with a previous lifestyle is not helpful and new lifestyles need to be developed [10]. Hypertensive, hypercholesterolemic, alcoholic, obese, diabetic and less active patients at risk for CVDs [11].

Factors are important to the prevention and comprehension of cardiovascular morbidity. The patient must take pre- and post-operative measures to reduce cardiovascular risk. Self-efficacy is a valuable tool for the creation and change of health attitudes [12]. The health-related quality of life (HRQOL) is a significant outcome factor defined by the patient, which is characterized by the patient's view of their well-being [13]. Many studies have shown that HRQOL is an independent indicator of subsequent health outcomes in ACS hospital patients, with the substantial impairment of HRQOL and loss of years of production [14, 15].

Moreover, Patient outcome focus has now shifted from morbidity and mortality to the quality of life benefits of patients. Coping capacity is a factor crucial for quality of life. Appropriate coping strategies required for coronary artery bypass grafting for the achievement of successful adaptation. Better quality of life was linked to increased use of problem-oriented coping strategies [16]. So, the study aimed to assess self-efficacy, quality of life among patients with coronary artery bypass graft and their coping strategies.

Significance of the Study: It is estimated that cardiovascular diseases will be the main cause of disability in the world by2020. Such diseases account for one under the age of 35, one-third of deaths in people between the ages of 35 and 45 and three-quarters of deaths in people over the age of 45 [17-19]. CABG is a surgical procedure that is common for patients with coronary artery obstruction, in which thousands of people are treated each year. It is pivotal to reduce complications after CABG and to increase cardiac output in patients undergoing this type of surgery [20].

Since numbers of CABG surgeries hit the specialized heart and digestive center in Damietta, Egypt is steadily increasing and due to high morbidity and mortality among CABG patients due to inadequate postoperative care and poor quality of life after CABG surgery, the study was carried out. So, imparting knowledge on self-efficacy, health-related quality of life and coping strategies for the patients following coronary artery bypass grafting surgery to prevent complications, enhance the quality of living is a vital role of nurses and to improve life expectancy.

The Study's Aim: To assess the quality of life, coping strategies and self-efficacy among patients with coronary artery bypass graft surgery.

Through the Following Objectives, the Aim Was Achieved:
- Assess self-efficacy among patients (pre & post CABG surgery).
- Assess quality of life among patients (pre & post CABG surgery).
- Assess coping strategies among patients (pre & post CABG surgery).
- Assess the relationship between self-efficacy, quality of life and coping strategies and personal characteristics among patients (pre & post-CABG surgery).

Research Question: What is the level of self-efficacy, quality of life and coping strategies among patients with CABG surgery?

MATERIAL AND METHODS

Materials
Design: Descriptive research was utilized to fulfill the study aim.

Settings: The specialized center of the heart and digestive system in Damietta, are affiliated to the ministry of health, Egypt. The cardiovascular surgery department consists of 11 rooms with 22 beds; 2 operating rooms, cardiovascular surgery, intensive care unit with 11 beds for open-heart surgeries from them 4 beds are specialized for GABG surgeries, post-anesthesia care unit with 4 beds.

Subjects: A convenient sample of available adult patients (N =100) admitted above-mentioned settings were included in the study.

Inclusion Criteria: Adult, able to communicate, no disabilities, speech or hearing problems.

Tools: By using the following tools, the data are gathered:

The Tool I: A questionnaire (self- administered), the researcher developed which included two parts:

Part 1: This part included data related to social-demographic characteristics (7 items), which included age, gender, marital status, educational level, residence, income and employment status.

Part 2: This part included clinical data as the duration of heart disease, awareness of the type of surgery, causes, postoperative period, the importance of surgery and years of experiencing disease.

Tool II: Barnason Efficacy Expectation Scale (BEES): Cardiac Surgery Version was developed by Barnason and his colleagues [21] to determine the self-efficacy of CABG surgery patients in adapting to risk factors and lifestyle (physical function, psychological function, changes in risk factors for coronary artery disease and self-care management) regarding pre and post-CABG surgery recovery. The tool was adopted and translated into Arabic, it consists of 15 articles and 5 subscales as Physical Function, Psychosocial Function, Diet Modification, Exercise-Activity Modification and Self-Care Management. Each article is given points through a Likert scale of 1-4 point (strongly disagree=1, strongly agree=4) which is based on the patient's perception of trust in his capability of state behavior. The total score for the whole scale varies between 15 to 60 points. A high score (more than 60%) indicates that efficacy expectation is high for determining post-CABG surgery recovery and rehabilitation behaviors.

Tool III: Short-form Health Survey (SF-36): SF-36 is easy, general, coherent administered measures of life quality. In the current study, the Arabic edition of the SF-36 was used to test patient HRQoL. From the Medical Outcome Study, the original SF-36 are steamed, which was conducted by the RAND Corporation. The questionnaire included multi-item scales (Physical functioning, task limitations due to physical health problems, pain, perceptions of general health, social functioning, stamina, strength or exhaustion and emotional problems limitations) that are assessed to determine the eight dimensions of wellness. Also, depending on these eight scales, two synopsis scores were calculated: physical component synopsis (PCS) and mental component synopsis (MCS). The tool was adopted and translated into the Arabic language. Aspect was evaluated separately with scores ranging from zero to one hundred; zero representing the worst general health condition and one hundred reflecting the best health condition.

Tool IV: Coping Strategy Indicator (CSI): The CSI is a self-assessment inventory developed by Amirkhan [22]. The tool was adopted and translated into the Arabic language. The indicator is 3 points Likert scale and consists of 3 subscales as solving the problem, looking for and avoiding social support. There are 11 articles for each sub-level and the total score of those 3 subscales varies between 11 to 33 points. Highness of total scores (more than 60%) of subscales refers to an increase in identifying quality.

Method of Study

Preparatory Phase: A review of recent related literature and theoretical information was performed using books, journals, newspapers, magazines and web searches to establish data collection methods.

Validity of Tools: A jury of nine experts from international medical, surgical nursing staff, academic medical personnel and nursing staff reviewed the validity of the four tools. Changes were made based on their views. Following a translation and back-translation procedure, bilingual experts in English and Arabic maintained the validity of the research tools.

Reliability of Tools: Tools were tested for reliability using Cronbach's Alpha test with an Arabic version of the Barnason Efficacy Expectation Scale = 0.86 which indicates that the Arabic version demonstrated excellent scale reliability. Also, the Short-form Health Survey (SF36) Arabic version tool has been tested using Cronbach's Alpha test for reliability was = 0.84 which indicates that the Arabic version demonstrated excellent scale reliability. As well as, the tool of the Arabic version of the Coping Strategy Indicator was tested for reliability using Cronbach's Alpha test was= 0.87 which indicates that the Arabic version demonstrated excellent scale reliability.

The Pilot Study: After tool development, a pilot study was carried out. It was performed at 10%of the patients with CABG to Check the analysis tools' reliability and applicability. The necessary changes were made based on the results of the pilot study. To ensure the stability of responses and performance, these patients were excluded from the Subject of research work.

Fieldwork: The actual fieldwork started from January 2016 to September 2016. A formal letter was issued from nursing faculty, the port said university to the administrator of a specialized center of the heart and

digestive system in Damietta, Egypt to obtain approval for conducting this study. The researcher visited the hospital two days every week to collect the data by using previous tools. Many 2-4 patients were interviewed per day. Each interview lasted for about 30-45 minutes, according to the participants' attention, concentration and willing to cooperate or talk. The actual study was conducted through two phases: One day preoperative CABG in the cardiovascular surgery department and three months post-operative CABG in the outpatient clinic.

Statistical Design: Entering data and reviews were conducted using version 20 of the Social Science Statistical Package (SPSS). In the tables, actual numbers, also percentages are used to display results. Appropriate statistical methods (percentage, chi-square X2), coefficient of correlation (r) and paired T-test have been applied. About the value of P, where $P > 0.05$ was deemed to be non-significant (NS), where $P < 0.05$ was deemed to be significant (S) and where $P < 0.01$ was deemed highly significant (HS).

Ethical Concerns: Ethical approval has been obtained from the affiliated nursing faculty's institutional review boards. Verbal details and a written study overview were given to all study subjects where voluntary participation, an anonymity assurance, free withdraw from participation and no disadvantage was clarified upon withdrawal.

RESULTS

Table 1: shows that 38% of the study sample aged 50 years, more than 55 % were males, 46% had secondary education, 42% were working, 82% were married, 82 % lived with wife/ husband and 54 % reported enough income.

Table 2: demonstrates that studied patients who had heart diseases ≤1 year with Mean and SD of 3.16±2.13, 78% were aware of the type of the surgery, 84% were aware of the causes of their disease & surgery, 80 % were aware of postoperative period and 73 % were aware of the importance of CABG surgery. Moreover, 65% were suffering from other diseases.

Table 3: reveals that 31% of study patients had high self-efficacy in the pre CABG compared to 57 % in post CABG surgery. The total scores of self-efficacy in pre-CABG were 61.13±9.37 while in post-CABG surgery was 67.77±7.85. Furthermore, statistically significant differences were found in self-efficacy at $p < 0.05$ between pre- and post-CABG surgery.

Table 1: Distribution of participants according to their characteristics (n=100).

Items	N=100 No.	%
Age (years)		
20-	7	7.0
30 -	7	7.0
40-	16	16.0
50-	38	38.0
60-	32	32.0
Mean and SD	52.80±11.59	
Sex		
Female	45	45.0
Male	55	55.0
Education		
Illiterate	6	6.0
Basic and Read/write	24	24.0
Secondary	46	46.0
High	24	24
Job		
Not working	31	31.0
Working	42	42.0
Retires	27	27.0
Marital status		
Single	4	4.0
Married	82	82.0
Widowed	14	14.0
Residence		
With wife/husband	82	82.0
With son	11	11.0
With relatives	5	5.0
Alone	2	2.0
Income		
Enough	54	54.0
Not enough	46	46.0

Table 2: Distribution of participants according to their disease characteristics (n=100)

Items	N=100 No.	%
Years of illness		
≤1 year	36	36.0
2 -	29	29.0
4-	22	22.0
≥6 year	13	13.0
Mean and SD	3.16±2.13	
Awareness of surgery type		
Yes	78	78.0
No	22	22.0
Awareness of causes		
Yes	84	84.0
No	16	16.0
Awareness of the postoperative period		
Yes	80	80.0
No	20	20.0
Awareness of importance		
Yes	73	73.0
No	27	27.0
Suffering from other diseases		
Yes	65	65.0
No	35	35.0

Table 3: Self-efficacy difference for participants' pre and post-CABG surgery (n=100).

Item	Pre CABG surgery		Post CABG surgery		X²	P-value
	No.	%	No.	%		
Self-efficacy:						
High	31	31.0	57	57.0	6.48	0.019*
Low	69	69.0	43	43.0		
Score of self-efficacy	61.13±9.37		67.77±7.85		T-test -4.904	0.000*

p<0.05 is Statistically significant(*)

Table 4: Mean Scores of Health-Related Quality Of Life for participants pre and post CABG surgery (n=100)

Health-related Quality of Life	Pre CABG surgery		Post CABG surgery		T-test	P-value
	MEAN	SD	MEAN	SD		
Physical functioning	49.2222	15.80979	63.1111	12.44483	-6.277	0.000*
Role limitations due to physical health	50.3444	14.17307	64.8056	13.07484	-7.043	0.000*
Role limitations due to emotional problems	56.8522	14.35578	65.9264	15.05756	-4.322	0.000*
Energy/fatigue	42.3833	10.97073	54.3889	9.89154	-5.987	0.000*
Emotional well-being	52.0444	9.29554	60.4444	9.97168	-5.890	0.000*
Social functioning	40.2778	14.32399	56.1111	13.48985	-5.307	0.000*
Pain	38.2222	12.73219	51.2222	15.26864	-4.455	0.000*
General health	45.6667	16.84151	55.7778	11.27928	-3.658	0.001*

p<0.05 is Statistically significant(*)

Table 5: Quality of Life scores difference for participants pre and post-CABG surgery (n=100)

Items	Pre CABG surgery		Post CABG surgery		X²	P-value
	No	%	No	%		
High score	5	5.0	67	67.0	20.95	0.000*
Low score	95	95.0	33	33.0		
Mean Score	46.87±4.59		58.97±5.74		T-test -12.261	0.000*

p<0.05 is Statistically significant(*)

Table 6: Coping difference for participants pre and post CABG surgery (n=100)

Items	Pre CABG surgery		Post CABG surgery		X²	P-value
	No.	%	No.	%		
Coping						
High	11	11.0	64	64.0	27.22	0.000*
Low	89	89.0	36	36.0		
Score of Coping	33.93±8.53		43.17±9.91		T-test -8.361	0.000*

p<0.05 is Statistically significant(*)

Table (4): displays that the association between all health-related quality of life during pre- and post-CABG surgery at p<0.05 has been highly statistically significant.

Table (5): shows that 5% of the study sample had a high total score regarding the quality of life in pre-CABG surgery compared to 67 % in post CABG surgery. There were also extremely statistically significant differences in overall quality of life among pre- and post-CABG surgery at p<0.05.

Table (6): adduces that 11% of the study sample had a high total score concerning coping in the pretest phase compared to 64 % in the post CABG surgery.

Highly statistically significant differences were found in overall quality of life among pre- and post-CABG surgery at p<0.05

Table (7): elaborates that there were correlation coefficient differences between age and coping pre-CABG surgery at p<0.007, there was correlation coefficient differences between quality of life and income pre-CABG surgery at p<0.01and there was correlation coefficient differences between quality of life and years of illness pre-CABG surgery at p<0.007. Also, it reveals that there were correlation coefficient differences between coping and age post-CABG surgery at p<0.02, there was

Table 7: Correlation among personal characteristics, coping, SE and quality of life pre-CABG surgery (n=100)

Items		Coping		Self-efficacy		Quality of life	
		pre-CAGB surgery	post-CAGB surgery	pre-CAGB surgery	post-CAGB surgery	pre-CAGB surgery	pre-CAGB surgery
Age	R	.395**	.329*	.132	-.185	-.108	-.288
	P value	.007	.027	.388	.223	.479	.055
Working	R	-.017	-.046	-.077	-.108	.204	-.082
	P value	.914	.766	.615	.480	.179	.595
Education	R	.126	-.069	-.064	.013	.008	.189
	P value	.408	.654	.674	.931	.956	.213
Residence	R	-.251	-.047	-.142	.299*	.119	.145
	P value	.097	.757	.351	.046	.435	.343
Marital status	R	.046	.041	-.083	-.219	.202	.067
	P value	.765	.788	.586	.148	.184	.660
Income	R	-.135	-.094	-.076	-.214	.353*	.084
	P-value	.376	.538	.620	.158	.017	.585
Years of illness	R	-.262	-.357*	-.180	-.091	.394**	.261
	P-value	.082	.016	.237	.551	.007	.083

p<0.05 is Statistically significant (*)

correlation coefficient differences between coping and years of illness post-CABG surgery at p<0.01 & there were correlation coefficient differences between self-efficacy and residence post-CABG surgery at p<0.04.

DISCUSSION

More than 800,000 CABG surgeries are projected to be conducted worldwide each year [23]. Worldwide, the field of coronary heart disease has advanced, the rate of symptom alleviation and recovery, improved with the use of surgery (coronary artery bypass graft surgery; CABG) procedures in the last decade [24].

This study found that over half of the patients have been studied have other diseases, most of the studied patients are aware of the type of surgery, the importance of the postoperative period and the majority of them are aware of the causes of surgery and the postoperative period. These results might be related to that only less than 10% of studied patients were illiterate in other words, the more educated patients, the more awareness will be.

These results are consistent with Kindig *et al*. [25] who claimed that health literacy, the extent to which a person can access, process and understand basic health information and resources to inform and engage in health decisions, plays a crucial and decisive role in the provision and outcomes of health care.

In the same context, Chen *et al*. [26] reported that health literacy affects heart sensitivity. Limited health awareness is an invisible barrier to health care delivery that has significant costs for patients and public health.

Ability to acquire knowledge, but not self-efficacy over time for self-care. In this sense, McCleary-Jones [27] and Gazmararian *et al*.[28], who researched health literacy and chronic disease knowledge, have found that health literacy has been correlated with limited health knowledge.

As far as self-efficacy is concerned, the finding of this study showed that there was a highly statistically significant change in self-efficacy between pre- and post-CABG surgery, these findings may be linked to preoperative knowledge of most patients about their health status, or they may have motivational history or the progress of CABG surgery or the characteristics of the patient. The patients undergoing CABG surgery have also improved in addition to the improvement found in the surgical procedure itself and this may affect the outcomes. Those with higher self-efficacy will take on more challenging tasks and accomplish them.

On the other hand, in patients undergoing CABG surgery, Naderipour *et al*. [29] who studied the effects of a chronic disease self-management program at self-efficacy identified no significant differences between the scores of CABG candidates ' self-efficacy in pre- and post-intervention periods. Also, O'Neill *et al*. [30] They stated that cardiac self-efficacy (CSE) predicts adverse outcomes in coronary artery disease suggested that baseline CSE reliably predicted cardiac functioning as well as self-rated mental and physical health at all times.

It has been shown that CSE predicts both general and cardiac hospital admissions. Also, Amagai *et al*. [31], who are studying the development of an instrument for

measuring self-efficacy for the social participation of people with mental illness, found that self-efficacy is a psychological construct that describes how one's subjective belief in their ability to perform a task in a desired manner affects their physical commitment and subsequent fulfillment of that task. In addition to BreauxShropshire *et al*. [32] who analyzed the relationship between self-monitoring of blood pressure, adherence to medication, self-efficacy, stage of transition and regulation of blood pressure among municipal workers with hypertension reported that CSE motivates individuals to make healthy lifestyle choices about their CVD by developing motivation and ability to follow these behaviors.

The current study found that the association between all health-related quality of life during pre- and post CABG was highly statistically significant. From the study, these findings may be related to the self-efficacy of patients being tested, which may also be linked to health outcomes following CABG. These results are consistent with the evaluation of CABG by Jokinen *et al*. [33] who reviewed 21 randomized control trials (RCT) and concluded that postsurgical patients experienced improved HRQoL, particularly when the procedure was performed by experienced surgeons. Also, the results of an RCT suggested that preoperative HRQoL predicted post-treatment HRQoL with long-lasting beneficial effects and increased HRQoL to a level comparable to that of the post-treatment general population [33].

Health-related quality of life (HRQoL) for patients with cardiovascular disease is a critical issue in addition to survival and symptom relief [34]. Health is not just a biomedical issue, but also a biopsychosocial issue, based on the concept of the World Health Organization [35]. Although there is no universal definition, physical, psychological and social wellbeing is included in HRQoL [36, 37].

Improving the HRQoL of coronary patients should be a component of a medical team's priorities. Takei *et al*. [38] proposed that the assessment of HRQoL should be included in the routine evaluation of coronary patients to have a complete picture of their condition and to improve conclusions on treatment efficacy. Cardiothoracic surgeons should also pay attention to the psychosocial functioning of their patients and encourage them, if possible, to seek professional guidance and support to optimize well-being. They also provide empirical evidence of the beneficial impact of coronary procedures on HRQoL in patients and stated that this information could help doctors not only justify their decision on what

procedure to use but also inform patients about the pros and cons of each HRQoL procedure.

About the quality of life in the current study, there were highly statistically significant differences between pre- and post CABG surgery, these findings may be related to patients being observed, knowledge of their health status may boost their post-CABG surgery status, or maybe related to having an internal motivator to use their capabilities. Such results are consistent with a study conducted by Neff [39] according to which results suggest that, although not statistically significant, there was an improvement in the quality of life. However, these findings are inconsistent with a study conducted by Kaur *et al*. [23] who examined patients ' quality of life and lifestyle before and after coronary artery bypass grafting (CABG) surgery, he reported a significant decline in post-CABG surgery quality of life compared to pre-CABG surgery.

Besides, surgical progress can be viewed as a positive impact on a patient's life as well as a sense of recovery for Vargas *et al*. [40]. Cardiovascular disease and its risk factors are factors that affect the quality of life. However, in a coronary event, individuals adopt changes in their lifestyle. There is a change in the everyday limitations imposed by the condition with the coronary artery bypass grafting. Therefore, patients can understand the experienced situation and adjust to possible limitations and lifestyle changes, as well as improve physical and emotional conditions.

In the context of this definition, Dal Boni *et al*. [41] claimed that coronary artery diseases are multifactorial and interfere with people's health in several dimensions and that coronary artery bypass grafting is not curative; however, an invasive treatment aimed at promoting a better quality of life and highlighted the impact of coronary artery bypass grafting on the quality of life of patients to build a shared practice of health education, allowing individuals to experience their daily lives in relationships that affect the quality of their lives.

Concerning coping strategies, the results of the current study showed that there was a statistically significant change in the overall quality of life between pre- and post-CABG surgery. From the study, this statistical significance may have to do with most of them staying with their families, in another way they got emotional in their families. The patient with coronary heart disease needs the health team's full attention because, in addition to the occurrence and nature of the condition, medical diagnosis should include social and environmental factors [42].

These findings coincided with Koerich *et al.* [43] who mentioned that the main strategies used by patients to cope with coronary heart disease and the process of myocardial revascularization are based on the presence and support of the family, the quality of interfamily relationships, the use of spiritual resources and the participation in programs of rehabilitation in addition to physical health, he also concluded that the practice of cardiac surgery changes the cardiac patient's lifestyle, while the coping strategies used in this process make the experience less stressful and provide a theoretical basis for nursing care.

Also, the findings of the current study showed that during pre-CABG surgery there were correlation coefficient discrepancies between age and coping & income and overall quality of life. It can be viewed as an improvement in age coping due to experience and critical thinking. Often, the quality of life may be increased if the income eventually increases.

Also, the results of the current study revealed correlation coefficient differences between age and years of disease with post CABG surgery coping & residence. It means patients are more likely to deal with a rise in age and years of disease. The relationship between residence and self-efficacy may also reflect the interaction with the family that helps patients, making them have potential implications for recognizing and promoting health-related behavior.

Peric *et al.* [44] discovered from another viewpoint that the preoperative quality of life differs across age groups. Older people typically have more problems that may conflict with QOL. The results of the study by Peric *et al.* [44] indicate that preoperative QOL deteriorates with age and those patients 60 years of age or older have lower QOL scores than younger patients. The lack of variations in other QOL areas can be clarified as an integral part of the aging process by higher compliance with the difficulties.

Concerning income, special attention should probably be given to the financial status of patients needing coronary revascularization: "Extra social care, safety net programs to ensure access to the medications required and sufficient followup are all necessary responses to such data [45].

"Nonetheless, CABG surgery is a stressful and painful experience and is known to be followed in the preoperative phase by negative psychological effects that may continue post-operatively [46, 47]. Individuals may have high levels of anxiety when diagnosed with CAD, especially during the preop period and when waiting for major surgery [47, 48]. Before CABG, significantly higher levels of anxiety were recorded compared with CABG levels [49, 50]. Nonetheless, Ai *et al.* [51] provided evidence that promoting the religious and spiritual practices of patients, with particular attention to successful qualities, that improve their quality of life after surgery, helping them to better comply with treatments and rehabilitate more vigorously than when depressed and hopeless.

Finally, this study provides an overview of self-efficacy, quality of life and coping strategies among patients with CABG surgery and their coping strategies and guides future development of intervention, research and clinical practice in areas such as quality of life evaluation, development of intervention for patients with CABG surgery, management of complications, individualized treatment, sexual intervention. Nurses can also be seen to have a major impact on the quality of life of the patient by providing education, motivating, addressing physical, psychological, spiritual needs and facilitating exercise and positive behavior.

CONCLUSIONS AND RECOMMENDATIONS

Self-efficacy, patient quality of life and coping strategies have statistically improved post-CABG surgery with improvement in all fields of the instruments used for analysis in patients with coronary artery bypass graft surgery. Well-provided health care will affect the preparation of the patient for the coping process in the pre- and post-CABG surgery process. The study also proposed that an informative clinical cardiac rehabilitation plan be introduced for all health professionals in terms of self-efficacy, quality of life and coping strategies for CABG surgery by mass media and health training programs.

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