

## Assessment and Evaluation of the Quality of Life of Saudi Patients Underwent Coronary Artery Bypass Graft (2-5 years)

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### ABSTRACT

**Background:** Cardiovascular disease (CVD) is a cluster of diseases that involve heart and blood vessels<sup>(10)</sup>. They also include coronary heart disease (CHD), coronary artery disease (CAD), and acute coronary syndrome (ACS). This paper aimed at measuring the quality of life after coronary artery bypass graft procedure and determine the factors that affect the quality of life.

**Methods:** Data was collected via a structured close-ended questionnaire in which 100 (male and female, aged 40-60) were questioned. Patients were chosen after underwent CABG surgery 2 to 5 years.

**Results:** Carried out as good 36% for their general health and 24% very good. The activities indicated that there was a significant difference between males and females. Moreover, female participants were significantly different from male ( $P$ . value  $<0.05$ ) in their perception towards own health. Elder participants (56-60 years) were feeling better in comparison with middle age (40-49 years), ( $P$ . value 0.002). **Conclusion and recommendations:** The core domains related with the quality of life, that affected are physical functioning, bodily pain, social functioning and emotion, Therefore, health care specialists must plan for interventions towards improving the HRQOL to decrease the complications of CABG surgery. We recommend the establishment of a special center for rehabilitation of patients underwent CABG. Moreover, providing a further minimal invasive procedure to improve HRQOL.

**Keywords:** Coronary Artery Bypass Grafting, Quality of life, Lifestyle.

### INTRODUCTION

Cardiovascular disease (CVD) is a cluster of diseases that involve heart and blood vessels<sup>(10)</sup>. They also include coronary heart disease (CHD), coronary artery disease (CAD), and acute coronary syndrome (ACS). CAD is categorized by atherosclerosis in coronary arteries; it can be asymptomatic, where ACS almost always shows with a symptom<sup>(1)</sup>.

CHD is considered to be a main cause of death and disability in developed countries<sup>(18)</sup>. CAD may lead to myocardial infarction; heart failure. The risk aspects for CAD include diabetes, hypertension, obesity, smoking and higher cholesterol level<sup>(17)</sup>.

Coronary Artery Bypass Graft (CABG) surgery is considered as an effective treatment choice for patients with coronary artery disease.<sup>(7)</sup> 219,000 CABG surgeries were done in the United States, in 2010<sup>(8)</sup>.

CABG has showed incremental developments in improving outcomes, since its commencement in the 1960s<sup>(28)</sup>, the use of *in situ* internal mammary

artery (IMA) grafting has been documented to have the most profound beneficial effect<sup>(26,3)</sup>. In recent

years, there has been considerable interest in the negative impact of depression on outcomes among patients with coronary heart disease (CHD)<sup>(14)</sup>. Equally important, quality of life is a mark of quality of health care and it is kind of treatment program. Measuring quality of life in chronic diseases affords more evidence for the treatment team about patients' health status<sup>(11,9)</sup>.

Most of the studies focus on health-related quality of life (HRQOL) following CABG, which is a key measure of operative success<sup>(5)</sup>.

### OBJECTIVE

The aim of the study was to measure the quality of life after coronary artery bypass graft procedure. It seeks to determine the factors that affect the quality of life.

### MATERIALS AND METHODS

This is a cross-sectional community-based study of a qualitative approach. The study enrolled 100

patients (aged 40 to 60), males 64, 36 Female and post CABG 2 to 5 years.

Participants were subjected to structured self-administered close-ended study questionnaire during the period between August and November 2017.

Study questionnaire was a generic health questionnaire contains 36 items that measure eight extents (scales) of health status and it was validated in <sup>(29)</sup>.

The questionnaire measures physical functioning (PF), role limitation-physical (RP), role limitation-emotional (RE), social functioning (SF), mental health (MH), energy and vitality (EV), bodily pain (BP), and general health perception (GH).

Items analysis were performed using percentage of responses and calculation of the mean. For comparison, two tailed tests were performed on the 95% significance and *P* value <0.05.

**Statistical data analysis procedure:** Results analyzed by SPSS version 23.

**Ethical consideration**

This study has received ethical approval from King Abdulaziz Medical City. Informed consent was optioned from each participant. Furthermore, data were limited only for this study.

**RESULTS**

59% of the patients were in the age group of 50-55 years; 27% of the patients were in the age-group of 56-60 years. 14% patients; who were in the age group of 40-49 years.

However, male 64% and female 36%. General heath of the patients was (36% Good), (24% Very Good), (22% Fair) and the lowest rate was 18% for Excellent. 63% of the participants at least feel better than one year ago. Table 1 illustrates the assessment of the ability of the participants for physical activities.

**Table 1. Limitation of activities**

	<b>Yes</b>	<b>Yes</b>	<b>No</b>
	Limited a lot	Limited a Little	Not Limited at all
<b>Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports</b>	4%	1%	5%
<b>Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf</b>	0%	0%	0%
<b>Lifting or carrying groceries</b>	6%	3%	1%
<b>Climbing several flights of stairs</b>	6%	6%	8%
<b>Climbing one flight of stairs</b>	5%	8%	7%
<b>Bending, kneeling, or stooping</b>	0%	7%	3%
<b>Walking more than a mile</b>	6%	6%	8%

Table 2 shows the physical and emotional problems.

Firstly, the physical problems such as "Cut down the amount of time you spent on work or other activities" was 51% for Yes while 49% for No. Secondly, accomplished less than they would like was 50% for yes and 50% for no. (55%) for the choice yes "Were limited in the kind of work or other activities" and 43% for no. Thirdly, 55% had difficulty in performing the work or other activities (for example, it took extra effort) and 45% for no. On the other hand, emotional problems (such as feeling depressed or anxious)

showed that (36% yes) and (64% no) for "cut down the amount of time you spent on work or other activities".

In "accomplished less than they would like", we had 31% for yes and 69% for no. 54% did not do work or other activities as carefully as usual while 46% chose no.

In addition, patients' emotional problems that interfered with normal social activities with family, friends, neighbors, or groups was (52% Not at all), (42% Slightly), (2% moderately) and (3% severe). It was obvious that the widely held group goes to (not at all) with 52%.

**Table 2: Physical and emotional problems**

	% Definitely true	% Mostly true	% Don't know	% Mostly false	% Definitely false
	I seem to get sick a little easier than other people	0	19	30	20
I am as healthy as anybody I know	20	34	21	22	3
I expect my health to get worse	6	13	41	17	23
My health is excellent	28	47	14	9	2

Table 3 represents the pain rate of the patients where the highest rate was 39 (39% Not at all) then 23 (23% Slightly), 12 (12% moderately), 10 (10% severe) and 16 (16% very severe).

Furthermore, during the past 2 to 5 years, pain interfered with their normal work (including both work outside the home and housework) was (48% not at all) which is the highest rank; however, (24% a little bit), (20% moderately) and (8% quite a bit).

**Table 3. Bodily pain have they had during the past 2 to 5 years**

	Frequency	Percent
Not at all	39	39%
Slightly	23	23%
Moderately	12	12%
Severe	10	10%
Very Severe	16	16%
Total	100	100

Table 4 indicates the overall general health of the patients after CABG. (31% definitely false) for "I seem to get sick a little easier than other people", and this was the highest rank. Then (34% mostly true) for "I am as healthy as anybody I know", it was also the majority. Moving to "I expect my health to get worse"

was (41% don't know) and " my health is excellent " was (47% mostly true).

**Table 4: General Health**

	% Definitely true	% Mostly true	% Don't know	% Mostly false	% Definitely false
I seem to get sick a little easier than other people	00	19	30	20	31
I am as healthy as anybody I know	20	34	21	22	3
I expect my health to get worse	6	13	41	17	23
My health is excellent	28	47	14	9	2

**Male vs Female**

There is a great difference between males and females' mobility limitations after walking for more than one mile. Female participants were significantly different from male (*P*. value <0.05) in their perception towards own health, they feel better than males.

**Age 40-49 vs 56-60**

Elder participants whose age range is between 50 and 60 showed better physical activity performance compared to those whose age range is between 40 and 49; however, they still lack the ability to practice other activities.

**DISCUSSION**

Our study sheds the lights on these aspects as they are affecting the quality of life. The study plays an importance role in increasing the health services and decreasing the post-operative of the CABG surgery.

Indeed, hospitals are having a high proportion of cardiac patients, yet the cardiology centers are not well-spread in all hospitals; the limitation of the patients needed to carry out our study using only 100 patients. Data were collected via generic health questionnaire; it is an international and large-scale in many studies <sup>(24)</sup> that evaluate the HRQOL before and after CABG <sup>(6)</sup>.

Males are having a higher incidence and the highest rank was 59% of the patients were in the age group of 50-55, this associated with other Greek studies that showed after coronary artery bypass graft surgery that males are in higher risk situation from coronary artery disease and suffer

from this surgery <sup>(20)</sup>. Equally important, 36% of the patients enjoyed a good general health while 24% had a very good health in the past 2 to 5 years. Even in comparison to one year ago their health was much better now with 47% of the patients. Moreover, 36% was the highest percentage and this associated with other study which carried out and indicated that the majority 72% of the patients enjoyed a good quality of life <sup>(20)</sup>, and another study confirmed our conclusions. <sup>(2)</sup>. Furthermore, as the government provides a free health-care services for all citizens, patients in our study were not having any concerns about the surgery discharge before or after the operation. Therefore, post-operative complication will be decreased. Unlike patients who had concerns before and after the surgery about the discharge <sup>(4)</sup>. Otherwise, the majority of their activities were not limited at all with percentage of 51%, 50%, 47% and 43%.

In addition, our study was carried out by setting two comparisons; the first one was based upon the gender and the second one was set according to age difference. Firstly, male patients had the ability to walk more than a mile with the mean score of 2.23 which is higher than females score of 1.92. Indeed, this indicates that males' physical endurance is better than women here in Saudi Arabia as he is the family's bread-winner. At the same time, it doesn't mean that females are weak or less active. On the other hand, females are very much concerned about their health with mean score of 3.39 and 2.56 while males had 2.06 and 1.84. It is worthy to mention that females have health awareness more than

males who smoke and pose other risks to their health. Thus, the quality of life is determined by the gender factor.<sup>(13,15,12)</sup>

Moving to the age groups, there was a significant increase in the mean score of health 2.96 for the 50-56 years while age group of 40-49 was only 1.79. This could be resulted from the family support given to elder group. Wilson *et al*<sup>(22)</sup> shed the lights on the importance of family support in improving quality of life in the elder stage. Including the ability of the 40-49 age group there was a significant increase with mean scores of 2.29, 2.65 and 2.57; on the other hand, 56-60 were 1.48, 2.04 and 1.89. Customarily, elder patients do not benefit in HRQOL as the younger patients would benefit. Besides, in some cases such improvements have been very limited and not continued<sup>(19,16,27,25)</sup>. Bodily pain was conducted to have higher mean score in the younger group age (40-49) whilst in the elderly patients decreased to be 2.56. However, the researcher indicated that younger age are more likely to carry out activities and have responsibilities unlike elderly group who are physically inactive and suffer physical exertion. Further significant difference was found in the age group 40-49 to be 3.07 which was less than the elderly group 56-60, who showed the value of 4.07. Besides, youngest group of patients had emotional interference with social activities with mean score of 2.64, whilst elderly group had 4.63.

To explain, **Chan and Leon**<sup>(21,23)</sup> have faith in that different physiological and psychological problems were clearly observed with the patient's CABG surgery due to fear of death and anxiety<sup>(21,23)</sup>. At first, the results may not be logic, yet there are some studies that confirm the possible benefits of CABG with elderly patients showing that elderly patients can undertake CABG with low risk consequent in significant symptomatic and entire quality of life improvement<sup>(6)</sup>.

## CONCLUSION

The core domains related with the quality of life, that affected are physical functioning, bodily

pain, social functioning and emotion, Therefore, health care specialists must plan for interventions towards improving the HRQOL to decrease the complications of CABG surgery. We recommend the establishment of a special center for rehabilitation of patients underwent CABG.

## LIMITATIONS OF THE STUDY

Hospitals are having a high proportion of cardiac patients, yet the cardiology centers are not well-spread in all hospitals; thus, CABG surgery cannot be done in other places. Furthermore, patients after CABG need to be in intensive care for a period of time so this can delay the study. Indeed, the limitation of the patients derives us to do our study on only 100 patients yet, the data was quite enough to be a clear indicator to come up with a valuable result even with the giving number of patients.

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