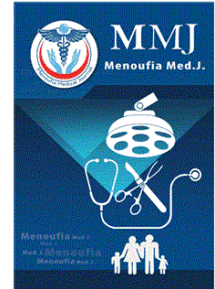




Menoufia Medical Journal

PRINT ISSN: 1110-2098 - ONLINE ISSN: 2314-6788

journal homepage: www.menoufia-med-j.com



Manuscript 1066

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Mohammad Abdallah

shymaa Mamdouh Mohamed Abdu SH.M

Abdel-Hady El-Gilany AH.G

Wael Abdel-Aziz

Noha ElAdawy

See next page for additional authors

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Mohammad Abdallah, shymaa Mamdouh Mohamed Abdu SH.M, Abdel-Hady El-Gilany AH.G, Wael Abdel-Aziz, Noha ElAdawy, and Olfat Farag

ORIGINAL STUDY

Patients' Expectations Before Coronary Artery Bypass Graft Surgery: A Cross-sectional Study

Mohammad Abdallah ^{a,*}, Shymaa Mamdouh Mohamed Abdu ^b, Abdel-Hady El-Gilany ^b, Wael Abdel-Aziz ^c, Noha ElAdawy ^b, Olfat Farag ^b

^a Department of Cardiothoracic Surgery, National Heart Institute, Shebein Elkom Teaching Hospital, Shebein Elkom, Egypt

^b Department of Public Health & Community Medicine, Faculty of Medicine, Mansoura University, Mansoura, Egypt

^c Cardiothoracic Surgery, Mansoura University, Mansoura, Egypt

Abstract

Background: Exploring patients expectations before coronary artery bypass graft (CABG) surgery provides clinicians with important insights into their service population.

Objectives: The objective of this study is to describe the expectations of patients before CABG surgery and its associated factors.

Patients and methods: A cross-sectional study was conducted in the Outpatient Clinic of an Egyptian Cardiac Surgery Unit during the period from May 2017 to April 2018. A total of 446 patients who underwent CABG surgery were included. The sociodemographic and clinical data were collected from patients and their medical records. The Cardiac Surgery Patient Expectations questionnaire was used to describe the CABG patient's expectations before surgery. A Student *t* test was used for testing significance between groups.

Results: The mean total negative expectation score was 31.30 ± 6.36 . In total, 64.3 and 42.4 % of patients disagreed with having more heart problems and suffering sleep problems after surgery, respectively. The highest mean negative expectation score was in patients expressed life style suffering (2.11). Multiple linear regression showed that male ($\beta = -3.75, P < 0.001$) and employed patients ($\beta = -1.82, P = 0.001$) were significant independent predictors of lower preoperative negative expectations.

Conclusion: Lower preoperative negative expectations were observed in males, employed, and those without chronic diseases. So, further longitudinal studies are required to examine the risk factors associated with preoperative CABG patient's expectations.

Keywords: Cardiac surgery patient expectations questionnaire, Coronary artery bypass graft surgery, Expectations

1. Introduction

Coronary artery disease (CAD) is a public health issue and one of the world's leading causes of death [1]. The National Hypertension Project of Egypt reported an overall adjusted CAD prevalence of 8.3 % [2]. CAD deaths in Egypt reached 24.58 % of total deaths [3]. Coronary artery bypass graft (CABG) surgery is one of the causes of decreased mortality due to CAD [4,5].

A patient's expectation is defined as the anticipation that given events are probable to happen

during or because of health care [6]. Exploring the expectations of patients is important to ensure the provision of the highest quality healthcare. The perceptions of patients keep on rising. There should be a good balance between patient needs, perceptions of physicians, and goals that health care administrators put forward [7].

Patients' expectations concerning heart revascularization operation revealed that many patients felt anxiety about the need for operation [8]. Moreover, exploring the expectations of individual patients may permit surgeons to realize patients with

Received 29 May 2023; revised 29 May 2023; accepted 30 May 2023.

Available online 5 February 2024

* Corresponding author at: Mansoura, 35516, Egypt. Fax: +20 (50) 239733.
E-mail address: dr.mohamedd84@gmail.com (M. Abdallah).

<https://doi.org/10.59204/2314-6788.1066>

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unreasonable expectations to discuss the false beliefs before surgery by improving patient education [9].

Patient expectations are also related to the favorable outcomes of surgical interventions [10]. If patients undergoing CABG are expected to stay disabled after the procedure, it is more likely that those patients continue to suffer from a substantial postoperative disability, even if their surgeons predicted good recovery of the patient [11]. McRae et al. [12] reported that the expectation of which patient's surgery received had a major impact on the treatment outcomes. This suggests the possibility that concentration on psychological factors would make surgery more successful [10]. The expectations of patients had an impact on postoperative recovery, pain, disability, functional status, and physical activity [13,14]. Return to work was also affected by expectations [15]. Despite there were previous studies from other countries [16,17], there is no previous study in Egypt about patients' expectations and before CABG in particular. The aim of this study was to describe the expectations of patients before CABG surgery and its associated factors.

2. Patients and methods

This cross-section descriptive study was conducted in the Outpatient Clinic of Nasser Institute Hospital for Research and Treatment in Cairo, Egypt during the period from May 2017 to April 2018.

2.1. Inclusion and exclusion criteria

All patients (446) underwent isolated elective CABG surgery and aged 18 years or more. Emergency CABG patients and other cardiac surgeries (e.g. valvular surgery, CABG with valvular surgery, and aneurysm surgery) were excluded.

2.2. Study tools

The sociodemographic data (age, sex, education, occupation, and residence), and the Cardiac Surgery Patient Expectations questionnaire (C-SPEQ) [16] were collected by patient interviews before CABG surgery. C-SPEQ was further translated into Arabic by two independent translators. Any inconsistency was solved and agreed upon by a consensus. The Arabic version was later translated into English by another two independent translators and any inconsistency was solved and agreed upon by a consensus. The final Arabic version was pilot tested on 20 patients not included in the full-scale study

and found to be reliable with Cronbach's alpha = 0.83. C-SPEQ contains 20 items in negative directions. The scale was modified in the study to a three-point Likert scale (agree, undecided, and disagree). Eight items of the scale were reverse coded (items 3, 4, 8, 10, 14, 16, 18, and 20). The total score was calculated as the sum of all 20 items. Higher total scores mean higher negative expectations concerning CABG surgery, while lower scores mean less negative expectations [16].

Clinical and ECHO data were abstracted from patients' files, for example angina class (CCS1, CCS2, CCS3, and CCS4), dyspnea status (NYHA1, NYHA2, NYHA3, and NYHA4), chronic diseases (e.g. diabetes, hypertension, hypercholesterolemia, any associated comorbidities), the extent of coronary disease (single, double, triple, and fourth) and ejection fraction (EF: ≥ 40 %, < 40 %).

2.3. Statistical analysis

The data were collected and analyzed using Statistical Package for Social Sciences (SPSS for Windows program version 22; SPSS Inc., Chicago, Illinois, USA). Qualitative variables were presented as numbers and percent. Quantitative data were found to be normally distributed and were presented as mean \pm SD. The Student *t* test was for testing significance between groups. Linear regression was applied to evaluate the contribution of factors found to be significant in bivariate analysis in predicting preoperative negative expectations. *P* value less than 0.05 was considered statistically significant. Qualitative variables were included in the regression model as dummy variables and coded as one was given for male, employed, hypertensive, diabetes, and patients with peripheral vascular disease (PVD). While zero was given for the female, not employed, not hypertensive, not diabetic and patients not having PVD.

2.4. Ethical consideration

The study protocol was approved by the Institutional Research Board (IRB), Faculty of Medicine, Mansoura University. Official approval was obtained from the Director of Nasser Institute Hospital for conducting the study. Informed consent was obtained from participants after ensuring confidentiality.

3. Results

Out of the participants (42.6 %) of CABG patients agreed with suffering their lifestyle after surgery

and 54.7 % were undecided whether they would give up things they enjoy most. However, 86.3 % disagreed that the surgery will not go according to what the doctor told them with a least mean score (1.16). In addition, the mean total expectation score was 31.30 ± 6.36 (Table 1).

The mean negative expectation score was significantly lower in patients aged less than 50 years (29.95 ± 6.09) compared with those more than 50 years of age (31.59 ± 6.39) ($P = 0.04$). It was also lower in male patients (30.39 ± 6.57) compared with female (34.51 ± 4.27) ($P < 0.001$). In addition, rural patients scored significantly lower (30.59 ± 5.56) than urban ones (32.01 ± 7.02) ($P = 0.02$) (Table 2).

The mean negative expectation score was significantly lower in patients with EF more than or equal to 40 % ($P = 0.001$) as well as absence of hypercholesterolemia ($P = 0.001$), hypertension ($P < 0.001$), diabetes ($P < 0.001$) and PVD ($P < 0.001$) (Table 3).

Being a male or employed patient was a significant independent predictor for lower preoperative negative expectations ($P < 0.001$ and 0.001 , respectively). However, hypertension, diabetes, and PVD were significant independent predictors for higher preoperative negative expectations ($P < 0.001$) (Table 4).

4. Discussion

Research on patient expectations has been rising over the past decade; however, this field is still very

Table 2. Variation of patients' expectations score of coronary artery bypass graft surgery patients according to sociodemographic characteristics.

	Total	Expectations score (mean \pm SD)	Significance
Overall	446	31.30 ± 6.36	
Age			
<50	78	29.95 ± 6.09	$t = 2.08$
≥ 50	368	31.59 ± 6.39	$P = 0.04^a$
Sex			
Male	347	30.39 ± 6.57	$t = 5.87$
Female	99	34.51 ± 4.27	$P < 0.001^a$
Education			
<Primary	76	33.24 ± 6.38	$t = 2.93$
\geq Secondary	370	30.91 ± 6.30	$P = 0.004^a$
Occupation			
Employed	337	30.29 ± 6.30	$t = 6.13$
Not employed/ retired	109	34.43 ± 5.51	$P < 0.001^a$
Residence			
Rural	222	30.59 ± 5.56	$t = 2.36$
Urban	224	32.01 ± 7.02	$P = 0.02^a$

Student *t* test.

^a Significant.

new and mostly unknown in patients with cardiac surgery [17].

The current study showed that the mean negative patient expectations score were (31.30 ± 6.36). This agrees with a study conducted in the USA, which found the mean expectation score was (39.4 ± 9.02) [16].

The current study showed that the two items with the highest mean scores (indicating highest negative

Table 1. Distribution of negative expectations of coronary artery disease patients before coronary artery bypass graft surgery.

Items	Agree [n (%)]	Undecided [n (%)]	Disagree [n (%)]	Mean
1. Difficult to make changes	38 (8.5)	141 (31.6)	267 (59.9)	1.49
2. More heart problems	53 (11.9)	106 (23.8)	287 (64.3)	1.48
3. Will not return to work/activities	17 (3.8)	111 (24.9)	318 (71.3)	1.33
4. Surgery will not go according to what doctor told me	10 (2.2)	51 (11.4)	385 (86.3)	1.16
5. Avoid large groups in future	84 (18.8)	134 (30)	228 (51.1)	1.68
6. Lifestyle will suffer	190 (42.6)	116 (26)	140 (31.4)	2.11
7. Will not ever fully recover	64 (14.3)	121 (27.1)	261 (58.5)	1.56
8. Not healthy enough for sex	44 (9.9)	128 (28.7)	274 (61.4)	1.48
9. Can do nothing to affect outcome after surgery	89 (20)	177 (39.7)	180 (40.4)	1.80
10. Will not be back to normal in 6–12 months	19 (4.3)	91 (20.4)	336 (75.3)	1.29
11. Not enough support for recovery	109 (24.4)	137 (30.7)	200 (44.8)	1.80
12. Impact on finances	51 (11.4)	133 (29.8)	262 (58.7)	1.53
13. Expect good deal of pain	102 (22.9)	88 (19.7)	256 (57.4)	1.65
14. Surgery and recovery will have complications	33 (7.4)	162 (36.3)	251 (56.3)	1.51
15. Give up working around house	66 (14.8)	137 (30.7)	243 (54.5)	1.60
16. Cannot live long and healthy life	0	138 (30.9)	308 (69.1)	1.31
17. Give up things I enjoy most	81 (18.2)	244 (54.7)	121 (27.1)	1.91
18. Sleep will suffer	98 (22)	159 (35.7)	189 (42.4)	1.80
19. Surgery will have a negative effect on family	50 (11.2)	164 (36.8)	232 (52)	1.59
20. Not optimistic about future and returning to normal lifestyle	0	109 (24.4)	337 (75.6)	1.24
Total expectation score				
Median (minimum–max)	30.00 (20–48)			
Mean \pm SD	31.30 ± 6.36			

Table 3. Variation of patients' expectations scores of coronary artery bypass graft surgery cases according to preoperative clinical data.

	Total	Expectations scores (mean ± SD)	Significance
Angina status			
CCS1–CCS2	99	31.17 ± 6.82	$t = 0.24$
CCS3–CCS4	347	31.76 ± 5.18	$P = 0.8$
Dyspnea status			
NYHA1–NYHA2	51	31.15 ± 7.52	$t = 0.18$
NYHA3–NYHA4	395	31.32 ± 6.21	$P = 0.9$
Preoperative EF			
<40	216	32.31 ± 6.52	$t = 3.26$
≥40	230	30.36 ± 6.08	$P = 0.001^a$
Number of grafts to be revascularized			
Single	11	31.27 ± 6.40	$t = 0.02$
Multiple	435	31.30 ± 6.37	$P = 0.9$
Diabetes			
No	135	29.35 ± 6.53	$t = 4.35$
Yes	311	32.15 ± 6.11	$P < 0.001^a$
Hypercholestermia			
No	174	30.02 ± 5.81	$t = 3.47$
Yes	272	32.13 ± 6.57	$P = 0.001^a$
Hypertension			
No	110	28.41 ± 5.16	$t = 5.67$
Yes	336	32.25 ± 6.45	$P < 0.001^a$
Smoking			
No	405	31.23 ± 6.22	$t = 0.71$
Yes	41	31.97 ± 7.76	$P = 0.5$
Gastrointestinal disease			
No	399	31.17 ± 6.26	$t = 1.27$
Yes	47	32.42 ± 7.15	$P = 0.2$
Renal disease			
No	435	31.26 ± 6.43	$t = 0.89$
Yes	11	33.00 ± 2.23	$P = 0.4$
Respiratory disease			
No	335	31.08 ± 6.09	$t = 1.29$
Yes	111	31.98 ± 7.12	$P = 0.2$
Cerebrovascular disease			
No	424	31.18 ± 6.22	$t = 1.87$
Yes	22	33.77 ± 8.51	$P = 0.06$
Peripheral vascular disease			
No	425	31.04 ± 6.26	$t = 4.06$
Yes	21	36.71 ± 6.25	$P < 0.001^a$
Preoperative arrhythmia			
No	431	31.23 ± 6.33	$t = 1.30$
Yes	15	33.40 ± 7.33	$P = 0.2$

^a Significant.

expectations) were question 6, regarding lifestyle suffering and question regarding giving up things but, the items with the lowest negative expectations were question 4 regarding surgery going according to what their doctor told and question 20 regarding pessimism about future. A study carried out in the USA, found that the two items with the highest mean scores were question 18, regarding sleep, and question 13, regarding pain, and the two items with the lowest mean scores, were question 3, regarding return to work, and other activities, and question 4, regarding surgery going according to what their doctor told them [16]. This might be explained by

Table 4. Multiple linear regression analysis of independent predictors of preoperative negative expectations of coronary artery bypass graft surgery patients.

Predictors	β	95 % CI	P value
Sex	-3.75	(-5.16 to -2.34)	<0.001 ^a
Occupation	-1.82	(-3.25 to -0.40)	0.001 ^a
Hypertension	3.59	(2.34–4.84)	<0.001 ^a
PVD	5.00	(2.43–7.57)	<0.001 ^a
Diabetes	1.78	(0.52–3.04)	0.006
Constant	31.63	$R^2 = 0.26$	
		$F = 15.34$	$P < 0.001$

PVD, peripheral vascular disease.

Qualitative variables were dealt as dummy variables and coded as: 1 was given for male, employed, hypertensive, diabetes and patients with PVD. 0 was given for female, not employed, not hypertensive, not diabetic and patients with PVD.

^a Significant.

the difference in behavioral aspects of patients and might be affected by their doctor assurance.

Furthermore, the present study showed a significant association between lower negative expectation scores, young (<50 years old) and male patients. Similarly, previous studies conducted in Holland [18], USA [19–21] found that younger age and male patients were significant predictors of preoperative patient expectations. However, previous studies conducted in the USA contradict these findings [16,22]. This could be explained by the difference in sociocultural aspects of patients.

The present study showed statistically significant decrease in mean negative expectations and the absence of chronic diseases. This is the first study to examine the association between preoperative patient expectations and these clinical data in CABG patients. Previous studies conducted in Holland and Canada [18,22] revealed that the higher patient expectations with lower levels of comorbidity. The possible explanation is that a more accurate evaluation of the physiological effect of those comorbidities on recovery or as a coping mechanism adopted in the aspect of chronic disease [23].

The present study showed that statistically significant association between higher education and lowering negative expectations. Similarly, a study conducted in the USA supported this finding [24]. This could be explained that higher education enables persons to maintain a healthy life style, know the nature of their diseases, and the levels of their status that help in shaping their expectations. However, a study conducted in London that showed no association between education and patient expectations [25]. The possible explanation is that the difference in sociocultural aspects of the patients, tools used to assess expectations, and small sample size calculated.

4.1. Study limitations

This a single-center study and its results cannot be generalized to all CABG patients. It paves the way for a large nationwide multicenter study. In addition, the possibility of social desirability bias in patients reporting cannot be excluded. Another limitation is the lack of follow-up after surgery to explore changes in expectations and their effect on patients' outcomes.

4.2. Conclusions and recommendations

The authors concluded that males, employed, and patients with chronic diseases were significant independent predictors for preoperative patient expectations before CABG surgery. Follow-up after surgery is recommended to explore changes in expectations. In addition, further studies are recommended to examine the risk factors related to preoperative CABG patient's expectations.

Conflicts of interest

There are no conflicts of interest.

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