

## PSYCHOLOGICAL AND SEXUAL DYSFUNCTION WITH QUALITY OF LIFE IN CARDIAC PATIENTS, BEFORE AND AFTER CORONARY ARTERY BYPASS GRAFTING SURGERY

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### ABSTRACT

Since cardiac diseases, especially cardiovascular, is main reason of mortality in the present societies, and also, there are so many evidences about the influence of psychological factors before surgery on psychological factors after surgery, purpose of the present study is describe the psychological condition before and after CABG surgery. After informed consent, 68 patients who submitted to CABG surgery were examined one day before and two months after surgery. For assessing their stress, anxiety and depression, they completed DASS-21 scale, and for assessing the quality of life and the sexual function, they completed SF-36 and FSFI (women), IIEF-5 (men). T-test and Pearson correlation have been used for analyzing the statistical data. Patients after surgery showed significant improvement than before surgery. And variables pre-operation were the best anticipator for itself post-operation. Correlation analysis indicated that there were high correlation between SF-36 subscales and female sexual function index subscale. Psychological, quality of life and sexual function before surgery were the best anticipator for those after surgery. As a result, patients about two months after surgery recovered.

**KEYWORDS:** CABG, Cardiac Disease, Psychological Condition, Quality Of Life, Sexual Function.

### INTRODUCTION

Cardiac-vascular disease considered as a main cause of mortality in all over the world, and it is anticipated it will progress until 2020 (Lukkarinen and Lukkarinen, 2007). World health organization (2002) has reported that the cardiovascular is the mortality reason of about 7.2 million people in a year (Lopez *et al.*, 2006). Despite general decrease in the mortality due to this disease, this disease is the main reason of mortality in the developed countries that this disease, also, increases gradually in the developing countries (Lopez *et al.*, 2006). Previous studies have shown that there is large sex difference in the use of many specialist treatments (Ryan and Majeed, 2001). Nowadays, cardiac surgery is suggested to treatment of cardiac diseases. Particularly, coronary artery bypass surgery increasingly is growing for treating the cardiovascular diseases (Rymaszewska *et al.*, 2003).

In Iran, 60 percent of all heart surgeries are coronary artery bypass graft surgery (Babaei *et al.*, 2007). Cardiac diseases results psychosocial problems for the patients. And improvement after surgery is a very great challenge for the patients after CABG surgery, and also they have found out that the psychological and social problems are strong anticipators than physical problems for improving after infarction myocardial (Lopez *et al.*, 2006). Psychological distress reactions in heart patients include; anger, depression, anxiety, irritability and mood swing (Utriyaprasit, 2001; Angblom *et al.*, 1992; Mayou, 1986; Koivula, 2002; Gidron *et al.*, 2003). For many of the patients, coronary artery bypass surgery has useful results that include: decreasing angina and decreasing stop of breathing and also increasing welfare feeling (Rymaszewska *et al.*, 2003). Patients and families experience some stressors and changes to their lifestyles during the crossing through the different stages of recovery from surgery (Theobald *et al.*, 2005). Depression associated with reduced return to work and quality of life and increased mortality (Ilic and Apostolovic, 2002). Although, depression impacts the health outcomes and depression being associated with increased morality, impaired health status (Pederson *et al.*, 2006). Depression in up to 50% CABG patients has reported at 8 weeks after surgery (Utriyaprasit, 2001). Lopez *et al.* (2007) found that depression level at discharge was the highest then gradually decreased at 6 months after CABG surgery but studies showed that the relationship between depression and coronary heart disease incidence is even less certain (Whang *et al.*, 2009). Reports have showed that more than 25% patients, after CABG surgery, sometimes suffer from depression (Gallagherr, 2004). Also, Anxiety and stress are the common problems that heart patients experience

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(Ilic and Apostolovic, 2002). Pederson *et al.*, (2006) found that patients showed significant improvement in health status between 6 and 12 months after surgery. Quality of life is important factor in heart patients; beck *et al* (2001) found that quality of life before surgery is the best anticipator of quality of life after surgery in heart patients.

Gender is one of the most variables that affect recovery symptoms and functional outcomes of CABG patients (Utriyaprasit, 2001). Artinian and Duggan (1995) found women have significantly higher levels of depression than men after surgery (Artinian and Duggan, 1995; Lopez *et al.*, 2006) but some studies found that women experience fewer mood swings than men (Theobald *et al.*, 2005). And Lopez *et al* (2007) concluded that there were no gender differences in depression level and physical recovery between patients.

Other problem that cardiac patients also experience is sexual dysfunction. Referring to this matter that sexual dysfunction can be the symptom of other diseases and it should be recognized and treated, is a problem that should be correctly assessed (Corona *et al.*, 2006). According to the study that Lukkarinen and Lukkarinen have been done in 2007, 14% of participants reported that they have disability in erection, and 12 % reported acute disability of erection. Severity of erection disability is increased with regard the age-rising: normal erection disability and acute by 12 percent has been reported in 50 years old men, and 25 percent of 60 years old men, and 49 percent of 70 years old men have been reported every year (Lukkarinen and Lukkarinen, 2007). Fortunately, understanding Pathophysiological and treating disorder of erection in men causes better understanding and better treatment of sexual dysfunction in women. According Kaya and et al studies, women cardiac patients, significantly, had very less intercourses in a month in compared with those women that had not this disease, and they have problems with their orgasm and lubrication. The level of sexual satisfaction in women with cardiac disease was lower, but this difference has not been significant in kaya *et al*'s study (Kaya *et al.*, 2007).

## MATERIALS AND METHODS

In 2013, this study was done in Baqiyat-Allah hospital (Atherosclerosis Research Centre) in Tehran and in Shahid Beheshti hospital in Qom. 73 cardiac patients had been candidate for the coronary artery bypass surgery, among these patients; there were 33 women and 40 men. But (2 patients (woman) due to disagreement dropped out, a patient (woman) due to bad physical condition could not cooperate for the second time, and among the men patients, a man patient due to death after surgery, secondary assessment was no possible, and a patient (man), due to disagreement dropped out from the study after surgery). All of patients were between 41 to 69 years of age. Inclusion criteria: 1- Being in the age group between 41 to 70 years; 2- patients informed consent to participate in the study. Exclusion criteria: 1- history of any cardiac surgery; 2- having an important psychological disorder; 3- being under the psychological treatment; 4- having addiction to any drug.

Demographics included gender, age and marital status and were assessed by the questions in the questionnaire. For data collection, the following instruments were used: 1- Depression, anxiety and stress survey (DASS-21) that has been used for assessing the level of anxiety, depression and stress of patients. In 1995, this questionnaire, for the first time, has been presented by Loviband and Loviband. The first form of this questionnaire has 42 questions, but in this research the form that has 21 questions, is used and validity of this scale in Iran, has been assessed by (Maleki *et al.*, 2005) on the population of Mashhad that the validity of depression 0.7, anxiety 0.66 and stress 0.76 has been reported in it; 2- The Short-Form Health Survey (SF-36) was used to assess quality of life in patients (Ware and Sherbourne, 1993). This questionnaire consist 36 items that divided into eight subscale (physical functioning, role limitations due to emotional functioning, role limitations due to physical functioning, vitality, social functioning, bodily pain, mental health, and general health). The score range in each subscale is changed into a score from 0 to 100; it is a reliable measure, Cronbach's alphas indicated up to 0.7 for all subscales (Vahdaninia *et al.*, 2004). 3- International Index of Erectile Function (IIEF-5) questionnaire (Rosen, 1999). This questionnaire was used for the assessment of male sexual function. According to IIEF scores was categorized to: severe dysfunction (score 5-10); mild to moderate dysfunction (score 11-15); mild dysfunction (score 16-20); and no dysfunction (score 21-25). In a study that conducted by Tehrani and Etemadi (2013) the Cronbach's alphas was 0.83 that indicate IIEF is a reliable questionnaire. 4- Female Sexual Function Index (FSFI): The questionnaire have 19 items (Rosen *et al.*, 2000) that were used to assess female sexual function. It has 6 subscales that include (desire, arousal, lubrication, orgasm, satisfaction and pain). There are 2 questions for desire, 4 to arousal, 4 to lubrication, 3 to orgasm, 3 to satisfaction and 3 for pain. Minimum score is 0 and maximum score is 6 for each of subscales. Reliability was reported for desire was 0/7, for arousal and lubrication was

0.9, for orgasm was 0/91, for satisfaction was 0/76 and for pain was 0.88 (Mohammadi *et al.*, 2007) that indicate FSFI is a reliable questionnaire.

Two months after surgery patients assessed again in this stage, and if it was possible they were assessed in clinic but if not possible they were assessed with phone contacts. And at the end, the collected data has been analyzed through SPSS programs, that in this research, Correlation was used for estimate of correlate between SF-36 and FSFI subscales, and finally for comparing the means, T-test has been used.

## RESULTS

Mean age of the patients Between 41 to 69 was 56.76 year of age. In 68 patients, 30 patients were women and 38 were men, and among this numbers, 5 patients (3 women and 2 men) have not agreed for the second assessment. All of patients were married and also their spouses were alive.

Table 1 shows correlations between variables before and after surgery. All of the variables showed high correlation except sexual function because sexual function didn't show high correlation with other variables and all variables indicated high correlation between before and after surgery with itself.

**Table 1: Inter correlation between variables included in the study**

variables	1	2	3	4	5	6	7	8	9	10
Quality of life	1									
Depression	-0.69**	1								
Anxiety	-0.75**	0.74**	1							
Stress	-0.69**	0.70**	0.79**	1						
Sexual function	0.13	-0.12	-0.20	-0.12	1					
Quality of life	0.87**	-0.69**	-0.75**	-0.68**	0.17	1				
Depression	-0.71**	0.82**	0.68**	0.60**	-0.20	-0.72**	1			
Anxiety	-0.70**	0.66**	0.84**	0.74**	-0.10	-0.73**	0.66**	1		
Stress	-0.67**	0.71**	0.77**	0.82**	-0.19	-0.69**	0.70**	0.74**	1	
Sexual function	0.027	-0.11	-0.075	-0.022	0.66**	0.055	-0.068	0.012	-0.054	1

\*correlation is significant at the 0.05 level (2-tailed)

\*\*correlation is significant at the 0.01 level (2-tailed)

Table 2, indicates the means and standard deviation of quality of life, the psychological factors and sexual function before surgery and two months after it. Mean of quality of life from 51.17 and SD (20.06) , one day before surgery in women has been increased to (64.88) in two months after surgery, and also in men, it increase from (56.48) to (60.60). As it is observed in the Table, also psychological problems of the patients in both of genders, indicates decrease after two months. But their sexual function, before and two months after surgery, does not indicate significant differences. Men's sexual function, before and after surgery indicated a significant difference.

**Table 2: Means and standard deviations of quality of life, Psychological (anxiety, depression and stress) and sexual function**

	women		men	
	1 day before	2 months later	1 day before	2 months later
<b>Quality of life</b>	51.17±20.06	64.88±20.59	48.56±20.18	60.60±21.79
<b>Depression</b>	24.26±8.18	16.60±6.42	24.86±6.66	18.18±6.32
<b>Anxiety</b>	30.16±10.36	20.50±8.60	28.10±10.25	20.50±8.91
<b>Stress</b>	36.70±12.14	24.46±10.03	34.78±10.61	22.21±8.28
<b>Sexual function</b>	18.06±6.92	17.98±5.72	14.10±5.44	14.68±4.43

Table 3 shows the correlation between subscales of SF-36. Based on these findings, vitality has high correlation ( $R=0.548$ ,  $p<0.01$ ) with mental health. Also, correlation between vitality was significant with general health perception ( $R=0.501$ ,  $p<0.01$ ). But, generally, correlation was low between emotional role function and physical function with other subscales. All of the correlation were positive, except the correlation between bodily pain and emotional role functioning were negative and low ( $p<0.05$ ,  $R=-0.018$ ).

**Table 3: correlation between subscales of sf-36 (quality of life)**

subscales	1	2	3	4	5	6	7	8
Physical functioning	1.00							
Physical role function	0.371**	1.00						
Emotional role function	0.188	0.359**	1.00					
Bodily pain	0.448**	0.154	0.018	1.00				
Social functioning	0.437**	0.280*	0.107	0.360**	1.00			
Mental health	0.404**	0.341**	0.300*	0.359**	0.299*	1.00		
Vitality	0.428**	0.260*	0.128	0.494**	0.177	0.548**	1.00	
General health perception	0.434**	0.302*	0.273*	0.285*	0.311**	0.399**	0.501**	1.00

\*correlation is significant at the 0.05 level(2-tailed)

\*\*correlation is significant at the 0.01 level(2-tailed)

Table 4 shows correlation between FSFI subscales. As it is observed, satisfaction and orgasm have high correlation ( $R=0.825$ ,  $P<0.01$ ), and also, orgasm and arousal have high correlation ( $R=0.738$ ,  $P<0.01$ ). Pain has significant correlation with lubrication, and it has not significant correlation with other subscales.

**Table 4: Correlation between subscales of FSFI (female sexual function index)**

subscales	1	2	3	4	5	6
Desire	1.00					
Arousal	0.626**	1.00				
Lubrication	0.438*	0.466**	1.00			
Orgasm	0.645**	0.738**	0.640**	1.00		
Satisfaction	0.447*	0.549**	0.695**	0.826**	1.00	
pain	0.032	0.331*	0.435*	0.298	0.295	1.00

\*correlation is significant at the 0.05 level (2-tailed)

\*\*correlation is significant at the 0.01 level (2-tailed)

## DISCUSSION AND CONCLUSION

The 73 number of CABG patients participated in this study. There was no control group and a higher number of patients. Also, short-term follow up after surgery is other limitation for this study. Nevertheless the result showed that

patients 2 months after surgery became recovered and depression, anxiety, stress after surgery decrease in patients but their sexual function didn't significantly change. Quality of life increases in patients two months after surgery. These results seem to be concordant with some of other studies (Lopez and colleagues, 2007; Panagopoulou *et al.*, 2006; Lukkarinen and Lukkarinen, 2007). Studies showed that depression is a common disorder in heart patients and has a significant impact on quality of life (Sanandaraj and Sajimon, 2010; Pournaghash-tehrani *et al.*, 2012; Khayyam-nekoui *et al.*, 2013; Ilic and Apostolovic, 2002). This study indicated that many patients suffer from depression. Patients showed significant decreases in depression two months after surgery. In addition of this result depression before surgery was the best anticipator of depression after surgery because patients had higher depression before surgery also had higher depression after surgery than others. Some studies showed concordant with these results. For example, Lopez *et al.*, (2007) indicated that depression after surgery significantly decreases in patients. Rymaszewska *et al.*, (2003) in their study showed that 32 percent of patients showed symptoms of depression but 28 percent of them had depression at discharge and after discharge 26 percent had. Based on the finding, depression is an important variable in heart patients' life.

Anxiety has a considerable impact on patients' recovery after surgery. This study's result showed that anxiety decreases in patients after surgery. And like depression this factor before surgery was the best anticipator of itself after surgery. Chaudhury *et al.*, (2006), indicated that 43.3 percent of patients in their study showed anxiety symptoms but after surgery decreases to 36.67 percent. As a result of this study, anxiety decreases gradually over time and this study showed that two months were enough time to recovery. Stress was an important factor in incidence and prevalence of heart diseases (Moore *et al.*, 1999; Cohen *et al.*, 2007; Linden, 2003). Decreasing in stress can help to patients' improvement in quality of life and heart issues. Some studies showed that some patients after surgery showed high stress (Pournaghash-tehrani *et al.*, 2013) which is non-concordant with this study's result. In this study stress significantly decreases two months after surgery that maybe indicated some other factors such as discharge from hospital or family support may have effects on stress diminishing after surgery.

Sexual function is a crucial factor in heart patients' satisfaction of their life. Studies showed that patients experience sexual dysfunction after cardiovascular surgeries (Pournaghash-Tehrani and Etemadi, 2013). This study showed that many of the patients before surgery had sexual dysfunction and they didn't show any improvement in their sexual function after surgery. Results didn't show concordance with Lukkarinen and Lukkarinen's study (2007), in this study patients showed improvement in their sexual function over time after surgery. It should be noted that they assessed patients' sexual function over time until 8 years after surgery and this indicated that time was an important factor in improvement of patients' sexual dysfunctions. Also, results didn't show any differences in women and men. Fsf subscales showed high correlation.

Finally, quality of life in heart patients is crucial because decreasing of quality of life causes the recurrence of heart diseases. Results indicated that patients after surgery showed significant improvement in their quality of life. But they need more time for showing more improvement. Sf-36 subscales had high correlation. Therefore, patients had more physical problems, they had more emotional or psychological problems. This result concurred with the study of Panagopoulou *et al.*, (2006), they concluded that patients showed improvement in their quality of life after surgery and like our study this improvement dependent on their quality of life before surgery. As regarded, the patients that participated in this study didn't rehabilitate after surgery therefore if they rehabilitate after surgery, they will show more improvement in their quality of life. For conclusion, psychological factors and sexual dysfunction in heart patients are important because they influence quality of life. And preoperative assessment can identify patients at risk for clinical levels of postoperative psychological problems. Psychological counseling and intervention can reduce patients' anxiety, depression and stress and increase their quality of life.

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