

PSYCHOLOGICAL FACTORS, SEXUAL FUNCTION WITH QUALITY OF LIFE IN CARDIAC PATIENTS BEFORE AND AFTER PERCUTANEOUS CORONARY INTERVENTION (PCI)

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ABSTRACT

Statistics indicates that there are significant increases of cardiac patients all over the world. There are different ways for treatment of this disease. One of these includes PCI surgery. So many studies have shown that psychological factors and quality of life are important in heart diseases. Also some studies have shown sexual dysfunction has high prevalence in heart patients. Therefore, the purpose of this study is to help for gaining more complete and better attitude for psychological issues, sexual function and quality of life of these patients. 71 patients who submitted to PCI 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. Results indicated that the patients, two months after surgery, show significant improvement in psychological condition and in their quality of life. Also, psychological variables before surgery are the best predictors for the psychological condition of patients after intervention. Results were similar in women and men except sexual function which men showed decrease in their sexual function after intervention. Results showed that psychological factors are important for improvement after intervention; decreasing psychological problems and increasing quality of life before surgery can reduce problems after surgery and improve their health status.

KEYWORDS: Cardiac Disease, PCI Surgery, Psychological Risk Factors, Quality Of Life, Sexual Function.

INTRODUCTION

Coronary heart disease (CHD) is one of the most important health issues of the twenty first century, and the most important cause of mortality in community, according to statistics, 2 million Iranians are suffering from coronary heart disease (Khayyam- Nekouei et al., 2013). Although CHD in all its clinical appearances contributes significantly to disability and death throughout life (Vokonas and Kanel, 2004). The percutaneous coronary intervention is a frequently used treatment for heart disease. And fortunately, PCI is an alternative treatment for heart disease which is an effective, safe and less disabling compare with CABG surgery (Wong and Chair, 2007). Most studies indicated that the mortality in patients was higher at 4% for CABG compared to 1% for PCI (Shekar and Couper, ...). Previous studies have shown that there is large sex difference in the use of many specialist treatments (Ryan and Majeed, 2001).

Emotions, feelings and social contexts may one of the factors that cause heart disease. Cardiovascular disease often has comorbidity with psychiatric disorders. Some evidences indicate that depression, anxiety increase the risk of cardiac events in coronary heart disease patients (Ilic and Apostolovic, 2002). And also, most evidences have showed that psychological factors have an important role in the etiology, development, duration and outcome of this disease (Pelle, 2009; 5 in 63). Because of this, most clinical goals of health care are to reduce: distress that include physical pain or anxiety; disability that include inability to perform activities of daily living; and death (Ketterer et al., 2000). 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). 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). Although, depression impacts the health outcomes and depression being associated with increased morality, impaired health status (Pederson et al., 2006). Studies in healthy adults and cardiac patients showed that stress can foster myocardial ischemia (Cohen et al., 2007). Although many patients undergoing PCI experience relevant anxiety

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with an estimated prevalence rate of 24% to 72%, and often accompanied by physical symptoms that can be distressing (Trotter *et al.*, 2010). The level of anxiety in patients that are undergoing PCI surgery decreases after this surgery (Astin *et al.*, 2005).

Quality of life is important factor in heart patients; Patients who undergone PCI almost return to work in 7 to 14 days (Higgins *et al.*, 2001). Beck *et al.*, (2001) found that quality of life before surgery is the best anticipator of quality of life after surgery in heart patients. Panagopoulou *et al.*, (2006) found significant positive associations were found between preoperative quality of life and quality of life 1 and 6 months after surgery.

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). Sexual function is a complicated process that is regulated by neurological system and endocrine. Sexual dysfunction among women (43 percent) is most common than men (31 percent). According to kaya *et al.*, (2007), sexual dysfunction was an important factor that has effect on quality of life and interpersonal relationship. And also, According to Lukkarinen and Lukkarinen (2007), the percent of patients that after cardiac surgery were unsatisfied about their sexual function, had gradually been decreased at 8 years follow up. And they found that the percentage of sexually dissatisfied persons decreased in the PCI patients during the 8 year follow up 8% respectively. PCI patients show higher level of psychological problems 3 months after surgery than CABG patients (Higgins *et al.*, 2001).

MATERIALS AND METHODS

Patients were collected from Baqiyat-Allah hospital (Atherosclerosis Research Centre) in Tehran and Shahid Beheshti hospital in Qom between October 2013 and February 2014, and who consented to participate in the study, were conveniently collected. 73 cardiac patients had been candidate for the percutaneous coronary intervention, 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 40 to 70 years of age. Inclusion criteria: 1- Being in the age group between 40 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, in this research, correlation was used for investigate correlation between variables after surgery based on those before surgery, and finally for comparing the means, T-test has been used.

RESULTS

The present research was done with the aim of surveying psychological condition, sexual dysfunction and the quality of life cardiac patients before and after PCI surgery. Mean age of the patients Between 40 to70 was 58.63 year of age. In 73 patients, 31 patients were women and 40 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.

The mean and standard deviation of variables have been presented in the table 1 for showing the level of changing of psychological, sexual function and quality of life after surgery than before surgery. Patients showed significant improvement in their quality of life after surgery. Depression, anxiety and stress decreased in patients 2 months after surgery. Sexual function decreased from 19.12 to 16.15 in men patients after surgery but in women didn't decrease.

Table 1: means and standard deviations of quality of life, psychological (anxiety, depression and stress) and quality of sex

Variables	Women		Men	
	1 day before	2 months later	1 day before	2months later
Quality of life	68.22(16.43)	79.52(13.40)	68.74(15.43)	80.14(13.01)
Depression	22.48(8.90)	16.87(8.37)	24.82(10.10)	18.70(8.23)
Anxiety	22.06(6.62)	14.19(6.20)	22.32(6.84)	16.20(6.25)
Stress	30.03(10.21)	22.48(8.24)	30.87(10.07)	26.27(6.84)
Sexual function	20.77(6.74)	20.08(4.85)	19.12(3.42)	16.15(4.57)

Correlation between variables before surgery and after surgery is presented in table 2.

Table 2 showed that there are high correlations between variables. And variables before surgery have high correlation with after surgery. Variables before surgery are the best predictors for after surgery. For example, quality of life is the best predictors for quality of life after surgery because of high correlation (0.88).

Table 2: Inter correlation between variables included in the study

Variables	1	2	3	4	5	6	7	8	9	10
Quality of life	1.00									
Depression	-0.80**	1.00								
Anxiety	-0.73**	0.75**	1.00							
Stress	-0.80**	0.69**	0.78**	1.00						
Sexual function	0.07	-0.04	-0.07	-0.08	1.00					
Quality of life	0.88**	-	-	-	0.020	1.00				
Depression	-0.70**	0.82**	0.74**	0.78**	-0.052	-	1.00			
Anxiety	-0.62**	0.61**	0.83**	0.64**	-0.068	-	0.45*	1.00		
Stress	-0.57**	0.46*	0.50**	0.75**	-0.096	-	0.35*	0.48*	1.00	
Sexual function	0.066	-0.09	-0.075	-0.17	0.56**	0.024	-0.13	-	-	1.00
								0.055	0.22*	

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

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

Table 3: showed mean and standard deviation of sf-36 subscales

Subscales	gender	One day before	Two months later
Physical functioning	Women	31.29±22.82	59.61±20.88
	Men	58.50±17.69	62.95±18.89
Physical role function	Women	57.90±21.70	65.70±17.43
	Men	56.25±22.06	61.42±20.22
Emotional role function	Women	38.70±35.84	43.38±27.18
	Men	47.50±37.89	58.12±30.71
Bodily pain	Women	59.13±43.63	75.53±28.94
	Men	45.83±39.71	72.89±32.70
Social functioning	Women	52.25±20.22	59.85±17.37
	Men	54.17±23.87	60.45±21.63
Mental health	Women	58.06±23.39	67.00±21.26
	Men	59.18±22.49	66.47±21.00
Vitality	Women	53.22±20.47	58.41±21.18
	Men	59.87±18.89	65.10±19.57
General health perception	Women	52.46±18.30	63.88±13.60
	Men	51.70±15.16	60.46±14.89

Results presented in table 3 showed that in some subscales men and in some of them women showed higher improvement after intervention. For example, men showed higher bodily pain before and after intervention than women and women showed higher emotional problems before and after intervention. But perception of health in both genders was similar.

DISCUSSION AND CONCLUSION

The 81 number of PCI patients participated in this study. There was no control group and a higher number of patients. Also, short-term follow up after intervention is other limitation for this study. Nevertheless the result showed that patients 2 months after intervention became recovered and depression, anxiety, stresses after intervention decrease in patients (Higgins, hayes and McKenna, 2001), in women sexual function didn't change and in men after intervention sexual function significantly decreases. Quality of life increases in patients two months after surgery. These results seems to be concurrent with some of others studies.

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-nekouei *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 results depression before intervention was the best anticipator of depression after intervention because those patients had higher depression before intervention also had higher depression after intervention than others. Some studies showed concordant with these result. For example, Result of Pederson *et al.*, (2006) investigation demonstrated that the 59 patients of 692 showed depression symptoms and these patients after intervention showed decreases in depression symptoms. Therefore, depression is a crucial factor that has impact on heart patients' conditions before and after intervention.

Anxiety has a considerable impact on patients' recovery after intervention. This study's result showed that anxiety decreases in patients after intervention. And like depression this factor before intervention was the best predictor of itself after intervention. Trotter and colleagues (2010), mentioned that anxiety's mean before intervention was 35.72 in patients and after intervention decreases to 28.79. As a result of this study, anxiety was decreases gradually over time and this study showed that two months were enough time to recovery. Stress was 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 intervention

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 intervention that maybe indicated some other factors such as discharge from hospital or family support maybe effects on stress diminishing after intervention.

Sexual function is important 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 intervention had sexual dysfunction and they didn't show any improvement in their sexual function after intervention. But men, according to results of this study, showed increases in their sexual dysfunction. Results didn't show concordant with Lukkarinen and Lukkarinen's study (2007), in this study patients showed improvement in their sexual function over time after intervention. It should be noted that they assessed patients' sexual function over time until 8 years after surgery and this indicated that time was important factor in improvement of patients' sexual dysfunctions. Also, result did show differences in women and men.

Finally, quality of life in heart patients is serious because decreasing of quality of life causes the recurrent of heart diseases. Results indicated that patients after intervention showed significant improvement in their quality of life. But they need more time for showing more improvement. Patients showed improvement in all of the sf-36 subscales. 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 this study their 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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