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Research Article

Quality of Life and Psychological Distress in an Egyptian Sample of Patients with Dilated Cardiomyopathy

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Abstract

Background: Cardiovascular diseases are the leading cause of death globally. They also cause severe problems in psychological and social aspects. Those with Dilated Cardiomyopathy (DCM) have substantial limitations in daily activities; moreover, the poor prognosis may result in emotional distress among patients and their families. **Results:** Patients with DCM had a worse quality of life with lower mean SF-36 score (47.9±10.59) compared to the control group (69.9±8.1). They also had worse HADS (35.2±18.73) compared to the control group (17.3 ± 15.3). SF-36 score had strong positive correlation with left ventricular systolic function measured by ejection fraction (LVEF) with (r: 0.777, R2: 60.3%, p<0.001). While HAD scale had a strong negative one with (r: -0.734, R2: 53.9%, p<0.001). **Conclusions:** Patients with DCM have a worse quality of life as well as psychological distress (anxiety and depression symptoms) compared to healthy control with standardized references of 69.9±8.1 and 17.3±15. 3 for SF-36 and HAD scale respectively. Patients with lower LVEF are at higher risk.

Keywords: Heart failure; Dilated cardiomyopathy; Short Form-36, HAD scale, Quality of life in heart failure

Abbreviations: BP: Bodily pain; BMI: Body Mass Index; DCM: Dilated Cardiomyopathy; GH: General Health Perception; HAD scale: Hospital Anxiety and Depression Scale; LVEF: Left Ventricular Ejection Fraction; MH: Mental Health; NYHA: New York Heart Association; PF: Physical Functioning; QOL: Quality of Life; RE: Role limitations caused by Emotional health problems; RF: Role limitations caused by physical health problems; SF-36: Short Form-36; VT: Vitality

Background

Cardiovascular diseases are one of the most prevalent chronic diseases with high rates of deaths and disability [1]. Beside mortality, disability and high disease burden, cardiovascular diseases cause severe problems in psychological and social aspects of people's lives [2].

Measuring and implementing effective steps to improve patients' quality of life is one of the most important items of cardiovascular diseases approaches [3]. Quality of life is considered as one of the most important components of quality of medical and health care [4].

Patients with dilated cardiomyopathy experience pronounced restrictions in quality of life and psychological wellbeing. These limitations are only partly accounted for by symptoms and the severity of underlying disease [5].

Those with Dilated Cardiomyopathy (DCM) have substantial limitations in daily activities; moreover the poor prognosis may result in emotional distress among patients and their families [5].

We aimed in this study to measure quality of life and psychological state in patients with dilated cardiomyopathy using standardized measures.

Methods

This is a cohort study that included one hundred patients suffering from dilated cardiomyopathy and another one hundred apparently healthy volunteers with normal echocardiogram especially left ventricular ejection fraction (LVEF) as a control group. Patients with history of psychiatric illness (mental, emotional, or behavioral disorders) were excluded.

- All candidates received a set of questionnaires and history and physical examination with emphasis on volume overload (weight gain, pulmonary rales, jugular venous distension, pedal edema, ascites, hepatomegaly), peripheral hypoperfusion (hypotension, pallor, mottled skin, cold extremities, and poor capillary refill)
- Investigations: (ECG, echocardiography, and laboratory investigations)

Quality of life (QOL) assessment

Quality of life was assessed using the short form 36 health survey (SF-36), Eight dimensions of functioning are assessed with the SF-36: physical functioning or activities of daily living; role limitations owing to physical problems; role limitations resulting from emotional problems; social functioning; mental health; general perceptions of health; vitality or energy; and bodily pain (Table 1).

Health scale	Item	Abbreviated item content
Physical Functioning (PF)	PF1	Vigorous activities, such as running, lifting heavy objects, strenuous sports
	PF2	Moderate activities, such as moving a table, vacuuming, bowling
	PF3	Lifting or carrying groceries
	PF4	Climbing several flights of stairs
	PF5	Climbing one flight of stairs
	PF6	Bending, kneeling,
	PF7	stooping Walking more than a kilometre
	PF8	Walking half a kilometre
	PF9	Walking 100 metres
	PF10	Bathing or dressing yourself
Role Physical (RP)	RP1	Cut down the amount of time spent on work or other activities
	RP2	Accomplished less than would like
	RP3	Limited in the kind of work or other activities
	RP4	Difficulty performing work or other activities
Bodily Pain (BP)	BP1	Intensity of bodily pain
	BP2	Extent pain interfered with normal work
General Health (GH)	GH1	Is your health: excellent, very good, good, fair, poor
	GH2	I seem to get sick a little easier than other people
	GH3	I am as healthy as anybody I know
	GH4	I expect my health to get worse
	GH5	My health is excellent
Vitality (VT)	VT1	Feel full of life
	VT2	Have a lot of energy
	VT3	Feel worn out
	VT4	Feel tired
Social Functioning (SF)	SF1	Extent health problems interfered with normal social activities
	SF2	Frequency health problems interfered with social activities
Role Emotional (RE)	RE1	Cut down the amount of time spent on work or other activities
	RE2	Accomplished less than would like
	RE3	Didn’t do work or other activities as carefully as usual

Mental Health (MH)	MH1 MH2 MH3 MH4 MH5	Been a very nervous person Felt so down in the dumps that nothing could cheer you up Felt calm and peaceful Felt down Been a happy person

Table 1: The short form 36 health survey (SF-36).

The SF-36 is one of the most widely used measures of health-related QOL consisting of 36 items and covering eight dimensions: Physical Functioning (PF), Role limitations caused by physical health problems (RF), Bodily Pain (BP), General Health perception (GH), Vitality (VT), Social Functioning (SF), Role limitations caused by Emotional health problems (RE), and mental health (MH) [5]. Scores on all the subscales are transformed linearly to a possible range of 0-100; higher scores indicate more favorable physical functioning/psychological well-being [6].

Psychological wellbeing

Anxiety and depression were assessed with the Hospital Anxiety and Depression (HAD) scale, 14 items questionnaire designed to assess emotional distress with items uncontaminated by somatic symptoms [7]. We used the total HAD score as a global measure of psychological distress (Figure 1).

Results

Patients' baseline clinical characteristics

Regarding demographic data and patients' characteristics there was no difference between the two groups. Most of the candidates in both groups were males (70.6% in patients' groups vs. 61% in control group; p value >0.05). The mean age among patients was 52.06±9.3 years, about one fourth were hypertensive, 18% were diabetics and 65% were active smokers with mean BMI of 31±10.4 (Table 2).

	Patient *n=150*	**Control** *n=100*	**P-value**
Males	106 (70.6%)	61(61%)	0.112
Age(years) means ± SD	52.06±9.3	53.2±4.9	0.5
Hypertension	26%	20%	0.57
Diabetes	18%	15%	0.06
Body Mass index (BMI) means	31±10.4	29±7.8	0.08
Smoking	65%	54%	0.1
NYHA grades I II III	 10.5% 88.4% 1.1%		
Serum Creatinine (mg/dl) means	1.6±0.5	1.2±0.3	0.2
Hemoglobin (g/dl) means	10±3.1	12±4.51	0.051

Table 2: Patients' baseline clinical characteristics and lab findings.

88.4% of patients with DCM had NYHA grade II, 10.5% had NYHA grade I and only 1.1% had NYHA III.

Patients with DCM compared to the control group showed a trend of higher serum creatinine and lower hemoglobin levels but with no statistical significance.

D	A		D	A	
		I feel tense or 'wound up':			**I feel as if I am slowed down:**
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			**I get a sort of frightened feeling like 'butterflies' in the stomach:**
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			**I have lost interest in my appearance:**
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			**I feel restless as I have to be on the move:**
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			**I look forward with enjoyment to things:**
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			**I get sudden feelings of panic:**
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			**I can enjoy a good book or radio or TV program:**
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Please check you have answered all the questions

Scoring:

Total score: Depression (D) _____ Anxiety (A) _____

0-7 = Normal

8-10 = Borderline abnormal (borderline case)

11-21 = Abnormal (case)

Figure 1: Anxiety and depression were assessed with the hospital anxiety and depression (HAD) scale.

Echocardiographic Results

Degree of LV dysfunction in patients' group

The majority (72 patients, 48%) with DCM (i.e., patients' group) had mild impairment in systolic function (EF: 40% to 54%), 33 patients (22%) with moderate impairment (EF 35% to 39%), 45 patients (30%) with severe impairment (EF<35%) (Figure 2).

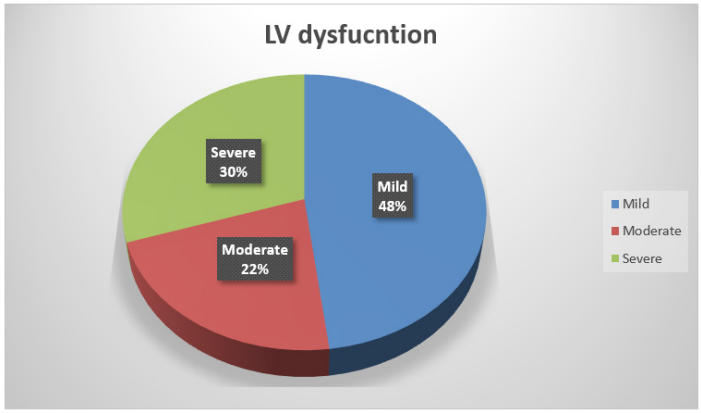

Figure 2: Degree of LV dysfunction among patients.

Degree of mitral regurgitation

There were 16 patients with normal mitral valve, 7 patients with trivial mitral regurgitation, 52 patients with mild mitral regurgitation, 50 patients with moderate regurgitation, 17 patients with severe mitral regurgitation, 8 patients with mitral prosthesis. (Figure 3). Correlations with SF-36 and HAD and other parameters are shown in Table 3.

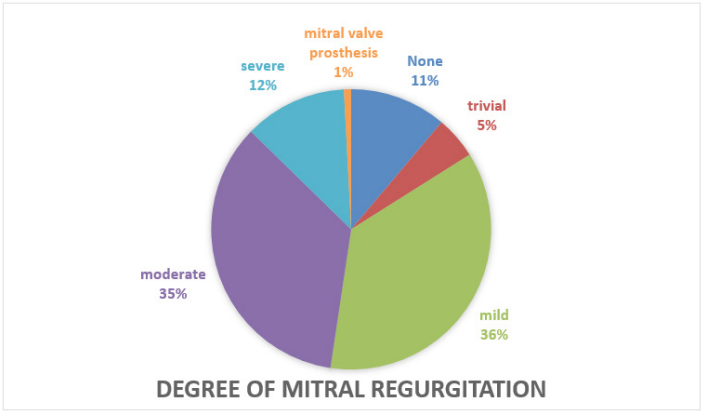

Figure 3: different degrees of Mitral regurgitation among patients.

Quality of life

Patients with DCM had a worse quality of life with lower mean SF-36 score (47.9 ± 10.59) compared to the control group (69.9 ± 8.1); p value <0.001 (Figure 4).

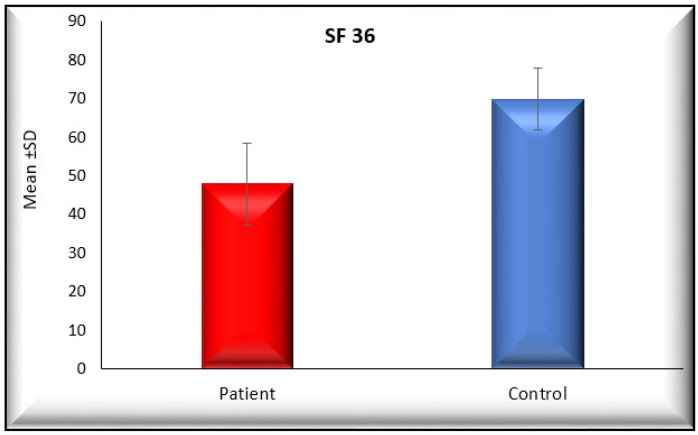

Figure 4: SF-36 score means.

In patients with DCM the SF-36 score had strong positive correlation with left ventricular systolic functions measured by ejection fraction (LVEF) with (r: 0.777, R2: 60.3%, p value <0.001) (Figure 5). There was a significant but weak negative correlation between SF-36 scores and degree of mitral regurgitation (r: -0.356, R2: 12.67%, p value <0.001).

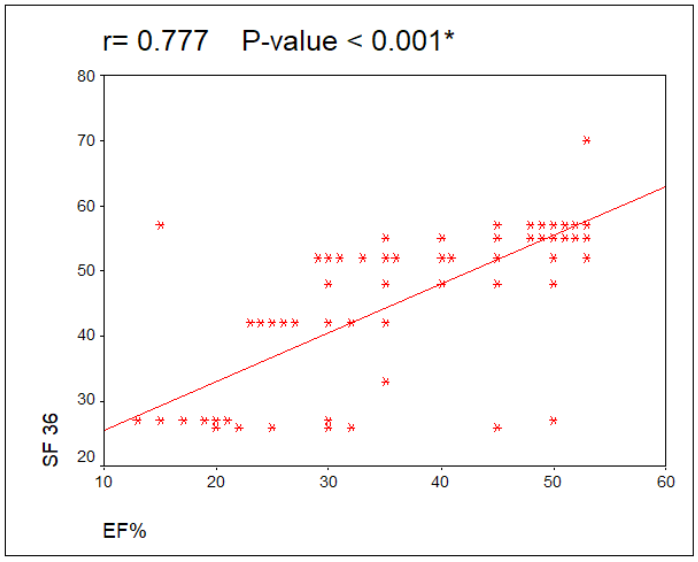

Figure 5: Correlation between SF-36 and LVEF.

Psychological wellbeing

Patients with DCM had higher psychological distress (anxiety and depression symptoms) compared to healthy control (35.2 ± 18.73 vs 17.3±15.3, p value <0.001) (Figure 6). In patients with DCM the HAD scale had strong negative correlation with LVEF, (r: -0.734, R2: 53.9%, p value <0.001) (Figure 7) (Table 3).

	Patient *n=150*	**Control** *n=100*	**P-value**
SF-36 score (mean)	47.91±10.59	69.9 ± 8.1	<0.001
HAD scale (mean)	35.23±18.73	17.37±15.3	<0.001

Table 3: Quality of life and Psychological wellbeing results.

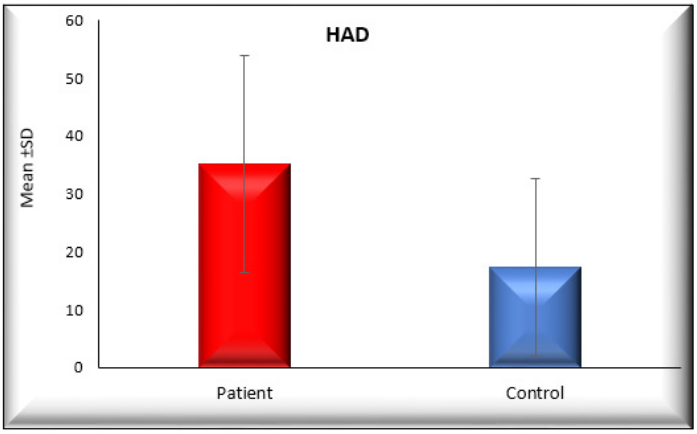

Figure 6: HAD scale means.

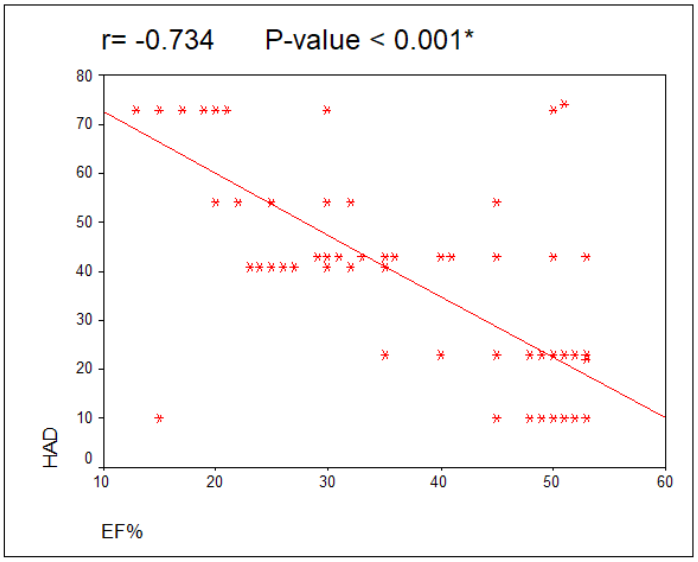

Figure 7: Correlation between HAD scale and LVEF.

Like SF-36, HAD scale showed a significant but weak positive correlation between SF-36 scores and degree of mitral regurgitation (r: 0.312, R2: 9.73%, p value <0.00) (Table 4).

Correlations between LVEF with both SF 36 and HAD		
	LVEF	
	r	**P-value**
SF-36	0.777	<0.001
HAD	-0.734	<0.001
Correlations between degree of mitral regurgitation with both SF 36 and HAD		
	Degree of mitral regurgitation	
	r	**P-value**
SF-36	-0.356	<0.001
HAD	0.312	<0.001
Correlations between Left ventricular end diastolic diameter (LVEDD) with both SF 36 and HAD		
	LVEDD	
	r	**P-value**
SF-36	-0.007	0.928
HAD	-0.001	0.989

Table 4: Correlations between SF-36, HAD scale and different Echocardiographic parameters.

Relationship between quality of life, psychological wellbeing, and different degrees of LV dysfunction

Among patients with DCM SF-36 scores were the lowest (37.5±10.67) among patients with severe LV dysfunction. Also, the mean HAD scale was highest (57.24±16.1) among those with severe LV dysfunction, denoting worst quality of life and highest psychological distress among patients with severe LV dysfunction (Table 5, Figure 8).

		SF-36 (mean)	HAD (mean)	P-value
LV dysfunction	mild	56.32±5.75	24.17±16.1	<0.001
	moderate	50.48±4.09	45.19±6.4	
	severe	37.5±10.67	57.24±16.1	

Table 5: Quality of life and Psychological wellbeing in different levels of LV dysfunction.

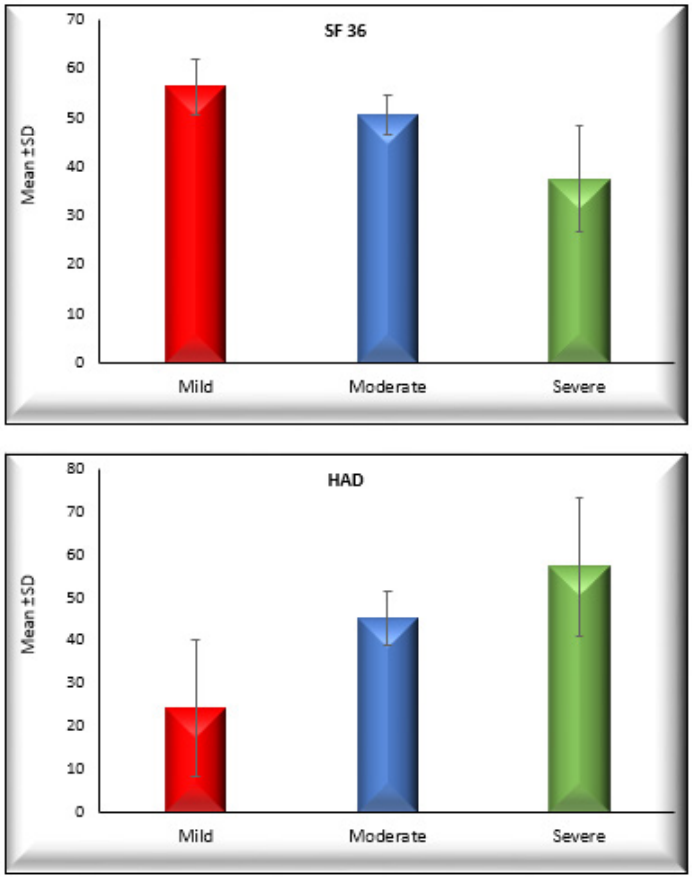

Figure 8: SF-36 and HAD means among tertials of LV dysfunction in patients with DCM.

Discussion

The quality of life is becoming a cornerstone in management of patients with different cardiac diseases, especially cardiomyopathy, due to its chronic nature and impairments of physical functioning. There are different available tools for assessment of quality of life in patients with DCM including the Kansas City Cardiomyopathy Questionnaire (KCCQ) and the Short Form-36 (SF-36). In this study, we used the SF-36 which is a generic QoL tools which is widely used in research projects and daily practice, to assess, follow and supervise health status [8].

SF-36 assesses eight different aspects of health. It is generic by nature that it, as opposed to disease-specific measures, is used to compare outcomes across different diseases and treatments. An Arabic version of SF-36 was translated and validated by El-Kalla, et al. in 2016 [8]. This provides a more practical method for QoL assessment in Arabic speaking countries like Egypt. We aimed in this study to assess the QOL in patients with DCM using the SF-36 Form that was not done before in Egyptian population. We compared the results of each aspect to a healthy control as a standard group.

Those with DCM showed significantly lower SF-36 score, i.e., worse QOL. Similar results with a relatively higher average scores were shown earlier by Steptoe A, et al. [5] where they compared the SF-36 form results among patients with different cardiomyopathy.

Different factors affect the QOL in patients with DCM, in our study the lower the LV systolic function the worse the QOL. This highlights the group at higher risk and so who necessitates intense and earlier interventions to improve QOL.

The existing data assessing QOL among Egyptian population in specific diseases like DCM is sparse; using SF-36 Form in our study creates a standardized score that can be compared with results from other areas and from other diseases as well.

For the psychological wellbeing we used the widely spread and easy tool, the HAD scale for assessment of anxiety and depression. We preferred the use of the total score as a global measure for the ease of use and to show the negative psychological impact of such debilitating chronic disease. In our study, those with DCM showed nearly double the total HAD score when compared to healthy control group. This shows the marked psychological distress in such group of patients.

Again, the lower LV systolic function was an important predictor of psychological distress in patients with DCM. In a study done by Shu Guan et.al., [9] investigating the prevalence of anxiety and depression among patients with DCM in China,

of 115 patients with DCM, 23.4% were diagnosed with anxiety and 21.7% with depression and this increases with poor cardiac functions, mental work, and arrhythmia.

There above results spot the light upon the need for routine assessment of QOL and psychological wellbeing among patients with DCM, especially those with severe LV dysfunction. To decrease the psychological impact and improve QOL in such patients using non-pharmacological and pharmacological therapies.

Conclusions

Patients with DCM have a worse quality of life as well as psychological distress (anxiety and depression symptoms) and those with lower LVEF are at higher risk.

Ethics Approval and Consent to Participate

No data were collected before detailed information was given to the patient and a written consent was obtained. The study was approved by the local Institutional ethical committee Faculty of Medicine, Ain Shams University

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' Contributions

Khaled Aly conceptualization, reviewed the literature, collected the data, analyzed the data, and wrote the manuscript. Sara Sallam conceptualized the project and collected the data. All authors read and approved the final manuscript.

References

1. World Health Organization (2017) Cardiovascular diseases.
2. Mayou RA, Gill D, Thompson DR, Day A, Hicks N, et al. (2000) Depression and anxiety as predictors of outcome after myocardial infarction. Psychosom Med 62: 212-219.
3. Simpson E, Pilote L (2005) Quality of life after acute myocardial infarction: a comparison of diabetic versus non-diabetic acute myocardial infarction patients in Quebec acute care hospitals. Health Qual Life Outcomes 3: 80.
4. Daugherty C, Dewhurst W, Spertus J (1998) Health related quality of life outcomes in clinical research. Am J Epidemiol 51: 569-575.
5. Steptoe A, Mohabir A, Mahon NG, McKenna WJ (2000) Health related quality of life and psychological wellbeing in patients with dilated cardiomyopathy. Heart 83: 645-650.
6. Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B (2005) The Short Form Health Survey (SF-36): translation and validation study of the Iranian version. Qual Life Res 14: 875-882.
7. Snaith RP (2003) The Hospital Anxiety and Depression Scale. Health Qual Life Outcomes 1: 29.
8. El-Kalla RA, Halaf MME, Saad MAA, Othman EM (2016) Reliability of the Arabic Egyptian Version of Short Form 36 Health Survey Questionnaire to Measure Quality of Life in Burned Patient. Med J Cairo Univ 84: 311-316.
9. Guan S, Fang X, Hu X (2014) Factors influencing the anxiety and depression of patients with dilated cardiomyopathy. Int J Clin Exp Med 7: 5691-5695.