Research Journal of Medical Sciences 13 (3): 53-59, 2019
ISSN: 1815-9346

Health Related Quality of Life in Jordanian Patients with Heart Failure

Iyad Mahmoud Hassan Odeh, Tariq Yousef Khaled Hasan and Mousa A. Alhassan
Department of Adult Health Nursing, Faculty of Nursing,
Jordan University of Science and Technology, Irbid, Jordan

Abstract: This study focused on describing perceived physical and mental aspects of health related quality of life in Jordanian patients with heart failure. It described the health related quality of life of patients with heart failure and examined the association between health related quality of life in a patient with heart failure and sociodemographic and clinical characteristics. The 95 patients were recruited during June to August, 2008. The 85 patients completed the short form-36 questionnaire. Data analysis revealed that Jordanian patients perceived their health related quality of life as poor. Demographic characteristics that significantly correlated with health related quality of life were marital status and annual income whereas age, gender and educational level were found to have no significant effect on health related quality of life. The clinical characteristics that significantly correlated with health related quality of life were shortness of breath during effort, edema and having diabetes or renal impairment. On the other hand, shortness of breath during sleep, shortness of breath at rest and fatigue did not significantly correlate with health related quality of life. Intervention strategies to manage heart failure symptoms are required to improve health related quality of life. Health professionals including nurses, must use this information about health related quality of life and the relation with heart failure disease to develop new nursing strategies and interventions to improve the physical and mental aspects of health related quality of life.

Key words: Heart failure, quality of life, nursing, intervention strategies, physical health, mental health

INTRODUCTION

The incidence and prevalence of Heart Failure (HF) and its associated morbidity and mortality have increased, making it a major health concern worldwide (Cowie *et al*., 1997; WHO., 2005; CDC., 2019). In Jordan, statistics from a major health institution, AL-Basher hospital, indicate an increase in the number of patients who were admitted because of HF from 2004-2007. Nearly, 500 patients with HF are admitted at Al-Basher hospital yearly. Furthermore, Cardiovascular Diseases (CVDs) including heart failure, account for 38.2% of all deaths in Jordan (Belbeisi *et al*., 2006).

In the USA nearly 5 mln patients were diagnosed with HF with a mortality of 500,000 patients yearly (American heart association, 2005). The American Heart Association (AHA) reported that in 2002, 62 mln Americans (32 mln females and 30 mln male) had CVDs (Kasper and Eugene, 2005). Globally, CVDs affected 29% of the population in 2001 and it is expected to rise to 30.8 and 32.5% in 2010 and 2050, respectively (Anthony *et al*., 2008). Cardiovascular diseases are common among the elderly. The prevalence rate increases from 5% at the age of 20 years old to 75% at 75 years of age or older (AHA., 2005; Kasper and Eugene, 2005).

Heart failure occurs as a result of any of these etiological factors, impaired myocardial contractility or relaxation, cardiac abnormalities such as obstructive or regurgitant valvular disease or intracardiac shunting and the inability of the heart to compensate for metabolic requirements (William and James, 2007).

Heart failure is characterized by physiological and psychological symptoms that influence a patient's Health Related Quality of Life (HRQoL). This disease is associated with progressively severe symptoms such as fatigue, breathlessness, anxiety and leg edema or swelling which may negatively have an impact on Quality of Life (QoL) (Cowie *et al*., 1997; Zambroski *et al*., 2005; Azevedo *et al*., 2008). It was reported that symptoms of HF were including shortness of breath, lack of energy, difficulty sleeping and difficulty breathing when lying flat were the greatest predictors of diminished HRQoL (Cowie *et al*., 1997; Zambroski *et al*., 2005; Azevedo *et al*., 2008).

Fatigue is a common symptom in patients with chronic heart failure and is shown to have a negative impact on daily life activities and HRQoL (Falk *et al*., 2007; Stephen, 2008). Hagglund *et al*. (2007) also found that general fatigue, physical fatigue and reduced activities to be more common in patients with HF and are associated

Corresponding Author: Iyad Mahmoud Hassan Odeh, Department of Adult Health Nursing, Faculty of Nursing, Jordan University of Science and Technology, Irbid, Jordan

with poorer HRQoL. Dyspnea was the strongest predictor of decreased QoL that is the increased incidence of dyspnea was associated with decreased QoL (Riedinger *et al*., 2000; Zambroski *et al*., 2005). Moreover, Heo *et al*. (2007) found that elderly patients had more severe dyspnea. The finding of this study showed poor physical symptom status being associated with the poor level of HRQoL. Friedman and Griffin (2001) found those who had shortness of breath to be more depressed. Also, Sullivan *et al*. (2004) reported patients who have orthopnea or dyspnea more likely to be depressed. The depression is reported to be a major contribution to poor QoL (Carels, 2004; Ola *et al*., 2006; Bekelman *et al*., 2007).

Depression is significantly related to 3 core symptoms of congestive heart failure, fatigue, breathlessness and chest pain. Also, depression was associated with a greater number of symptoms and a higher level of distress symptoms which contributed to poorer HRQoL (Sullivan *et al*., 2004; Bekelman *et al*., 2007).

Heart failure patients experience a chronic disease associated with various factors such as symptoms, therapy, low physical and psychological function, the decline in health status, episodic adverse cardiac events and repeated hospital admissions which all negatively influence their health related quality of life. Health related quality of life is a subjective concept that is based on a person's interpretation of his/her health status in comparison to what that person hopes or expects his health to be.

Quality of life is severely impaired with HF in comparison to other diseases such as diabetes, arthritis, chronic lung diseases and angina (Moser, 2002). Older patients with HF are more likely to have poor HRQoL especially in the physical, psychological, emotional health, health perceptions and functional status (Hagglund *et al*., 2007; Heo *et al*., 2007). Also, older adults with HF report higher anxiety and depression compared with healthy older adults which has a negative impact on HRQoL (Heo *et al*., 2007). Furthermore, physical functioning, general health perceptions, social functioning and role limitations as well as emotional well-being are negatively influenced by the severity of HF symptoms (Azevedo *et al*., 2008). Hobbs *et al*. (2002) found that physical and mental health are substantially worse among HF patients and significantly worsen with more severe HF.

Psychological distress, poor health perceptions and lower educational level are found to have a significant negative impact on HRQoL than other demographic, clinical and social dimensions (Lee *et al*., 2005). A high level of anxiety and depression were identified as the most significant factors associated with poorer HRQoL in congestive heart failure patients (Lee *et al*., 2005). Chronic HF patients suffer from psychological disorders that were caused by the frequent presence of sleep disturbance, financial difficulties, dysfunctional eating behaviors, a decrease in sexual activity and sexual dysfunction that affect QoL (Majani *et al*., 1999).

Heart failure is a chronic illness that affects every aspect of people's daily life such as physical, mental, emotional and social. Heart failure experiences a number of symptoms such as fatigue, dyspnea, edema, etc. and requires a continuous assessment and management. It has the potential to seriously affect a person's HRQoL.

The objectives of the present study were to describe the perceived physical and mental aspects of the HRQoL in Jordanian patients with HF and to describe the relationships between patient's HRQoL and selected sociodemographics and patient's clinical characteristics.

MATERIALS AND METHODS

Research design: A descriptive cross-sectional design was used to estimate the HRQoL in Jordanian patients with HF. This design is appropriate to describe relationships between HRQoL and demographics and clinical characteristics of the patients.

Sample: A convenience sample was used in this study sample. To determine the sample size, a power analysis was used. A sample size of 85 patients was required to achieve statistical significant relationships between HRQoL and socio demographic and clinical characteristic at 0.05 and 0.02 of the level of significance (Hulley *et al*., 2001).

All patients with HF who visited the cardiac clinic in three major health care institutions would be potential participants. The American College of Cardiology and American Heart Association classified HF into four stages; stage A-high risk for HF, stage B-asymptomatic heart disease, stage C-symptomatic HF, stage D-advanced structural heart disease and marked symptoms (Hunt *et al*., 2001). The patients would participate if they were 18 years or older were clinically diagnosed with HF at least 1 month prior to datacollection had stage C or D and ejection fraction ≤40% (Cowie *et al*., 1997) be able to communicate in Arabic. Also, to ensure accurate comprehension and understanding of research aims, patients who were known to have psychiatric or mental problems were excluded from the study. Furthermore, because the HRQoL is a dynamic phenomenon and could be affected by significant daily events, any participant

who was known to have an event such death of an important person prior to the study was excluded from participation. Also, patients who scheduled for surgery or invasive cardiac procedure were excluded from participation.

Study setting: The sample was obtained from three major hospitals, a public hospital, a teaching hospital and a private hospital.

Study instrument: The following instruments were used to collect the required data.

Sociodemographics data sheet: The sociodemographic sheet was developed by the researcher to elicit background information about the patients. It included questions related to age, marital status, gender, level of education, yearly income and occupation.

Clinical characteristics data sheet: The patient clinical characteristics tool was developed by the researcher. It includes questions related to symptoms of HF (edema, shortness of breath and fatigue), other chronic diseases, number and type of medications and smoking status.

RAND-36 item (SF-36): The short form-36 is a widely used generic measure of HRQoL and is known among researchers as "a golden standard" (Mrabet *et al*., 2004).

Statistical analysis: Data were analyzed using the Statistical Package of the Social Sciences Version 21. Descriptive statistical analysis including means, range and standard deviations were used to describe socio demographic, clinical characteristics and main dimensions of the HRQoL. Pearson correlation was used to describe the relationship between HRQoL and continuous variables of the socio demographic variables (age). Independent sample t-test was used for variables that were measured at the nominal level.

RESULTS AND DISCUSSION

Sociodemographic variables: The participant were older adults (M = 64.91, SD = 7.23). More than half (55.3%) were females and almost all participants (92.9%) were living with their families with almost two-thirds were Amman residents (65.9%). In terms of marital status, the majority (63.5%) of the sample were married, retired (58.8%) and had less than high school education (65.9%) and annual income of <4000 JD (71.8%). Moreover, (67.1%) of the participants were non-smokers. For the purpose of the statistical analysis, the variables, marital status, educational level and annual income were dichotomized into (married and not married) (less than high school and high school or greater) and (<4000JD, 4000 JD or greater (Table 1).

Table 1: Sociodemographic characteristic of the sample

Variables	N(%)	M(SD)	Range
Age (years)		64.91(12.24)	26-88
Gender			
Male	38(44.7)		
Female	47(55.3)		
Marital status			
Single	3(3.5)		
Married	54.(36.5)		
Divorce	2(2.4)		
Widow	26(30.6)		
Living place			
Amman	56(65.9)		
Out of Amman	29(34.1)		
Living status			
Independent	6(7.1)		
With my family	79(92.9)		
Educational level			
Illiterate	38(44.7)		
Primary	18(21.2)		
Secondary	19(22.4)		
Diploma	4(4.7)		
Bachelor	5(5.9)		
Master and above	1(1.2)		
Work out door			
Yes	6(7.1)		
No	50(58.8)		
Retirement	29(34.1)		
Annual income			
<2000JD	31(36.5)		
2000-2999 JD	17(20)		
3000-3999 JD	13(15.3)		
4000-4999 JD	7(8.2)		
6000-6999 JD	6(7.1)		
More than 8000 JD	11(12.9)		
Smoking			
Smoker	6(7.1)		
Nonsmoker	57(67.1)		
Previous smoker	22(25.9)		

Clinical characteristics of the sample: Table 2 shows, the mean number of years, since, the patients diagnosed with HF was 5.95 years (SD = 6.63). The majority (63.5%) of the sample reported experience difficulty in breathing during sleep where as the difficulty of breathing during effort was experienced by almost all participants (96.5%). However, only 26% experience difficulty in breathing at rest. The 84% of the participants complained of lower limbs edema and 94% reported experiencing fatigue. Also, the majority (87.1%) reported having other chronic illnesses such as hypertension (70.6%), diabetes mellitus (56.5%), renal diseases (8.2%), bone diseases (4.7%), respiratory diseases (3.5%) and other chronic illnesses (9.4%) which includes; Parkinson, atherosclerosis, liver diseases, hypotension and stroke. The number of medications the patients used ranged from 1-5 medications/daily with a mean of 3.32 (Table 3).

Table 2: Clinical characteristic of the sample

Variables	N(%)	M(SD)
Number of years diagnosis		5.95(6.63)
Difficulty of breathing during sleep		
Yes	54(63.5)	
No	31(36.5)	
Difficulty of breathing at rest		
Yes	22(25.9)	
No	63(74.1)	
Difficulty of breathing during effort		
Yes	82(96.5)	
No	3(3.5)	
Lower limbs edema		
Yes	71(83.5)	
No	14(16.5)	
Fatigue		
Yes	80(94.1)	
No	5(5.9)	
Having chronic illnesses		
Yes	74(87.1)	
No	11(12.9)	
Hypertension		
Yes	60(70.6)	
No	14(16.5)	
Diabetes mellitus		
Yes	48(56.5)	
No	26(30.6)	
Renal diseases		
Yes	4(4.7)	
No	70(82.4)	
Bone diseases		
Yes	4(4.7)	
No	70(82.4)	
Respiratory diseases		
Yes	3(3.5)	
No	71(83.5)	
Other chronic illnesses		
Yes	8(9.4)	
No	65(76.5)	
Number of HF medications		3.32(1)

Table 3: Medications the participants use

Heart failure medications	N(%)
Rennin angiotensin blockers	
Yes	50(58.8)
No	35(41.2)
B-blocker	
Yes	45(52.9)
No	40(47.1)
Diuretics and aldosterone antagonists	
Yes	79(92.9)
No	6(7.1)
Vasodilator	
Yes	43(50.6)
No	42(59.4)
Inotropic agent	
Yes	37(43.5)
No	48(56.5)
Ca channel blocker	
Yes	9(10.6)
No	76(89.4)

Health related quality of life in Jordanian patients with HF: The participants perceived low HRQoL (M = 31.69, SD = 18.57). The participants scored low on both mental component and physical component (M = 33.58, SD = 23.20) and (M = 29.80, SD = 16.86), respectively, the participants highest score was on mental health (M = 48.61, SD = 24.93) followed by general health (M = 44, SD = 17.21) and the lowest score was on role physical (M = 8.53, SD = 22.68) followed by role emotional (M = 20.78, SD = 39.16) (Table 4).

Table 4: Perception of HF patients of their HRQoL

Dimensions	M (SD)	Possible range
Health related quality of life	31.69(18.57)	0-100
Physical component	29.80(16.86)	0-100
Physical Function (PF)	26.53(24.42)	0-100
Role physical (RF)	8.53(22.68)	0-100
Bodily Pain (BP)	40.15(30.96)	0-100
General Health (GH)	44(17.21)	0-100
Mental component	33.58(23.20)	0-100
Vitality (VT)	32.12(22.43)	0-100
Social Function (SF)	32.79(33.57)	0-100
Mental Health (MH)	48.61(24.93)	0-100
Role Emotional (RE)	20.78(39.16)	0-100

Table 5: Differences in HRQoL between male and female patients

Variables	M(SD)	t-values	df	p-values
Health related quality of life		1.61	83	0.11
Male	35.26(17.35)			
Female	28.8(19.2)			
Physical component summary		0.99	83	0.33
Male	31.81(16.5)			
Female	28.18(17.15)			
Physical function		0.99	83	0.47
Male	28.68(27.06)			
Female	24.79(22.21)			
Role physical		0.49	83	0.63
Male	9.87(24.34)			
Female	7.45(21.44)			
Bodily pain		1.41	83	0.16
Male	45.39(26.69)			
Female	35.90(33.71)			
General health		-0.34	83	0.07
Male	43.29(17.02)			
Female	44.57(17.53)			
Mental component summary		1.86	38	0.07
Male	38.71(22.77)			
Female	29.42(22.96)			
Mental health		1.63	38	0.24
Male	53.47(21.22)			
Female	44.68(27.16)			
Role emotional		1.17	38	024
Male	26.32(41.85)			
Female	16.31(36.69)			
Social function		1.58	83	0.12
Male	39.14(35.49)			
Female	27.66(31.38)			
Vitality		1.41	83	0.16
Male	35.92(22.27)			
Female	29.04(21.96)			

Relationships between HRQoL and socio demographic: Table 5 and 6 show that age and gender did not significantly associate HRQoL, except the dimension physical function, the finding revealed a statistically significant negative relationship between age and physical function indicating that as age increased physical function decreased.

The analysis revealed a significant effect of marital status on total HRQoL (p = 0.05), married patients were more likely to report better HRQoL than non-married HF patients. Also, married patients perceived better physical component and better HRQoL with respect to pain than nonmarried patients (Table 7).

As Table 8 shows, the educational level of the participants did not significantly affect HRQoL, except for the vitality dimension (feeling full of life, having a lot of energy) of HRQoL. Patients with heart failure who had less than high school education levels reported better vitality than their counterparts.

As Table 9 shows, an annual income of the participants significantly affect HRQoL, patients with higher income were more likely to report better total HRQoL and better physical component, physical function and social function than those who had lower income.

Table 6:Relationship between age and HRQoL

Variables	R	p-values
Health related quality of life	-0.13	0.22
Physical component summary	-0.17	0.11
Physical function	-0.32	0.00
Role physical	-0.07	0.54
Bodily pain	-0.10	0.35
General health	0.04	0.7
Mental component summary	-0.09	0.43
Mental health	-0.04	0.6
Role emotional	-0.06	0.79
Social function	-0.14	0.19
Vitality	-0.09	0.4

Table 7: Differences in HRQoL between married and not married patients

Variables	M (SD)	t	df	p-values
Health related quality of life		1.1	83	0.05
Married	34.69(18.85)			
Not married	26.47(17.12)			
Physical component summary		2.13	83	0.04
Married	32.69(17.52)			
Not married	24.78(14.58)			
Physical function		1.27	83	0.21
Married	29.07(25.16)			
Not married	22.1(22.8)			
Role physical		2.37	83	0.2
Married	11.57(26.02)			
Not married	3.22(14.06)			
Bodily pain		2.37	83	0.02
Married	46.02(29.53)			
Not married	29.92(31.19)			
General health		0.05	83	0.96
Married	44.07(15.84)			
Not married	43.8(19.65)			
Mental component summary		1.65	83	0.10
Married	36.69(23.85)			
Not married	28.16(21.33)			
Mental health		1.48	83	0.14
Married	51.63(23.26)			
Not married	43.35(27.19)			
Role emotional		1.14	83	0.16
Married	2.531(41.43)			
Not married	12.9(34.08)			
Social function		1.04	83	0.30
Married	35.65(35.80)			
Not married	27.82(29.17)			
Vitality		1.11	83	0.27
Married	34.17(22.31)			
Not married	28.55(22.55)			

Table 8: Differences in HRQoLbetween patients with less than high school and those with high school or greater

Variables	M (SD)	t-values	df	p-values
Health related quality of life		-0.16	83	0.88
Less than high school	31.45(19.09)			
High school or greater	32.10(17.93)			
Physical component summary		-0.62	83	0.54
Less than high school	28.95(16.71)			
High school or greater	31.29(17.29)			
Physical function		-0.62	83	0.54
Less than high school	24.17(25.04)			
High school or greater	30.65(23.12)			
Role physical		-0.11	83	0.92
Less than high school	8.33(22.78)			
High school or greater	8.87(22.87)			
Bodily pain		-0.47	83	0.64
Less than high school	38.94(31.45)			
High school or greater	42.26(30.48)			
General health		0.25	83	0.81
Less than high school	44.35(15.48)			
High school or greater	43.39(20.14)			
Mental component summary		-0.20	83	0.84
Less than high school	33.96(24.13)			
High school or greater	32.92(21.87)			
Mental health		0.93	83	0.36
Less than high school	50.52(24.71)			
High school or greater	45.29(25.37)			
Role emotional		-0.32	83	0.75
Less than high school	19.75(38.59)			
High school or greater	22.58(40.72)			
Social function		-1.15	83	0.25
Less than high school	29.63(33.14)			
High school or greater	38.31(34.15)			
Vitality		2.11	83	0.04
Less than high school	35.93(24.07)			
High school or greater	25.48(17.72)			

Table 9: Differences in HRQoL between patients with <4000 JD/year and those with 4000 JD/year or greater

Variables	M (SD)	t	df	p-values
Health related quality of life		-2.22	83	0.03
<4000	28.95(16.97)			
4000 or greater	38.65(20.93)			
Physical component summary		-2.42	83	0.02
<4000	27.1(15.49)			
4000 or greater	36.67(18.54)			
Physical function		-2.53	83	0.01
<4000	22.46(21.48)			
4000 or greater	36.88(28.62)			
Role physical		-0.48	83	0.63
<4000	7.79(21.67)			
4000 or greater	10.42(25.45)			
Bodily pain		-1.87	83	0.07
<4000	36.27(31.29)			
4000 or greater	50(28.39)			
General health		-1.87	83	0.07
<4000	41.89(16.54)			
4000 or greater	49.38(18.08)			
Mental component summary		-1.78	83	0.08
<4000	30.80(21.45)			
4000 or greater	40.36(26.34)			
Mental health		-1.13	83	0.26
<4000	46.69(24.64)			
4000 or greater	53.5(25.51)			

Table 9: Continue

Variables	M(SD)	t-values	df	p-values
Role emotional		-1.13	83	0.31
<4000	18.03(36.8)			
4000 or greater	27.78(44.69)			
Social function		-2.30	83	0.02
<4000	27.66(31.38)			
4000 or greater	45.83(36.05)			
Vitality		-0.0	83	0.4
<4000	30.82(20.62)			
4000 or greater	35.42(26.7)			

This sample of Jordanian heart failure patients perceived their HRQoL to be poor (M = 31.69, SD = 18.57). This finding is consistent with the findings of research describing HRQoL in Western culture (Hobbs *et al*., 2002; Heo *et al*., 2007; Azevedo *et al*., 2008). These study findings indicated that patients with HF had a lower level of HRQoL compared with healthy people. In the current study, the Jordanian HF patients scored very low in physical and mental dimensions of HRQoL. This finding is consistent with the Hobbs *et al*. (2002) finding that physical and mental health was substantially worse among HF patients. Also, this finding is consistent with Ekman *et al*. (2002) who found that HF patients scored low in the physical dimension.

There are many factors that perhaps contribute to a poor HRQoL in Jordan. The economic situation affects how and what a patient can or cannot pay for medical care and the availability of medical facilities. Jordanian culture and traditions value strength and independence which may create difficulties in accepting illness and seeking help. Moreover, chronic illness could be regarded as a weakness and a loss of dignity. Unemployment causes financial and social hardships affecting whole families. A low HRQoL may be related to the symptoms of HF and worsening with severity, since, only patients with stage C and D were selected. This was supported by Azevedo *et al*. (2008) and Hobbs *et al*. (2002) who found that worsening QoL was associated with increasing severity of HF. On the other hand, Ekman *et al*. (2002) reported that symptoms of HF such as fatigue and breathlessness led to limitations in physical and social functioning. Physical activity may become limited by illness. This was supported by Ekman *et al*. (2002) who found that HF patients scored low in the physical dimensions. The psychological-effect can be detrimental leading to low morale which affects the physical condition. That was supported by Heo *et al*. (2007), Riedinger *et al*. (2000), Carels (2004) and Ola *et al*. (2006) who found that heart failure patients reported higher anxiety and depression than their healthier counterparts that led to diminished QoL.

According to the Wilson and Cleary HRQoL Model, biological and physiological changes produce symptoms that affect functional status and then QoL. In addition, characteristics of the HF patients and environmental characteristics influence QoL either directly or indirectly.

CONCLUSION

Patients with HF tend to have poor HRQoL. However, married patients and those with higher income have a better HRQoL. Heart failure patients experience a high number of symptoms such as dyspnea and edema which were the greatest predictors of a diminished HRQoL. Also, patients with HF who had DM or renal impairment had a lower HRQoL. Nursing care has to focus on the problems experienced by HF patients such as worsening symptoms, the number of comorbidities and decreased physical activity. Nurses must have the knowledge and skill to provide care and should be encouraged to take up this challenge.

REFERENCES

AHA., 2005. Heart disease and stroke statistics. American heart association, Dallas, Texas, USA. https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.105.171600

Anthony, S., B. Eugene, L.K. Dennis, L.H. Stephen and L. Dan L *et al*., 2008. Harrison's Principles of Internal Medicine. 17th Edn., McGraw Hill, New York, USA., ISBN:9780071641142, Pages: 2650.

Azevedo, A., P. Bettencourt, M. Alvelos, E. Martins and C. Abreu-Lima *et al*., 2008. Health-related quality of life and stages of heart failure. Intl. J. Cardiol., 129: 238-244.

Bekelman, D.B., E.P. Havranek, D.M. Becker, J.S. Kutner and P.N. Peterson *et al*., 2007. Symptoms, depression and quality of life in patients with heart failure. J. Cardiac Fail., 13: 643-648.

Carels, R.A., 2004. The association between disease severity, functional status, depression and daily quality of life in congestive heart failure patients. Qual. Life Res., 13: 63-72.

Cowie, M.R., A. Mosterd, D.A. Wood, J.W. Deckers and P.A. Poole-Wilson *et al*., 1997. The epidemiology of heart failure. Eur. Heart. J., 18: 208-225.

Ekman, I., B. Fagerberg and B. Lundman, 2002. Health-related quality of life and sense of coherence among elderly patients with severe chronic heart failure in comparison with healthy controls. Heart Lung, 31: 94-101.

Falk, K., K. Swedberg, F. Gaston-Johansson and I. Ekman, 2007. Fatigue is a prevalent and severe symptom associated with uncertainty and sense of coherence in patients with chronic heart failure. Eur. J. Cardiovasc. Nurs., 6: 99-104.

Friedman, M.M. and J.A. Griffin, 2001. Relationship of physical symptoms and physical functioning to depression in patients with heart failure. Heart Lung, 30: 98-104.

Hagglund, L., K. Boman, M. Olofsson and C. Brulin, 2007. Fatigue and health-related quality of life in elderly patients with and without heart failure in primary healthcare. Eur. J. Cardiovasc. Nurs., 6: 208-215.

Heo, S., D.K. Moser, T.A. Lennie, C.H. Zambroski and M.L. Chung, 2007. A comparison of health-related quality of life between older adults with heart failure and healthy older adults. Heart Lung, 36: 16-24.

Hobbs, F.D.R., J.E. Kenkre, A.K. Roalfe, R.C. Davis and R. Hare *et al*., 2002. Impact of heart failure and left ventricular systolic dysfunction on quality of life. A cross-sectional study comparing common chronic cardiac and medical disorders and a representative adult population. Eur. Heart J., 23: 1867-1876.

Hulley, S.B., S.R. Cummings, W.S. Browner and T.B. Newman, 2001. Estimating Sample Size and Power: The Nitty-Gritty. In: Designing Clinical Research: An Epidemiologic Approach, Hully, S.B., S.R. Cummings, W.S. Browner and D. Grady *et al*. (Eds.). LWW: Lippincott Williams & Wilkins, Pennsylvania, USA., ISBN:9780781722186, pp: 65-91.

Hunt, S.A., D.W. Baker, M.H. Chin, M.P. Cinquegrani and A.M. Feldman *et al*., 2001. ACC/AHA guidelines for the evaluation and management of chronic heart failure in the adult: Executive summary. J. Am. Coll. Cardiol., 38: 2101-2113.

Kasper, D. and B. Eugene, 2005. Harrison's Principles of Internal Medicine. 16th Edn., McGraw-Hill Companies, New York, USA., Pages: 1301.

Lee, D.T., D.S. Yu, J. Woo and D.R. Thompson, 2005. Health-related quality of life in patients with congestive heart failure. Eur. J. Heart Fail., 7: 419-422.

Majani, G., A. Pierobon, A. Giardini, S. Callegari and C. Opasich *et al*., 1999. Relationship between psychological profile and cardiological variables in chronic heart failure: The role of patient subjectivity. Eur. Heart J., 20: 1579-1586.

Moser, D.K., 2002. Psychosocial factors and their association with clinical outcomes in patients with heart failure: Why clinicians do not seem to care. Eur. J. Cardiovasc. Nurs., 1: 183-188.

Mrabet, H., A. Mrabet, B. Zouari and R. Ghachem, 2004. Health-related quality of life of people with epilepsy compared with a general reference population: A Tunisian study. Epilepsia, 45: 838-843.

Ola, B.A., A.O. Adewuya, O.E. Ajayi, A.O. Akintomide and O.O. Oginni *et al*., 2006. Relationship between depression and quality of life in Nigerian outpatients with heart failure. J. Psychosomatic Res., 61: 797-800.

Riedinger, M.S., K.A. Dracup and M.L. Brecht, 2000. Predictors of quality of life in women with heart failure. J. Heart Lung Transplant., 19: 598-608.

Stephen, S.A., 2008. Fatigue in older adults with stable heart failure. Heart Lung, 37: 122-131.

Sullivan, M., W.C. Levy, J.E. Russo and J.A. Spertus, 2004. Depression and health status in patients with advanced heart failure: A prospective study in tertiary care. J. Cardiac Fail., 10: 390-396.

WHO., 2005. Why we need to talk about losing a baby. World Health Organization, Geneva, Switzerland. https://www.who.int/

William, P. and O. James, 2007. Cecil Medicine. 23rd Edn., Elsevier, USA., ISBN-13:978-1416028055, Pages: 3120.

Zambroski, C.H., D.K. Moser, G. Bhat and C. Ziegler, 2005. Impact of symptom prevalence and symptom burden on quality of life in patients with heart failure. Eur. J. Cardiovasc. Nurs., 4: 198-206.