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RESEARCH PAPER

Assessment of quality of life and activities of daily living in Turkish patients with heart failure

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Assessment of quality of life and activities of daily living in Turkish patients with heart failure

Heart failure is an entire clinical syndrome affecting many aspects of life, rather than merely a usual disease. This cross-sectional study was designed to assess heart failure patients' quality of life and activities of daily living (ADL). Seventy-five patients who applied to the cardiology department were included in the study. The data were obtained using the left ventricular dysfunction scale (LVD-36) and ADL scale. A statistically significant relationship was found between LVD-36 and ADL scores and New York Heart Association (NYHA) functional class, previous hospitalization, daily medication, age and education ($P < 0.05$). It was found that LVD-36 and ADL scores increase as the level of education increases and as the NYHA functional class, previous hospitalization, number of drugs taken daily and age decrease. The study found a statistically significantly negative relationship between quality of life and ADL ($P < 0.05$). In patients with heart failure, age, NYHA functional class, number of drugs taken daily independently affected the ADL scores. Additionally, in these patients, education, NYHA functional class, number of drugs taken daily and previous hospitalizations independently affected the quality of life. As the functional situation deteriorates and becomes severe, individual care, training, social support and consultation services for the patient and their family should be increased.

Key words: activities of daily living, functional class, heart failure, left ventricular dysfunction scale, quality of life, Turkish.

INTRODUCTION

Heart failure is a serious, chronic clinical syndrome affecting many aspects of life, rather than merely a usual disease.[1,2]

According to the World Health Organization, 17.5 million people died of cardiovascular diseases and 80% of cases occurred in countries with medium incomes.[3] The United States has 12 million patients with coronary artery disease, seven million of whom experience myocardial infarction and 4.6 million end in congestive heart failure. There are five million heart failure patients, and 550 000 new heart failure cases each year.[1] Similar to the global picture, the incidence of heart failure in Turkey is

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estimated to have increased. According to a study carried out by the Turkish Society of Cardiology, the incidence of adult patients with heart disease in Turkey is 63 per 1000.[4]

Heart failure has an important place among chronic illnesses with regard to both incidence and prevalence and is a condition that is associated with frequent emergency treatment and hospitalization.[2,5] Treating heart failure is complicated and difficult because of the physical and psychosocial problems that the illness causes.[1,6–8]

Heart failure is characterized by the inability of the heart to pump enough blood to the body for its metabolic needs and is a chronic and progressive clinical syndrome associated with increased neurohormonal activity and multiple organ dysfunction.[9–16] Heart failure is a progressive clinical malady with serious symptoms and decreased functional capacity. Conventional heart failure therapies aim to decrease symptoms and improve patients' prognosis, in addition to increasing their quality of life and functional capacity.[8,16]

Heart failure reduces patients' quality of life. A recently published study[16] reported that quality of life was worse in heart failure patients than in coronary artery patients. Heart failure patients have difficulties performing daily life activities; suffer from economic, sexual and psychosocial problems; and encounter troubles in work, family life and relations with friends. Heart failure might cause personal and social economic distress because of the frequent hospitalizations and loss of productive power.[5,8]

Little research has been done among Turkish patients with heart failure. This study was conducted to investigate Turkish heart failure patients' quality of life and activities of daily living (ADL), to define sociodemographic features with regard to those parameters and to examine the correlation between quality of life and ADL.

This study seeks to answer the following questions:

1. Do Turkish heart failure patients' personal characteristics and disease characteristics significantly affect their quality of life?

2. Is there a significant difference between Turkish heart failure patients' ADL according to personal characteristics and disease characteristics?

3. Is there a correlation between quality of life and ADL in Turkish heart failure patients?

METHODS

Study sample

The study sample consisted of 75 Turkish patients with heart failure who had no communication problems and were admitted to the Cardiology Department at Trakya University Medical Faculty, in Edirne City, Turkey. The study was conducted from April to October 2007.

Data collection

Instruments

Patient data form, left ventricular dysfunction (LVD-36) (quality of life) scale and the ADL scale were used for data collection.

Patient data form. Patient data forms consisted of two sections. The first contained personal characteristics (sex, age, education and marital status), and the second section contained clinical characteristics (New York Heart Association (NYHA)) functional class, previous hospitalizations, additional chronic health problems, currently used drugs, number of drugs taken daily and how regularly the patient takes medication).

LVD-36 (quality of life). The LVD-36 was developed by Leary and Jones,[17] and its reliability and validity in a Turkish context were previously examined by Özer and Argon.[6] The scale was created in order to analyse the impact of LVD-36 on daily life and state of wellness in heart failure patients. This scale consists of 36 questions to assess the problems associated with cardiac disease. Questions are presented to patients with two options: true or false. The true options are summed, and the number of true answers is represented as a percentage. The scale total ranges from 0 to 100, and a higher score indicates lower quality of life.[6,17–19] Cronbach alpha value for the LVD-36 scale was found to be 0.92 in this study, and 0.95 in Leary and Jones's study[17] and 0.90–0.75 Özer and Argon's study.[6]

ADL. The ADL scale was developed in 1963 by Katz *et al*. to describe basic ADL. This scale includes six categories of activities: bathing, dressing, toilet needs, transfer, continence and feeding.[20–24] Each item has response options: 'dependent', 'partially dependent' or 'independent'. If an individual performs an activity of daily living independently, it counts for three points; if partially helped, two points; and if the individual cannot perform that activity, one point is given for the evaluation. A score of 6 points or less on the ADL index shows dependence, 7–12 points shows partial dependence and 13–18 points shows independence.[20–24] Cronbach alpha value for the ADL scale was found to be 0.89 in this study.

Procedures. All participants had previously agreed to take part in the study. None of the participants experienced communication problems. The ethics committee of Trakya University Medical Faculty Hospital gave permission for the study. Participants responded to the instruments through a face-to-face interview. The interview took 10–15 min. Patients provided data on demographic and clinical data and completed the LVD-36 scale and ADL scale.

Data analysis

The numeric results were expressed as mean ± standard deviation, and categorical results were expressed as a number (percentage). Variables were tested for normal distribution using a one-sample Kolmogorov–Smirnov test. Differences between groups were assessed using the Mann–Whitney *U*-test. Differences within groups were assessed using the one-way analysis of variance test for normally distributed data and the Kruskal–Wallis test for non-normally distributed data. The Bonferroni post hoc method was used for multiple comparisons when a significant difference was obtained. Relationships between variables were assessed using Pearson or Spearman correlation analysis. Categorical variables were compared using the chi-square test. A P-value of < 0.05 was considered as statistically significant.

Multiple linear regression analysis was used to identify independent variables associated with quality of life and ADL scores in patients with heart failure. Linear regression analysis assumes a linear relationship between dependent and independent variables.[25] Linear relationships between the dependent variable (quality of life and ADL scores) and independent variables were tested using curve estimation analysis. Only age, education, NYHA functional class, hospitalization and the number of drugs taken daily demonstrated linear relationships. Therefore, our linear regression model used the quality of life and ADL scores as the dependent variable and age, education, NYHA functional class, hospitalization and the number of drugs taken daily type as independent variables. Statistica 7.0 (StatSoft Inc., Tulsa, OK, USA) statistical software was used for statistical analyses.

Ethical consideration

The ethics committee of Trakya University Medical Faculty Hospital gave permission for the study.

RESULTS

The personal and disease characteristics of patients are listed in Table 1. More than half of the patients (50.7%) in the study were male. The mean age of patients in the study was 63.7 ± 11.3 years, and almost half (48%) were aged over 65.

According to the heart failure classification, almost half of the participants (49.3%) were in NYHA functional class III, and fewer than that (37.3%) were in NYHA functional class II. About one-third (36%) of the patients had been living with the diagnosis of heart failure for 1–12 months, 16% for 1–3 years and 48% for more than 3 years. Most of the patients (78.7%) had been hospitalized

Table 1 Personal and disease characteristics of patients ($n = 75$)

Patient characteristics	n (%) or mean ± standard deviation
Gender, *male*	38 (50.7)
Marital status, *married*	49 (65.3)
Mean age	63.7 ± 11.3
Education	
Primary school	65 (86.7)
High school degree or higher	10 (13.3)
Occupation	
Unemployed	36 (48)
Retired	18 (24)
Heart failure class (NYHA)	
NYHA I	6 (8.0)
NYHA II	28 (37.3)
NYHA III	37 (49.3)
NYHA IV	4 (5.4)
Quality of life mean scores	65.5 ± 22.2
Mean scores of daily life activities	15.4 ± 3.1
Previous hospitalization, *yes*	59 (78.7)
Additional chronic disease	
Diabetes mellitus	10 (21.3)
Hypertension	19 (40.4)
Respiratory system disorders	10 (21.3)
Rheumatic disease	6 (12.7)
Other	2 (4.3)
Mean number of drugs taking daily	7.8 ± 4.4
Diagnosis of heart failure	
1–12 months	27 (36)
1–3 years	12 (16)
3 years and above	36 (48)

NYHA, New York Heart Association.

Table 2 Spearman correlation coefficients between the ADL and LVD-36 scores with some clinical-demographic variables

		ADL score	LVD-36 score
Age	r_s	−0.472	0.305
	P	< 0.001	0.008
Education	r_s	0.379	−0.355
	P	0.001	0.002
NYHA	r_s	−0.312	0.587
	P	0.006	< 0.001
Number of daily drugs	r_s	−0.430	0.492
	P	< 0.001	< 0.001
Previous hospitalization	r_s	0.377	−0.473
	P	0.003	< 0.001
ADL score	r_s	—	−0.587
	P		< 0.001

ADL, activities of daily living; LVD, left ventricular disease; NYHA, New York Heart Association.

previously and, in 40.4%, their heart failure was associated with hypertension. Almost half of the patients (49.3%) were taking 5–10 drugs daily. The mean number of daily drugs was 7.8 ± 4.4 (range = 0–24).

The patients' average point score on the quality of life survey was 65.5 ± 22.2, indicating that our patients' quality of life was slightly below average (average = 50 points).

The average score on the ADL scale was 15.4 ± 3.1. Considering that the highest possible score is 18 (indicating maximum independence), the patients in our study were relatively independent in their daily activities.

Table 2 shows Spearman correlation coefficients between the ADL and LVD-36 scores and some clinical-demographic variables. The present study found a negative statistical relationship between ADL scores and NYHA functional class, age and number of drugs taken daily; however, a positive statistical relationship was found between previous hospitalization and education level ($P = 0.006$, < 0.001, < 0.001, 0.003, 0.001, respectively). ADL dependency increases as the severity of heart failure, age, number of drugs taken daily and hospitalization increase and as education levels decrease.

The present study found a negative statistical relationship between LVD-36 scores and NYHA functional class, age, number of drugs taken daily; however, a positive statistical relationship was found between previous hospitalization and education ($P < 0.001$, 0.008, < 0.001, < 0.001, 0.002, respectively). Quality of life deteriorates as the severity of heart failure, age, number of drugs taken daily and hospitalization increase and as education levels decrease.

Table 3 Regression between the effect of age, education, NYHA, hospitalization, number of drugs taken daily and activities of daily living

	Beta	P
Age	−0.077	0.011
Education	0.434	0.103
NYHA	−0.883	0.046
Hospitalization	−0.008	0.897
Number of drugs taken daily	−0.171	0.025
(Constant)	22.785	0.000

NYHA, New York Heart Association.

The study found a statistically significant negative correlation between quality of life and ADL ($r = -0.587$, $P < 0.001$). As the points on the ADL scale increased, the points on the quality of life scale decreased. This means that as the heart failure patients' independence level in ADL increased, their quality of life also increased

Table 3 shows result of regression with effects of age, education, NYHA functional class, previous hospitalization, number of drugs taken daily and ADL scores. In patients with heart failure, age, NYHA functional class and number of drugs taken daily independently affected the ADL scores. ADL independency increase as the severity of heart failure, age, number of drugs taken daily decrease.

Table 4 shows result of regression with the effect of age, education, NYHA functional class, previous hospitalization, number of drugs taken daily and quality of life. In patients with heart failure, education, NYHA functional class, number of drugs taken daily independently and previous hospitalizations affected the quality of life. Quality of life increase as the severity of heart failure number of drugs taken daily previous hospitalizations decreases.

DISCUSSION

Heart failure is still a frequent cause of morbidity, mortality, hospitalizations and decreased quality of life.[26] This study examined the sociodemographic and disease

Table 4 Regression between the effect of age, education, NYHA, number of hospitalization, number of drugs taken daily and quality of life

	Beta	*P*
Age	−0.226	0.200
Education	−5.299	0.001
NYHA	16.020	0.000
Hospitalization	0.972	0.011
Number of drugs taken daily	1.579	0.001
(Constant)	35.817	0.010

NYHA, New York Heart Association.

characteristics that are associated with quality of life and ADL among Turkish heart failure patients. The present study found that heart failure patients' ADL independency increased, their quality of life also improved. Additionally, patients with heart failure both NYHA functional class and number of drugs taken daily independently affected the quality of life and ADL scores.

In the present study, as the severity of the heart failure increased, quality of life decreased and the level of dependency increased for daily activities. Our findings are consistent with those of previous studies from Europe and the United States.[17,27] Zambroski *et al*.[28] demonstrated that an increase in NYHA classification and worsening symptom burden was associated with a poorer quality of life. Riedinger *et al*.[29] found that, compared with the normative group of women, women with heart failure had significantly lower global quality of life and intermediate ADL. Juenger *et al*.[27] reported that, among congestive heart failure patients in Germany, quality of life decreased as NYHA functional class worsened. Although Karapolat *et al*. found that NYHA functional class deteriorated, this study found a deterioration in Short Form-36 (SF-36) social function parameter. The Turkish patients who participated in the present study were mostly old, retired or housewives, so they had an inactive life style. As the severity of heart failure increases, there is an increase in the severity and number of symptoms such as oedema, sleeplessness, dyspnoea and fatigue.[30] Oguz and Enç[30] found that the most common symptoms identified in Turkish heart failure patients were fatigue and dyspnoea. This situation negatively affects patients' quality of life and ADL.

We found that patients had poor quality of life while hospitalization rates increased. In previous studies conducted in Turkey, Özer and Argon's[6] also found that previous hospitalizations negatively affected quality of life. Durmaz *et al*.[31] found that 32% of Turkish coronary heart patients in their study were admitted initially because of cardiovascular problems but that the majority of the patients (38%) had two or more admissions for cardiovascular reasons. Unsar and Sut[32] reported that previous hospitalizations in chronically ill elderly patients was 3.6 ± 2.9. According to Naylor *et al*.,[33] care programmes oriented towards hospitalized elderly patients with heart failure reduce the total number of rehospitalizations. Patients' symptoms worsen, while hospitalization rates increases and quality of life decreases.

Our study group was mainly composed of elderly patients, and their severe heart failure problems increase the hospitalization rate. Unfortunately, the state in Turkey cannot legally provide home care services for those who have heart failure or other chronic illnesses. We suggest that hospitalization rates will be reduced by enabling effective treatment and care for Turkish heart failure patients and by increasing home treatment and care opportunities and that this decrease in hospital admissions will have a positive effect on quality of life.

Our study found that as the number of drugs taken daily increases, quality of life decreases and the dependency level in ADL increases. In contrast, a Turkish study conducted by Durmaz *et al*.[31] found that coronary heart patients using medication ≥ 3 times/day were found to have greater quality of life scores. Lainscak and Keber[34] reported the mean number of daily drugs taken by patients with heart failure as 6.3 ± 2.3. Another study[28] reported this number as 7 ± 3.1. Polypharmacy arises as the severity of the heart failure increases and as noncompliance with therapy and additional chronic health problems emerge. This reduces quality of life and independence in performing daily activities. The present study found that the mean number of daily drugs taken by patients with heart failure was 7.8 ± 4.4. Drugs used in the treatment of heart failure, such as diuretics, vasodilators and ACE inhibitors, have some side effects, including polyuria, postural hypotension, hypokalaemia, coughing and fatigue. Patients in this group have physical and psychosocial problems due to the side effects of their medication. Turkish cardiology nurses should provide training and consultation services, both in home care services and in hospital, for the patient and their family, explaining the effects and side effects of the treatment and medication time and dosage. We therefore believe that drug regimens

with regard to dose and timing should be arranged in a way that affects ADL and quality of life as little as possible.

This study found that as age increases, quality of life decreases and dependency level in performing daily activities increases. Şahbaz and Tel[20] previously reported that dependency level when performing daily activities increases with age. A study by Unsar *et al*.[35] using the 15 Dimensional (15D) quality of life scale in coronary artery patients, showed that older patients had a poorer quality of life than younger patients. Again, a previous study[36] showed that elderly heart failure patients had a poorer quality of life than healthy elderly adults. Another study[28] suggested that young heart failure patients also experience a poor quality of life. Limitations in the ability of elderly individuals to partake in daily activities affect their quality of life.[37–39] As heart failure patients' age increases, the severity of their disease is augmented by the emergence of other chronic health problems (diabetes, hypertension, etc.). These factors are thought to increase dependency in daily activities such as eating, bathing, mobility, etc. Elderly people in the present research group are mainly retired people and housewives who have a physically inactive lifestyle as they are confined in the house. Turkish cardiology nurses should plan care and training services for elderly patients and their families according to their individual care needs, with the aim of improving the daily activities of patients with heart failure.

The present study found that as education levels decrease, life quality and ADL levels deteriorate. However, a previous study[32] reported that the education levels of coronary artery disease patients did not affect quality of life. Similarly, Durmaz *et al*.[31] found that patients who had graduated from high school or university had higher quality of life scores than those who graduated from primary and/or secondary schools. Akın and Durna[8] found that, as the education level of patients with heart failure increased, their psychosocial adaptation to the disease also increased. We suggest that as education level increases, adaptation to the disease and the treatment becomes easier and as the education level in Turkish society increases, patients can explain their problems more clearly and more comfortably.

Our study found that as the level of independency increased for daily living activities and quality of life increased. Zambroski *et al*.[28] reported that heart failure patients experienced a high level of symptoms and their severity and additional health problems increased patients' dependency when performing daily activities. In a study in Turkey, Durmaz *et al*.[31] found that coronary heart patients who had difficulties in daily works because of cardiac problems had lower quality of life. Our findings are consistent with those of previous studies.

Although Turkish cardiology nurses are planning care services for patients with heart failure, the functional situation in patient diagnosis should be assessed in detail. As the functional situations of patients deteriorate and become severe, training and social support for the patient and their family should be increased.

STUDY LIMITATIONS

The present study has a number of limitations. The data were collected as a cross-sectional study at one university hospital in Turkey. For this reason, the results might not represent all Turkish patients with heart failure, and the addition of data in the future might change the results. The aetiologies of heart failure were not examined in this study.

CONCLUSION AND IMPLICATIONS FOR NURSING PRACTICE

Heart failure and its treatment are major challenges to health-care providers throughout the world.[37] We found that as quality of life deteriorates, dependency at the level of daily life activities increases. The severity of heart failure had a negative effect on older age, although low-education level, polypharmacy, hospitalization and severity of disease had a negative effect on quality of life and ADL. Although Turkish cardiology nurses are planning care services for patients with heart failure, the severity of the disease should be assessed in detail. As the functional situation deteriorates and becomes severe, individual care, training, social support and consultation services for the patient and their family should be increased.

Turkish cardiology nurses who provide care services for patients with heart failure should be informed about the meaning, importance and dimensions of quality of life and the factors affecting quality of life, and they should be supported so that they can apply their knowledge in their activities. We suggest that further case-control studies should be carried out in order to evaluate other parameters affecting Turkish heart failure patients' quality of life and daily activities.

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REFERENCES

1 Parajón T, Lupón J, González B *et al*. Use of the 'Minnesota living with heart failure' quality of life questionnaire in Spain. *Revista Espanola de Cardiologia* 2004; **57**: 155–160.

2 Durdu S, Akar R, Çavolli R, Eren N. ve ark. İleri Dönem Kalp Yetmezliğinde Alternatif Arayışlar (Alternative Approaches in the end-stage heart failure). *The Anatolian Journal of Cardiology* 2003; **3**: 252–260.

3 World Health Organization (WHO). *Cardiovascular diseases*, 2008. Available from URL: http://www.who.int/cardiovascular_diseases/en/index.html. Accessed 10 Oct 2011.

4 Onat A. Prevalence of coronary heart disease in Turkish adults, new coronary events and frequency of cardiac death. In: Onat A (ed.). *Tekharf, Health of Heart on Turkish Adults*. Istanbul, Turkey: Yelken Press, 2007; 22–30.

5 Enç N, Yiğit Z, Altıok M, Özer S, Oğuz S. *Kalp Yetersizliği, Akut Koroner Sendromlar, Hipertansiyon Hemşirelik Bakım Kılavuzu* (Nursing care guidelines of the Turkish Society of Cardiology in heart failure, acute coronary syndromes, hypertension), 2nd edn. Istanbul: Turkish Society of Cardiology, 2007.

6 Özer S, Argon G. Kalp yetmezliğinde sağlık davranışları, sağlığa verilen önem ve yaşam kalitesi ilişkisinin incelenmesi (Examining relationship among health behaviours, importance of health and quality of life in heart failure). *Ege Üniversitesi Hemşirelik Yüksek Okulu Dergisi* 2005; **21**: 63–77.

7 Thompson D, Webster R, Quinn T. *Caring For The Coronary Patient*. London: Elsevier Limited, 2004.

8 Akın S, Durna Z. Kalp Yetersizliği Hastalarının Psikososyal Uyumu (Psychosocial adaptation of heart failure patients). *C.Ü. Hemşirelik Yüksekokulu Dergisi* 2006; **10**: 1–8.

9 Mondoa C. The implications of physical activity in patients with chronic heart failure. *Nursing in Critical Care* 2004; **9**: 13–20.

10 Ayçiçek İ, Büyüköztürk K, Canberk A *et al*. *Kalp Yetersizliği* (Heart failure). İstanbul, Turkey: Üniform Matbaacılık, 2003.

11 Carpenter A, Plum B. (translation: Çalangu S, Sıva A, Tuzcu M.). *Cecil Essantials Of Medicine*. İstanbul, Turkey: Çevik Batbaa, 2000.

12 Okay T. 2001 Yılında Kalp Yetersizliğindeki Gelişmeler (Improvements in heart failure at 2001). *The Anatolian Journal of Cardiology* 2001; **1**: 301–306.

13 Terzi S, Dayi Ş, Akbulut T *et al*. Kalp Yetersizliğinde Bisoprolol Tedavi Etkinliğinin Kardiyopulmoner Egzersiz Testi İle Değerlendirilmesi (Assessment of the efficacy of bisoprolol administration by cardiopulmonary exercise testing in patients with heart failure). *The Anatolian Journal of Cardiology* 2003; **3**: 313–318.

14 Güran Ş. Kalp Yetmezliğinde Anjiogenezis ve Gen Tedavisi (Angiogenesis and gene therapy in heart failure). *Gulhane Medical Journal* 2004; **46**: 84–87.

15 Çiftçi Ç. Kalp Yetersizliğinde Fonksiyonel Kapasite Tayini (Determination of functional capacity in heart failure). *The Anatolian Journal of Cardiology* 2006; **6**: 333–334.

16 Karpolat H, Durmaz B, Nalbantgil S, Durmaz İ. Kalp Yetersizliğinde Yaşam Kalitesi Ve Fonksiyonel Durum (Quality of life and functional status in congestive heart failure). *The Anatolian Journal of Cardiology* 2006; **6**: 327–332.

17 Leary C, Jones P. The left ventricular dysfunction questionnaire (LVD-36): Reliability, validity and responsiveness. *Heart* 2000; **83**: 634–640.

18 Miani D, Gregori D, Ghidina M *et al*. The left ventricular dysfunction questionnaire: Italian translation and validation. *Monaldi Archives for Chest Disease* 2005; **64**: 100–104.

19 Aka S, Orhan G, Şenay Ş *et al*. Sol Ventrikül Disfonksiyonlu Ameliyat Olmuş Koroner Arter Hastalarında Yaşam Kalitesi Ölçümü (Measurement of the quality of life in CABG patients with left ventricular dysfunction). *Turkish Journal of Thoracic and Cardiovascular Surgery* 2006; **14**: 266–271.

20 Şahbaz M, Tel H. Evde Yaşayan 65 Yaş ve Üzeri Bireylerin Günlük Yaşam Aktivitelerinde Bağımlılık Durumu İle Ev Kazaları Arasındaki İlişkinin İncelenmesi (Determination of the relationship between the dependence status on daily living activities and home accidents among 65 years of age and older individuals living at home). *Turkish Journal of Geriatrics* 2006; **9**: 85–93.

21 Arslan Ş, Kutsal Y. Yaşlılarda Özürlülüğün Değerlendirimine Yönelik Çok Merkezli Çalışma Raporu (Multiple center working report which evaluates freedom in olders). Ankara, 2000.

22 Walance M, Shelkey M. Katz index of independence in activities of daily living (ADL). *Best Practices in Nursing Care to Older Adults* 2007; **2**: 2.

23 Ergün G, Bozdemir N, Uğuz Ş *et al*. Adana Huzurevi'nde Yaşayan Yaşlılar İle Aile Hekimliği Polikliniği'ne Başvuran Yaşlıların Medikososyal Özelliklerinin Değerlendirilmesi (Evaluation of the medical and social characteristics of the elderly living at the Community Residence of Adana and those applying to the Family Medicine Outpatient Clinic). *Turkish Journal of Geriatrics* 2003; **6**: 89–94.

24 Yıldırım Y, Karadakovan A. Yaşlı Bireylerde Düşme Korkusu İle Günlük Yaşam Aktiviteleri Ve Yaşam Kalitesi Arasındaki İlişki (The relationship between fear of falling, activities of daily living and quality of life among elderly individuals). *Turkish Journal of Geriatrics* 2004; **7**: 78–83.

25 Motulsky H. *Intuitive Biostatistics*. Oxford: Oxford University Press, 1995.

26 Luttik M, Jaarsma T, Veeger N, Veldhuisen D. Marital status, quality of life, and clinical outcome in patients with heart failure. *Heart & Lung* 2006; **35**: 3–8.

27 Juenger J, Schellberg D, Kraemer S *et al*. Health related quality of life in patients with congestive heart failure: Comparison with other chronic diseases and relation to functional variables. *Heart* 2002; **87**: 235–241.

28 Zambroski C, Moser DK, Bhat G, Ziegler C. Impact of symptom prevalence and symptom burden on quality of life in patients with heart failure. *European Journal of Cardiovascular Nursing* 2005; **4**: 198–206.
29 Riedinger MS, Dracup KA, Brech ML. Quality of life in women with heart failure, normative groups, and patients with other chronic conditions. *American Journal of Critical Care* 2002; **11**: 211–219.
30 Oguz S, Enç N. Symptoms and strategies in heart failure in Turkey. *International Nursing Review* 2008; **55**: 462–467.
31 Durmaz T, Ozdemir O, Ozdemir BA, Keles T, Bayram NA, Bozkur E. Factors affecting quality of life in patients with coronary heart disease. *Turkish Journal of Medical Sciences* 2009; **39**: 343–351.
32 Unsar S, Sut N. Depression and health status in elderly hospitalized patients with a chronic illness. *Archives of Gerontology and Geriatrics* 2010; **50**: 6–10.
33 Naylor M, Brooten D, Campbell R, Maislin G, McCauley K, Schwartz J. Transitional care of older adults hospitalized with heart failure: A randomized, controlled trial. *Journal of the American Geriatrics Society* 2004; **52**: 675–684.
34 Lainscak M, Keber I. Patient's view of heart failure: From the understanding to the quality of life. *European Journal of Cardiovascular Nursing* 2003; **2**: 275–281.
35 Unsar S, Sut N, Durna Z. Health-related quality of life in patients With coronary artery disease. *The Journal of Cardiovascular Nursing* 2007; **22**: 501–507.
36 Heo S, Moser DK, Lennie TA, Zambroski C, Chung ML. A comparison of health-related quality of life between older adults with heart failure and healthy older adults. *Heart & Lung* 2007; **36**: 16–24.
37 Moser DK, Worster PL. Effect of psychosocial factors on physiologic outcomes in patients with heart failure. *The Journal of Cardiovascular Nursing* 2000; **14**: 106–115.
38 Eyigör S, Karapolat H, Durmaz B. Evaluation of the relationship between quality of life and depression in the elderly women who attended to a clinic of a university hospital. *Turkish Journal of Geriatric* 2006; **9**: 130–135.
39 Orfila F, Ferrer M, Lamarca R, Tebe C, Domingo-Salvany A, Alonso J. Gender differences inhealth-related quality of lifeamong the elderly: The role of objective functional capacity and chronic conditions. *Social Science & Medicine* 2006; **63**: 2367–2380.