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ASSESSMENT OF FACTORS AFFECTING QUALITY OF LIFE AND QUALITY OF LIFE IN ADULT ASTHMATIC OUTPATIENTS

YETİŞKİN ASTIM HASTALARINDA YAŞAM KALİTESİ VE YAŞAM KALİTESİNİ ETKİLEYEN FAKTÖRLERİN TANILANMASI

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ABSTRACT

Objective: The purpose of this study was to determine the quality of life of adult asthma patients compared to a healthy control group, and to evaluate the relationships between demographics, asthma-related variables, psychological status and health-related quality of life.

Material and method: Those patients who were on routine follow-up at the outpatient Department of Chest Diseases between January 1 – May 30, 2005, literate, with no psychotic symptom or mental retardation, which had given informed consent for the study, were included in to the study (n=176). The Semi-structured Interview Form, the Revised Brief Patient Health Questionnaire (Brief PHQ-r), and the short version of the Health-related Quality of Life Scale (SF-36) were administered. 100 healthy adults from the general population matched sociodemoghraphically with asthma group formed the control group.

Results: The mean age was 46.27 ± 11.46 years, women were 77.3%. The mean duration of the disease was 13.03±10.50 years. According to Global Initiative for Asthma (GINA) guidelines 47.2% were moderate persistent. The mean value of % predicted FEV_1 was 86.62 ± 20.16. 29% of the cases defined psychiatric diagnosis according to Brief PHQ-r. The sub-domains on the SF-36 measurements of the asthma patients were significantly lower than those of the control subjects ($p<0.05$). Psychiatric diagnosis was found to decrease both physical and mental health dimensions of quality of life ($p<0.001$).

Conclusion: Although physical parameters related to illness affected only the physical dimension, in patients with psychiatric morbidity, quality of life was significantly affected in all sub-dimensions.

Key words: Asthma, quality of life, SF-36, Brief PHQ

ÖZET

Amaç: Bu çalışmanın amacı yetişkin astım hastalarının yaşam kalitesini sağlıklı kontrol grup ile karşılaştırarak tanımlamak ve hastaların yaşam kalitesi ile demografik, astımla ilgili değişkenler, psikolojik durum arasındaki ilişkiyi değerlendirmektir.

Gereç ve yöntem: Göğüs hastalıkları anabilim dalı polikliniğinde bir yıldır takipli olan hastalardan 1 Nisan-30 Mayıs 2005 tarihlerinde başvuran, okur yazar olan, psikotik belirtileri veya mental retardasyon saptanmayan, çalışmaya katılmayı kabul eden hastalar çalışmaya alındı (n=176). Hastalara yarı yapılandırılmış görüşme formu, psikiyatrik tanılama için standart tanı formu olan KISA (Kısa Sağlık Anketi/Brief Patient Health Questionnaire-Brief PHQ), sağlık alanında yaşam kalitesini değerlendirmek için SF-36 uygulandı. Kontrol grup, astımlı grupla sosyodemografik özellikleri eşleştirilmiş genel populasyondan seçilmiş 100 sağlıklı yetişkin ile oluşturulmuştur.

Bulgular: Hastaların yaş ortalaması 46,27 ± 11,46 yıl idi, %77,3'ü kadındı. Hastalık süresi ortalama 13,03 ± 8,84 yıl idi. GINA (The Global Initiative for Asthma)'ya göre hastalık evresi %47,2'si orta persistan düzeydeydi. Hastaların ortalama FEV_1 yüzde değeri 86,62 ± 20,16 L idi. KISA'ya göre psikiyatrik tanı oranı %29 bulundu. Astım hastalarının SF-36 yaşam kalitesinin tüm alt boyutlarında puanları kontrol grubundan düşük bulundu ($p<0,05$). Psiki-

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yatrik bir tanının varlığı hem fiziksel, hem mental sağlık boyutunda yaşam kalitesini düşürdüğü saptandı (p<0,001).
Sonuç: Hastalıkla ilgili fiziksel parametreler yaşam kalitesinin yalnızca fiziksel boyutunu etkilediği saptanırken, psikiyatrik tanı konulan hastalarda ise tüm alt boyutlarda yaşam kalitesinin anlamlı düzeyde etkilendiği bulundu.
Anahtar kelimeler: Astım, yaşam kalitesi, SF-36, KISA

INTRODUCTION

Asthma is a major public health problem (28), affecting 100–150 million people worldwide (49). The prevalence of asthma has increased 2-5 % per year in European countries during the past fifteen years (11, 21, 48). In Turkey, the prevalence of adult asthma is reported to be between 2.1-7.6% (22,25).

The economic burden of the disease is also extremely high. In many countries, asthma-related costs comprise more than two percent of total health care costs (12, 46, 49). Although most countries have accepted the Global Initiative for Asthma (GINA) guidelines, there has been a general failure to achieve the set guideline goals. The optimal control rate has been reported to be 5.3 % in European countries and 1.25 % in Turkey (1, 37, 39). Asthma is associated with increased physical co-morbidity, mortality, high rates of health service utilization, impaired social functioning and occupational disability (47). These figures highlight the scope of the burden associated with this disease and its impact on the quality of life.

One of the main objectives of health care for asthmatic patients is to provide a satisfactory quality of life (33). Health-related quality of life (HRQL) is a multidimensional concept with domains encompassing physical, social and psychological functioning. HRQL is a subjective health measure that can be influenced by a subject's perceptions, expectations, and interpretations about health (14, 43). Numerous factors may lead to a reduced HRQL in patient with asthma. HRQL is weakly associated with measures of physiologic impairment such as forced expiratory volume in 1 second (FEV1) in asthma (18, 42). Compromised mental health has been shown to reduce the quality of life in asthmatics, with anxiety and depression, in particular, having additional negative effects (4, 10, 26, 42).

The aim of our study was to determine the health-related quality of life of adult asthma patients compared to a healthy control group and to evaluate the relationships between patient demographics, asthma-related variables, psychological status and health-related quality of life.

MATERIAL and METHOD

Participants

Included in this study were a total of 176 adult asthmatics who were registered and received follow-up care for at least one year between January 1- May 30, 2005 at the Respiratory Disease Clinics of Istanbul University Hospital, and who also provided informed consent. Patients with psychotic symptoms, mental retardation, substance abuse disorders and accompanying physical illness were excluded. Asthma was diagnosed according to the criteria contained in the Global Initiative for Asthma (GINA) guidelines (12). The comparison group for HRQL assessment included 100 healthy subjects from the general population matched with the asthmatic group for demographics.

Instruments

The Semi-structured Interview Form, the short version of health-related quality of life scale (SF-36), and the Revised Brief Patient Health Questionnaire (Brief PHQ-r) was administered.

The semi-structured interview form

The Semi-structured Interview Form included relevant information concerning

socio-demographics, psychological characteristics, and data on medical state - physical parameters of asthma. Data on medical-state physical parameters of asthma included disease stage, forced expiratory volume in 1 second (FEV1), forced vital capacity (FVC), peak expiratory flow rate (PEFR), hospitalizations, emergency visits, unscheduled visits, whether or not systemic corticosteroids or antibiotic treatments were received. Psychological characteristics included psychosocial stress factors excepting asthma, qualification of social support, and patient's knowledge about the illness were also reported.

Pulmonary function testing

FEV1, FVC and PEFR were recorded using a SENSORMEDICS Vmax 229 spirometer. Predicted values of FEV1 and FVC were calculated from reference values. Rescue medication was withheld for at least four hours prior to pulmonary function tests. Asthma severity was identified according to GINA guidelines (12) medication severity index.

Health-related quality of life (HRQL)

The Short Form- 36 Health Survey (SF-36): The SF-36 questionnaire consists of 36 items measuring the following eight domains: physical function, role limitations – physical, vitality, general health perception, pain, social function, role limitations- emotional and mental health (45). These domains can be further aggregated into two summary scores: the Physical Component Summary (PCS) score and the Mental Component Summary (MCS) score. A validated translation from English into Turkish of the SF-36 was used to evaluate HRQL (24).

Revised Brief Patient Health Questionnaire (Brief PHQ-r)

The Brief PHQ-r is a recently developed scale. The PHQ was developed by Spitzer et al. (1999) (40), who also developed the PRIME-MD (41). Recently published studies analyzing sensitivity and specificity scores have demonstrated that the brief version of the PHQ is a useful tool for the detection of panic disorder and major/minor depression (16, 29, 35). Taking into consideration the extent to which general physical symptoms stem from psychological factors, four additional questions related to somatoform disorders were utilized. They were designed to determine whether or not the general physical symptoms presented had a basis in organic disease, and

Table 1. Demographic characteristics of asthma patients and control group

Demographic characteristics		Asthma Patients n	%	Control Group n	%	p
Gender	Female	136	77.3	69	69.0	.131
	Male	40	22.7	31	31.0	
Education level	Primary	88	50.0	43	43.0	
	High school	41	23.3	34	34.0	.158
	University	47	26.7	23	23.0	
Marital Status	Married	148	84.1	84	84.0	
	Single	22	12.5	9	9.0	.295
	Widowed	6	3.4	7	7.0	
Age (years)		46.27 ± 11.46		44.33 ± 11.00		.171

Table 2. Distribution of psychiatric disorders (Brief PHQ-r)

Psychiatric Disorders	n	%
No psychiatric diagnosis	125	71.0
Minor depressive disorder	20	11.4
Major depressive disorder	17	9.7
Panic disorder	9	5.1
Somatoform disorder	5	2.8
Total	176	100.0

they were added to the Brief PHQ scale by Corapcıoglu and Özer (2004) (7), thus creating the Brief PHQ-r. The Brief PHQ-r form contains self-rating responses that are evaluated for psychiatric disorders by psychiatrists who use the DSM-IV (American Psychiatric Association 1994) (2) as a guideline. The diagnostic performance of the scale is as follows:

1-For any diagnosis k=0.567, sensitivity 79.0%, specificity 82.9%;

2-For major/minor depressive disorder k=0.536, sensitivity 76%, specificity 85.3%;

3-For panic disorder k=0.640, sensitivity 74.4%, specificity 98.4%; and

4-For somatoform disorder k=0.476, sensitivity 61.9% and specificity 92.5%19.

Statistical analysis

SPSS 12.0 was used to carry out the statistical analysis of the data generated by this study. Demographics, asthma-related data, psychosocial and psychiatric disorders data are presented as means and standard deviations or frequencies and percents. Univariate analysis was performed using the unpaired t-test or ANOVA for continuous variables, and Chi-square (c2) analysis for dichotomous variables. Spearman's rho correlation analyses were used to examine the relationship between HRQL scores and age, pulmonary function tests.

RESULTS

Demographic characteristics

The asthma group was 77.2 % female and had a mean age of 46.27±11.46 years. The control group, on the other hand, was 69 % female and had a mean age of 44.33±11.00 years. There was no statistically significant difference between the two groups. The demographic characteristics of both groups are shown in Table 1.

Forty-three point eight percent of the patients were housewives, 25% were employed, and 20.5% were retired. Most of the patients had social health insurance (89.8 %).

Medical characteristics and medications

The mean asthma duration was 13.03 ± 10.50 years. According to GINA guidelines (12), 47.2 % had moderately persistent, 23.9 % had mildly persistent, 22.1% had severely persistent, and 6.7% had mildly intermittent asthma. The mean value of % predicted FEV1 was 86.62 ± 20.16; FVC was 87.48 ± 19.17. Most of the patients (64.1 %) had normal FEV1 (> 80% predicted). Mean PEFR% was 85.97±13.49.

Asthma patients report having experienced or used the following in the previous year: hospitalization (11.4 %), emergency visits (22.2 %), unscheduled visits (73.3 %), systemic corticosteroid treatments (47.2 %), and antibiotic treatments (33 %).

Psychological characteristics

Twenty-nine percent of the cases were diagnosed as having a psychiatric disorder according to the Brief PHQ-r (Table 2). The most frequent psychiatric diagnosis was depressive disorder (21.1 %).

Stressors (e.g., family, work, economic) apart from asthma itself were reported by 68.2 % of the patients. Social support

Table 3. Comparison of quality of life in asthmatic patients with control group

SF-36 Domain	Asthma patients n=176 Mean ± SD	Control group n=100 Mean ± SD	P
Physical Function	69.8 ± 22.5	80.5 ± 20.9	<0.001
Role Physical	57.8 ± 41.5	87.1 ± 22.0	<0.001
Bodily Pain	62.5 ± 24.6	71.2 ± 21.7	0.004
General Health	44.2 ± 19.5	65.5 ± 18.8	<0.001
Vitality	57.4 ± 21.7	62.8 ±20.3	0.04
Social Function	73.9 ± 22.4	80.5 ± 19.3	0.01
Role Emotional	64.7 ± 41.1	76.0 ± 36.8	0.02
Mental Health	62.0 ± 18.2	66.5 ± 17.8	0.04

was reported as being sufficient in 78.4 %. In response to the question "Do you have sufficient information about your illness?" 26.1 % of the asthma patients reported that they did not.

Health related quality of life

With regards to all domains of health-related quality of life, a significant difference between the asthma and control group was found (p<0.05) (Table 3).

Firstly, the analysis of the results of the SF-36 was divided into two scores: the Physical Component Summary (PCS) score and the Mental Component Summary (MCS) score. These scores were correlated with demographics, asthma-related parameters and psychological data.

Demographical characteristics

PCS (p=0,001) and MCS (p<0.001) scores were low in women. There was a negative correlation between age and PCS (r=-.197; p=0,009) scores. On the other hand, there was a positive correlation between educational level and PSC scores (p<0.001) as well as MCS scores (p=0.007). With respect to marital status, both PCS (p=0.02) and MCS (p=0.03) scores were found to be low in widows. Both PCS (p<0.001) and MCS (p=0.001) scores were low in unemployed patients.

Medical dimensions and medications

Low PCS scores were obtained in patients reporting no planned hospital admissions (p=0.003) and in patients with corticosteroid treatments (p=0.006). As the severity of the disease increased, the PCS score decreased (p=0.001).

Psychological dimensions

In patients with additional psychosocial stressors, both PCS (p=0.03) and MCS scores (p<0.001) were low. The scores were also low (p=0.02 and p=0.05, respectively) in patients with insufficient social support. The presence of psychiatric disorders in patients was associated with low PCS (p<0.001) and MCS (p<0.001) scores.

The second step taken in the analysis was to correlate demographics, asthma-related parameters and psychological data of the patients with the subscales of SF-36 listed below.

Assessment of factors affecting physical function (PF): A negative correlation was found between age and PF (r=-.256; p=0.001). A positive correlation was found between educational level and PF (p=0.007). PF was lower in females (p=0.001) and the unemployed (p=0.002). Moreover, asthma severity, reports of having made unscheduled visits, and having received corticosteroid treatments were found to be associated with low PF (p<0.001, p=0.01, p=0.02, respectively). There was a positive correlation between FVC and PF (r=.161, p=0.04).

Assessment of factors affecting role physical (RP): RP scores were lower in females (p=0.003) and in those having low levels of educational level (p<0.001). There was a negative correlation between age and RP (r=.182; p=0.01). Likewise, higher RP scores were obtained as the severity of the disease increased (p=0.01). Having had received systemic corticosteroid treatment was associated with low RP scores (p=0.01). Stressors apart from asthma and inadequate social support were associated with low RP scores (p=0.04, p=0.008).

Assessment of factors affecting bodily pain (BP): Pain was experienced to a significantly greater extent in patients with low levels of education (p=0.01) and in widows (p=0.01). Patients who reported to have made unscheduled visits and had received systemic corticosteroid treatments had low BP scores (p=0.001, p=0.01, p=0.01, respectively). When disease severity increased, BP scores decreased (p=0.001).

Assessment of factors affecting general health (GH): Poor general health was correlated with lower levels of education and unemployment (p=0.001, p=0.02). Patients who reported having made unscheduled visits had low GH scores (p=0.03, p=0.005). On the other hand, there was a positive correlation between FVC and GH (r=.170, p=0.03).

Assessment of factors affecting vitality (VT): VT scores were lower in women and in unemployed patients (p=0.006, p=0.01). Low VT scores were found in patients who had psychosocial stressors, and reported having made unscheduled visits (p=0.008, p<0.001, p=0.02).

Assessment of factors affecting social function (SF): SF scores were lower in widows (p=0.03) and in those with additional psychosocial stressors (p=0.01).

Assessment of factors affecting role emotional (RE): RE scores were lower in females, in patients with low levels of education and in patients with psychosocial stressors (p<0.001, p=0.002, p<0.001).

Table 4. The impact of psychiatric diagnosis on quality of life

SF-36 Domain	Psychiatric Diagnosis n=51 Mean ± SD	No Psychiatric Diagnosis n=125 Mean ± SD	p
Physical Function	57.8 ± 23.7	74.7 ± 20.0	<0.001
Role Physical	35.2 ± 39.4	67.1 ± 38.8	<0.001
Bodily Pain	49.8 ± 25.5	67.7 ± 22.3	<0.001
General Health	33.6 ± 18.6	48.5 ± 18.2	<0.001
Vitality	41.4 ± 21.7	63.8 ± 18.1	<0.001
Social Function	60.5 ± 24.1	79.4 ± 19.2	<0.001
Role Emotional	38.5 ± 42.3	75.5 ± 35.5	<0.001
Mental Health	49.1 ± 18.8	67.3 ± 15.2	<0.001

Assessment of factors effecting mental health (MH): MH scores were lower in females (p=0.04) and in unemployed patients (p=0.04). Psychosocial stressors were associated with low MH scores (p<0.001) as well.

All domains of health-related quality of life were most adversely affected by the presence of a psychiatric disorder (p<0.001) (Table 4).

DISCUSSION

In our study, asthma patients were monitored by a specific pulmonologist in a tertiary care clinic at least for one year. The asthma diagnosis was made through objective methods, including reversibility and allergy tests. The SF-36 is a general health-related quality of life questionnaire and as such is capable of broadly measuring the burden of the illness.

In all domains of health-related quality of life, a significant difference between the adult asthma patients and control group was found in our study. One study showed that the HRQL of patients with asthma was more affected than the general Canadian population at baseline (17). Oğuztürk et al. (2005) (33) reported that the HRQL of asthmatics older than 60 years was lower than normal population.

When we look at the relationships between demographics and the HRQL, both the literature and our results indicate that HRQL scores were lower in females (8, 34, 44), older patients (8, 15), those who were unemployed (3), and those having a low level of education (8, 19).

Erickson et al. (2002) (9) used the SF-36 in 603 patients and demonstrated that the Physical Component Summary (PCS) score was positively correlated with education and negatively correlated with age. This result is similar to our own results. The Mental Component Summary (MCS) score was affected by age but not by education or gender. This is contrary to our findings. Schmier et al. (1988) (38) summarized that there was inconclusive data regarding the impact of age. A recent study documented that patients over 64 years of age reported lower HRQL than younger adult patients (36). Age has inconsistent influence on the SF-36 in different studies.

When asthma-related parameters were evaluated, we found that the severity of asthma, having had made unscheduled visits, and having had received systemic corticosteroid treatments negatively affected the PCS scores of the SF-36. In contrast, apart from vitality, the MCS score was not affected by asthma-related parameters.

Moreover, while there was a relationship between asthma severity and PCS scores, none was found between asthma severity and MCS scores in our study. Bousquet et al. (1994) (5) showed that the physical functioning scale scores of the SF-36 were correlated with the severity of asthma. There is increasing evidence that correlations between clinical measures of asthma severity and HRQL are poor (20, 32). The SF-36 domain scores were significantly correlated with the severity of asthma and with FEV1 (5). As FEV1% declined, PCS and MCS scores fell (8). One study showed a weak association between HRQL and measures of physiologic impairment such as FEV1 (18). We did not find any association between HRQL and FEV1. Also, having had made unscheduled visits was related to decrease of both PF and GH scores in our study. One study showed that hospital admissions were associated with lower scores on three physical health dimensions (PF, BP, GH) and SF (13).

In our study, all domains of health-related quality of life SF-36 scores were significantly lower in asthmatic group with psychiatric diagnosis. Similarly, psychological status, especially depression and a negative mood score appeared to be important predictors of reduced HRQL in asthmatics (4, 8, 10, 13, 26, 27, 30, 42). In our study, inadequate social support, psychosocial stressors negatively affected quality of life, this is similar to the findings of Klinnert (2003) (23). Regardless of the mechanism, long-term stress, recent life events and acute emotional arousal probably have an impact on asthma. At the same time, it can probably be said that these effects vary according to stress histories of the individuals involved (31, 50).

Patients with asthma clearly suffer significant morbidity and consume significant health care resources. A further understanding of the factors that influence the HRQOL in these patients is important. Successful care and treatment strategies should emerge from a better understanding these factors. Assessment and analysis of emotional factors in exacerbations

seems essential. These findings point to the importance of the need for the on-going collaboration between respiratory disease clinics and psychiatric liaison.

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