

# Control of Asthma in Primary Care: A Cross Sectional Study

## Birinci Basamakta Astım Kontrolü: Kesitsel Çalışma

Raziye Şule Gümüştakım<sup>1</sup>, Hilal Deşik Aksoy<sup>2</sup>

<sup>1</sup> Düziçi Toplum Sağlığı Merkezi, Osmaniye, Türkiye

<sup>2</sup> Pelitlibağ Aile Sağlığı Merkezi, Denizli, Türkiye

### ABSTRACT

**Introduction:** Nowadays asthma treatment is focused on control. Asthma control is used as a term to express the reduction of asthma signs and the goal of treatment. Asthma control is not at the desired level in the world and in our country. The aim of this study is to assess the level of asthma control in primary care and to raise awareness about asthma.

**Methods:** The universe of research consists of asthma patients admitted to Karaman Sarıveliler State Integrated Hospital. The researcher conducted face-to-face interview using 19-item questionnaire asking demographic features, Asthma Control Test (ACT) and the Asthma Control Questionnaire (ACQ). This clinical research is a cross sectional descriptive study and SPSS for Windows Version 16.0 was used for statistical evaluations. The numerical values indicated in the form of continuous and discrete numeric values and percentage. Results were evaluated in 95% confidence interval,  $p < 0.05$  was accepted as the value for statistical significance.

**Results:** The average ACT score was 12.89, and the ACQ score was 14.86. 30% of patients had hypertension with asthma while 18% of patients had no additional disease. 91% of patients ( $n = 91$ ) is not under control, and 9% ( $n = 9$ ) was partially under control. There was no patient under full control. 94.9% of women and 76.2% of men were not under control. A statistically significant difference was found between the control status and gender, profession, tobacco use. It was found that other demographic factors had no effect on the control of asthma.

**Conclusion:** Asthma is one of the chronic diseases which have high prevalence in our country. So asthma control is very important. In this regard, patients should be evaluated by a simple test like ACT in the primary care and if necessary they should be referred to the secondary care by the physician.

**Keywords:** Asthma, Control, Primary Health Care, Asthma Control Test, Asthma Control Questionnaire

### ÖZET

**Giriş:** Günümüzde astım tedavisi kontrol odaklı olmakla birlikte astım kontrolü, astım belirtilerinin ne derece azaldığı ve tedavinin amacına ulaşip ulaşmadığını ifade eden bir terim olarak kullanılmaktadır. Astım kontrolü dünyada ve ülkemizde istenen düzeyde değildir. Bu çalışmanın amacı birinci basamakta astım hastalarının kontrol düzeyini değerlendirmek ve hastaları astım konusunda bilinçlendirmektir.

**Yöntem:** Araştırma kesitsel tanımlayıcı tipte olup araştırma evreni Karaman Sarıveliler İlçe Entegre Hastanesine başvuran astım hastalarından oluşmaktadır. Hastalara araştırmacı tarafından yüz yüze görüşme yöntemi ile sosyodemografik özelliklerin sorgulandığı 19 soruluk bir anket ile birlikte Astım Kontrol Testi (AKT) ve Astım Kontrol Ölçeği (ACQ) uygulandı. Çalışmada elde edilen veriler SPSS 16,0 programı ile istatistiksel olarak analiz edildi. Sayısal değerler sürekli ve kesikli numerik değerler biçiminde ve yüzdelerle belirtildi. Sonuçlar %95 güven aralığında,  $p < 0.05$  anlamlılık düzeyinde değerlendirildi.

**Bulgular:** Çalışmaya katılan hastaların AKT puanı ortalama 12,89, ACQ puanı ise 14,86 idi. %30 hastanın astıma ek olarak sadece hipertansiyonu varken %18 hastanın ek başka bir hastalığı yoktu. Hastaların %91'i ( $n=91$ ) kontrol altında değilken %9'u ( $n=9$ ) kısmi kontrol altındaydı. Tam kontrol altında olan hasta yoktu. Kadınların %94,9'u, erkeklerin ise %76,2'si kontrol altında değildi. Cinsiyet, meslek ve sigara kullanımı ile kontrol durumu arasında istatistiksel açıdan fark bulundu. Diğer sosyodemografik özelliklerin kontrol durumunu etkilemediği saptandı.

**Sonuç:** Astım ülkemizde prevalansı yüksek olan kronik hastalıklardan biri olup hastalığın kontrolü oldukça önemlidir. Bu açıdan hastaların ilk görüldüğü yer olan birinci basamakta hastalar hekimler tarafından basit bir test olan AKT ile değerlendirilmeli ve gerekli görülürse diğer basamaklara yönlendirilmelidir.

**Anahtar kelimeler:** Astım, Kontrol, Birinci Basamak, Astım Kontrol Anketi, Astım Kontrol Ölçeği

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**Correspondence / Yazışma:** Düziçi Toplum Sağlığı Merkezi, Osmaniye, Türkiye

E-mail: [sulesu82@myinet.com](mailto:sulesu82@myinet.com)

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## INTRODUCTION

Asthma is a chronic inflammatory disease of the airways. This airway inflammation forms the basis of respiratory symptoms such as wheezing, coughing, shortness of breath and tightness in the chest. The strongest identifiable predisposing factor for developing asthma is the atopy. Common allergens are house dust mites, cockroaches, cat dander and pollens. Asthma's nonspecific stimuli are exercise, cold air, irritants and strong odors. The prevalence of asthma in our country is around 4% in adults and 8% in children.

The asthma severity was divided into four classes by the previous international asthma diagnosis and treatment guidelines, taking into account clinical characteristics, pulmonary function and the treatment received. These classes were: intermittent, mild persistent, moderate persistent and severe persistent asthma. This classification is used when the patient's initial treatment is planning. But asthma severity and response to treatment is variable. So, a patient's initial classification as a severe persistent asthma because of severe symptoms and airway obstruction can be classified as moderate persistent after appropriate therapy. In addition, the severity of asthma can change after months or years. "Assessment of asthma control" has been proposed by 2006 revised International Asthma Diagnosis and Treatment Guide [Global Initiative for Asthma (GINA)] during periodic monitoring of asthma.

Nowadays although asthma treatment is focused on asthma control; to what extent reduced asthma symptoms and treatment success is used as a term for asthma control. Asthma control is classified in three groups including full control, partial control and uncontrolled according to the patient's clinical symptoms and pulmonary function. Surveys approved for the distortion field are also used for the evaluation of asthma control in adults and children above the age of 12. These are ATAQ (Asthma Treatment Assessment Questionnaire) ACQ (Asthma Control Questionnaire) and ACT (Asthma Control Test). These surveys help us to organize treatment by determining the level of asthma control in clinical practice as soon as possible. Asthma Control Test (ACT) is one of these surveys consists of five questions including daytime symptoms, night symptoms, use frequency of rescuer beta-2 agonists, limitation level in daily activities and asthma control according to the patient. 20 points and above in the survey results are interpreted as a partial or full control.

Several studies show that the control of asthma is not at a desired level in the world and in our country. The aim of this study was to assess the level of asthma control in patients in primary care and to raise awareness about asthma.

## METHODS

A cross-sectional study involving 109 patients with confirmed asthma who admitted to Karaman Sariveliler State Integrated Hospital, in the city of Karaman, Middle Anatolia of Turkey, between September and November of 2013. Participants were included to the study with any complaint regarding asthma or any prescription. 109 patients were enrolled in the study but 9 of them were excluded because of missing information. 100 patients were included with verbal informed consent. The researcher conducted face-to-face

interview using 19-item questionnaire including patients' demographic data, Asthma Control Test (ACT) and the Asthma Control Questionnaire (ACQ). Data was entered and analyzed using SPSS version 16. Results were evaluated in 95% confidence interval and p-value of 0.05 was taken as standard. The numerical values indicated in the form of continuous and discrete numeric values and percentage. Descriptive statistical methods (mean, standard deviation, frequency, percentage) as well as t test for numerical variables and the chi-square test for categorical variables were used for statistical significance.

**Asthma Control Test (ACT):** ACT is a questionnaire consisting of five titles that assess asthma symptoms, use of rescue medication and activity limitation. In this study version of Turkish validation was administrated. ACT scores were adopted as 25 points "full control" 20-24 points "partial control" and less than 20 points, "not under control".

**Asthma Control Questionnaire (ACQ):** ACQ is a survey comprising seven questions that assess asthma symptoms, activity limitation, and use of medication and FEV1 levels. The evaluation scores are between 0 and 6.

## RESULTS

The study included 21 (21.0%) males and 79 (79.0%) females. A total of 100 patients were enrolled. The mean age was  $59.2 \pm 1.38$  (range 27-86) years. Socio-demographic characteristics of the patients are shown in Table 1.

**Table 1. Socio-demographic characteristics, n (%)**

<b>Gender</b>	
Female	79 (79%)
Male	21 (21%)
<b>Marital status</b>	
Married	79 (79%)
Single	3 (3%)
Widow/divorced	18 (18%)
<b>Job</b>	
Housewife	75 (75%)
Worker	5 (5%)
Officer	1 (1%)
Retired	19 (19%)
<b>Educational status</b>	
Illiterate	36 (36%)
Primary school	61 (61%)
Elementary school	3 (3%)
High school	0 (0%)
University	0 (0%)
<b>Life style</b>	
Alone	3 (3%)
With his wife	68 (68%)
With family members	29 (29%)
<b>Income rate</b>	
Below the minimum wage	24 (24%)
Minimum wage	62 (62%)
Above the minimum wage	14 (14%)
<b>Health insurance</b>	
Have no health insurance	0 (0%)
Social Security Administration	80 (80%)
Green card	20 (20%)
Private insurance	0 (0%)

30% of patients had hypertension (HT) as comorbid disease but there was no concomitant disease in 18%. 87% of patients don't smoke only 5% of patients were doing exercises. There was no moisture in 95% of patient's home and 97% of the patient's home saw the sun. 60% of patients were feeding the animal at home 97% was heating with stoves and all patients were using coal (Table 2).

**Table 2. Other characteristics, n (%)**

<b>Chronic diseases</b>	
Have no any chronic disease	18 (18%)
Hypertension	30 (30%)
Diabetes Mellitus	4 (4%)
Coronary Artery Disease	2 (2%)
Hyperlipidemia	3 (3%)
Other	7 (7%)
<b>Cigarette</b>	
Yes	1 (1%)
No	87 (87%)
Ex-smokers	12 (12%)
<b>Exercise</b>	
Yes	5 (5%)
No	95 (95%)
<b>Condition of your house: damp-clammy?</b>	
Yes	5 (5%)
No	95 (95%)
<b>Does the house see the sun?</b>	
Yes	97 (97%)
No	3 (3%)
<b>Do you fed animals?</b>	
Yes	60 (60%)
No	40 (40%)
<b>For home heating</b>	
Stove	97 (97%)
Radiator	3 (3%)
Other	0 (0%)
<b>Used fuel</b>	
Coal	100 (100%)
Natural gas	0 (0%)
Electricity	0 (0%)

The time for the diagnosis of asthma patients' average was  $6.15 \pm 5.48$  years (1-30), the average number of drugs used  $2.27 \pm 1.06$  (0-6) drug, median ACT score was  $12.89 \pm 4.43$  (5-24) points, median ACQ score was  $2.4078 \pm 0.99286$ . 30 patients had hypertension with asthma but 18 patients had no additional diseases. According to ACT scores 91% of patients and according to ACQ scores 80% of patients were not under control. According to ACT scores 9% of patients and according to ACQ scores 17% of patients were under partial control. There was no patient under full control according to ACT scores while 3 patients were under control according to ACQ scores (Table 3).

**Table 3. The status of control according to ACT and ACQ**

	Full control(n/p)	Partial control(n/p)	Not under control(n/p)
ACT	0 (0%)	9 (9%)	91 (91%)
ACQ	3 (3%)	17 (17%)	80 (80%)

ACT: >25 point: Full control 20-24 point: Partial control <20 point: Not under control

ACQ :< 0.75: Full control 0.75-1.5: Partial control >1.5: Not under control

94.9% of women and 76.2% of men were not under control. Gender, occupation and tobacco use have been found to affect the state control through socio-demographic characteristics and this case is also significant in terms of statistics (Table 4). It was found that asthma is not under control in women, housewives and nonsmokers ( $p<0.05$ ). Especially of illiterate people in the majority asthma was not under control. But this was not statistically significant.

**Table 4. The relationship between sociodemographic characteristics and status of control**

Characteristics	Under control (n/p)	Not under control (n/p)
<b>Gender</b>		
Female	4 (4%)	75 (75%)
Male	5 (5%)	16 (16%)
<b>Job</b>		
Housewife	3 (3%)	72 (72%)
Retired	4 (4%)	15 (15%)
Worker	1 (1%)	4 (4%)
Self-employed	1 (1%)	0 (0%)
<b>Smoking</b>		
No	5 (5%)	82 (82%)
Yes	0 (0%)	1 (1%)
Ex-smoker	4 (4%)	8 (8%)

## DISCUSSION

To obtain a positive result from the treatment of asthma is achieved only in that the control-oriented treatment. Evaluation of compliance with treatment is not easy in intensive outpatient conditions. ACT and ACQ are tests determine the level of asthma control in a short time and allow us to edit the treatment plan in outpatient conditions. Therefore, in our study, we chose these tests. Ko FW et al, in a study conducted in China, ACT with treatment decisions made by experts, according to spirometry, PEF and FeNO was shown to be more correlated.

Our study was conducted in primary care and in 91% of patients asthma was not under control. As a result of the study assessing asthma control by GINA (Global Initiative for Asthma) Algorithm in primary care conducted in Sweden; in 2001, 36.6% of patients with asthma were found to be under control, 23.8% of them were under partial control, while 39.6% were found to be uncontrolled. Similar results revealed again in 2005 and 40.2% of the asthmatic patients were under control, 26.8% of them were under partial control and 33% were identified as uncontrolled. In a study conducted in

primary care in Saudi Arabia, the proportion of patients with uncontrolled asthma was found to be 39.8% according to ACT results. In a comprehensive survey conducted with 2238 people in United States (US) has been identified that according to ACT scoring 58% of asthma patients in the primary care are not under the control.

There are big differences between our study and other studies for the rate of uncontrolled patients. This may be due to the following reasons; socio-economic and cultural differences among countries that studies conducted, the differences in their health care system. In addition, our study has some limitations, such as made in a particular region and the small number of patients.

In the literature search we couldn't reach any research on asthma control levels in primary care in Turkey. In 2010 Türkteş and his friends evaluated the level of asthma control by ACT in asthmatic patients admitted to the third step and they assessed 1188 people. 51.5% of them were under control ( $ACT \geq 20$ ), 48.5% of them were uncontrolled ( $ACT < 20$ ). In a study conducted at Istanbul University Faculty of Medicine Diseases clinic by Hayat and his friends in 2010. 50 asthma patients have been assessed and only 4% of them were under full control, 32% of them were under partial control and 64% was found to be uncontrolled based on ACT. In a study by Bozbaş et al it has been concluded that 68% of asthma patients was not under control. In our study the proportion of people who are not under the control is higher than these studies. This may be due to the following reasons; our study has been conducted in primary care and lower levels of socio-economic status and education

In our study, poorer asthma control was found to be in the female sex (94.9%). The same situation observed in most studies related with asthma control. In Türkteş study uncontrolled asthma has been associated with female gender as well as the middle school or lower education level, FEV1 <80%, PEF < 80%, application to ED or hospital at last year, use of systemic steroids. In a study by Hayat et al there was no relationship between ACT, AQLQ and such as obesity, diabetes, hypertension, renal failure, smoking history with comorbid conditions and they found that no relationship was between FEV 1 and ACT. In another study conducted in Turkey ACT had no relationship between age, marital status, education level and economic status.

In a study conducted in Sweden asthma control was found to be worse in the female sex as well as the people who use cigarettes. In a study in South West Ethiopia, the situations independently associated with asthma control were found that; the patient's age, untimely visits, use of short-acting beta-agonists, treatment modality and the perception rate of asthma control. In a study conducted in Nigeria uncontrolled asthma has been associated with to have severe asthma symptoms, the wrong inhaler use, oral corticosteroid use, abnormal pulmonary function tests, the presence of comorbid conditions, lack of inhaled corticosteroids adherence. Older age and no higher education were found to be weakly correlated with asthma control. In the same study asthma control had no relationship between gender, marital status, smoking, socioeconomic status, occupation, income level and asthma duration.

Conditions affecting the level of asthma control studies vary in general. The reason for this is different universe of studies and different health systems. In our study, there was no relationship between the income level and asthma control.

Regardless of the income level; patients can access to health care in our country conditions and can receive regular treatment services through social security institution. Asthma control was better in smokers in our study as interesting. The reason of this may be that smoking rates have been already very low (1%)

Gastroesophageal reflux, allergic rhinitis and sinusitis are the most common asthma accompanying and are situated at the beginning of the disease disrupt the asthma control. In our study, the most common disease among asthmatic patients HT is in first place (30%). In this case, if people do not know the diagnosis of other diseases or mention of chronic illness may stem from the perception more commonly known diseases such as hypertension, diabetes and coronary artery disease.

Another missing aspect of our study, the number of drugs in asthmatic patients were questioned just what drugs are used and in what way they use unasked. Patients who use inhaled drugs, especially the various steps of using this drug are making significant mistakes. The mistakes made inhaled drug applications, patient's leads to receive little or no medication. This would be consequences of insufficient treatment of patients and lack of control of diseases.

Asthma is a disease that can be controlled. However, our study has revealed that asthma is not under control. This situation causes a delay in the treatment of asthma sufferers and a decrease in quality of life. Doctor assessing a patient, in people who have failed treatment must assess whether the asthma is under control and the treatment plan should be changed if necessary. Therefore, when evaluating patients in clinical, ACT and ACQ should be used routinely for simple and easily implemented and shed light therapy.

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