

Levels of acceptance of Asthma Control Test questionnaire among Saudi patients attending 5 tertiary care hospitals in Saudi Arabia

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ABSTRACT

الأهداف: دراسة مدى تقبل اختبار السيطرة على الربو (ACT) عند المرضى السعوديين.

الطريقة: أُجريت الدراسة في خمسة مستشفيات في مدينة الرياض - المملكة العربية السعودية، خلال الفترة ما بين سبتمبر 2006 وحتى نوفمبر 2006م. تم توزيع استبيان اختبار السيطرة على الربو (ACT) للمرضى المراجعين لعيادة الأمراض الصدرية للإجابة عليه، وبعد ذلك تم مقابلتهم ومعرفة مدى تقبلهم لهذا الاستبيان، وعن أي صعوبات واجهتهم أثناء ذلك.

النتائج: بلغ عدد المرضى المشاركين 1060 مريضاً، نسبة الذكور 41%، وكان ثلث المرضى غير متعلمين. أوضحت النتائج أن الغالبية من المرضى (94%) وجدوا أن استبيان السيطرة على الربو (ACT) سهلاً. كان استكمال الاستبيان بالنسبة لصغار السن من المرضى سهلاً أكثر منه لدى الكبار بالسن. (95%) من المرضى الذكور وجدوا أن الاستبيان سهلاً، بينما (92%) من الإناث وجدوه سهلاً. كما أن الفئة المتعلمة وجدت أن استكمالها سهلاً بالمقارنة من الفئة الغير متعلمة. كان لجنس المرضى تأثير أكبر من فرق العمر والمستوى التعليمي في مساعدة الاستبيان لهم حالتهم المرضية. لم يكن لفرق العمر والمستوى التعليمي ولكن للجنس تأثير ما إذا كان لدى المرضى الرغبة في تكرار الإجابة على الاستبيان في مراجعتهم للعيادة مستقبلاً.

خاتمة: معظم المرضى السعوديون وجدوا أن استبيان السيطرة على الربو (ACT) سهل، ولديهم الرغبة في تكراره في كل زيارة للعيادة

Objectives: To explore the levels of acceptance of asthma control test (ACT) among Saudi patients.

Methods: A cross-sectional survey was carried out in 5 hospitals in Riyadh, Kingdom of Saudi Arabia, namely; Security Forces Hospital, King Abdul-Aziz Medical City, King Khalid University Hospital, King Faisal Specialist Hospital, and Riyadh Armed

Forces Hospital, from the first of September to the 30th of November 2006. Patients attending the pulmonary clinic were asked to answer the ACT. This was followed by an interview to assess their view on the questions and their level of difficulty.

Results: The total number of patients was 1060. Males constituted 41%. A third of the patients were uneducated. The majority of patients (94%) found the ACT questions easy. The younger patients found the ACT questions easier to answer than the older patients. Ninety-five percent of males found the ACT easy, while only 92% of females found the ACT easy. Educated patients found the ACT questions easy to perform more often than uneducated patients. There are no significant differences for age and gender, and for the question on whether the test helped to understand the patient's condition. There are no significant differences for age and education, and for the question on whether the patient is willing to perform the test in each clinic visit.

Conclusion: The majority of Saudi patients found the ACT easy, and they are willing to repeat the test every clinic visit.

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Asthma affects approximately 5% of the world's population, and indicators suggest that its prevalence continues to rise.^{1,2} Despite the existence of treatment guidelines, recent studies suggest that asthma symptom burden is significantly higher than previously estimated. As a result, many patients with asthma continue to be under-treated, and are at risk for acute exacerbations. The fact that both patients and physicians often overestimate the level of asthma indicates that asthma treatment guidelines alone are not enough to ensure the proper assessment of asthma control.³⁻⁷ The Asthma Control Test™ (ACT) is a validated, 5-item, self-administered questionnaire designed to assess asthma control,⁸ and was translated into Arabic. As the ACT is new and has not been used with Saudi patients before, we aimed to explore its levels of acceptance and its difficulties among Saudi patients attending 5 tertiary care hospitals in Riyadh. The results will be useful in helping practitioners better understand the limits of using the test, and the acceptance of the test by Saudi patients attending pulmonary clinics.

Methods. The study was carried out in 5 major tertiary hospitals in Riyadh, Kingdom of Saudi Arabia, namely; Security Forces Hospital, King Abdul-Aziz Medical City, King Khalid University Hospital, King Faisal Specialist Hospital, and Riyadh Armed Forces Hospital, from the 1st of September to the 30th of November 2006. The Saudi Thoracic Society Research and Ethics Committee reviewed and approved the study. As per the Ethics Committee, the patients were not required to sign informed consent because patients did not receive any intervention. All asthmatic patients attending pulmonary clinics were asked by the treating consultants to participate in the study. Patients who agreed to participate, were asked to self-complete the 5-item ACT questionnaire, following which, they were interviewed face-to-face regarding the ease or difficulty of completing the questionnaire. This was carried

out using another questionnaire sheet separate from the ACT sheet. Patients were asked to answer these questions as well. The questions given are designed to assess the difficulty level of the ACT as a test, or a tool to evaluate the level of asthma control. The English version was translated into Arabic, and was translated back to English language, to confirm the accuracy of the translation by the authors, who are fluent in both languages. The patients were asked the following questions: 1) overall, how easy or difficult they found the ACT questionnaire; 2) how they thought that ACT helped them to understand their condition; 3) are they willing to repeat the test at every clinic visit.

The data collected was analyzed utilizing the Statistical Package for Social Sciences version 13 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics such as means and standard deviation were used to summarize the quantitative variables. Frequency counts and percentages were used to summarize category variables. Chi-square test was used to test statistical significance of differences between categorical variables. Differences were considered significant if the *p*-value is <0.05.

Results. The total number of patients studied was 1060 (2 patients did not answer the questionnaire).

Table 1 - Patients demographics (N=1060).

Demographics	n (%)
<i>Age</i>	
≤40	431 (40.7)
>40	629 (59.3)
<i>Gender</i>	
Males	442 (41.7)
Females	618 (58.3)
<i>Educational level</i>	
Uneducated	320 (30)
Educated	740 (70)

Table 2 - Acceptance of the Asthma Control Test (ACT) according to age, gender, and education.

Demographics	N	No. of ACT (%)		No answer	<i>P</i> -value	χ^2
		Easy	Difficult			
<i>Age</i>						
≤40	432	413 (95.6)	17 (3.9)	2 (0.5)	0.012	6.25
>40	628	534 (85)	94 (15)	0		
<i>Gender</i>						
Male	442	422 (95.5)	19 (4.3)	1 (0.2)	0.31	4.65
Female	618	569 (92.1)	48 (7.8)	1 (0.2)		
<i>Education</i>						
Uneducated	320	278 (86.8)	42 (13.1)	0	0.00001	32.5
Educated	740	713 (96.3)	25 (3.4)	2 (0.3)		

There were 442 males, and 618 females. The median age was 38.6 years (range 15-75). Almost a third of the patients were uneducated (no formal education or not able to read or write), while two-third of the patients were educated (primary school or above, or able to read or write) (Table 1). In general, 991 (93.5%) of the patients found the ACT questions easy. Only 67 (6.3%) thought the questions were difficult, and 2 did not answer. There are significant differences between age below 40 and above 40 years old, and the acceptance of ACT ($p=0.012$). The younger patients (less than 40 years old) found the ACT questions easier to perform than older patients (above 40 years old). There are no significant differences between the acceptance of the ACT and gender, 95% of males found ACT easy, while only 92% of females found the ACT easy ($p=0.31$). There were significant differences between the level of education and acceptance of the ACT, and educated patients found the ACT questions easy to perform more often than uneducated patients (Table 2). There were no significant differences as to age ($p=0.235$) and gender ($p=0.123$) for the question on whether the test helped to understand their condition. However, there was significant differences between the level of education and whether the test made patients understand their

condition better ($p=0.0017$), educated patients agreed more often than uneducated patients on whether the test helped to understand their condition (Table 3). There are no significant differences as to age ($p=0.51$) and education level ($p=0.074$) for the question on whether the patient is willing to perform the test in each clinic visit. However, there was a significant difference as to gender ($p=0.023$). Male patients were willing to perform the test in each clinic visit more often than female patients (Table 4).

Discussion. Bronchial asthma is a common condition that affects 5% of the population worldwide, the incidence and prevalence of which have increased during the past 20 years.⁹⁻¹¹ Asthma's mortality and morbidity are still unacceptably high. More recent increases in asthma mortality may be related to the increased prevalence or severity of asthma or inadequate health care.⁹⁻¹¹ Saudi Arabia is no exception.¹²⁻¹⁴ The high morbidity and mortality have been attributed in part to poor compliance. Studies have reported that 50% of patients with chronic asthma do not use their medications at all, or do not use them as prescribed.¹⁵⁻¹⁷ The ACT was recognized by many as an effective tool to assess the control of asthma, and it is reliable, valid,

Table 3 - Demographic level in response to question (do you think the test helps you to understand your condition?).

Demographics	N	Agree	Disagree	No difference	No answer	P-value	χ^2
n (%)							
<i>Age</i>						0.235	2.889
≤40	432	384 (88.9)	9 (2)	37 (8.5)	2 (0.5)		
>40	628	547 (87.1)	4 (0.6)	74 (12)	3 (0.5)		
<i>Gender</i>						0.123	4.18
Male	442	395 (89.3)	7 (1.5)	37 (8.4)	3 (0.7)		
Female	618	536 (86.7)	6 (1)	74 (12)	2 (0.3)		
<i>Education</i>						0.0017	12.74
Uneducated	320	266 (83.1)	2 (0.6)	49 (15.3)	3 (0.9)		
Educated	740	664 (89.7)	11 (1.3)	62 (8.4)	3 (0.4)		

Table 4 - Demographic level in response to question (are you willing to repeat the test in every clinic visit?).

Demographics	N	Agree	Disagree	No difference	No answer	P-value	χ^2
n (%)							
<i>Age</i>						0.51	1.31
≤40	432	394 (91.2)	5 (1.2)	31 (7.2)	2 (0.5)		
>40	628	564 (89.8)	5 (0.8)	56 (8.9)	3 (0.5)		
<i>Gender</i>						0.023	7.5
Male	442	411 (93)	2 (0.5)	26 (5.9)	3 (0.7)		
Female	618	547 (88.5)	8 (1.3)	61 (9.9)	2 (0.3)		
<i>Education</i>						0.074	5.21
Uneducated	320	278 (86.9)	4 (1.2)	35 (11)	3 (0.9)		
Educated	740	679 (91.7)	6 (8)	52 (7)	3 (0.4)		

and responsive to changes in asthma control over time in patients' new to the care of asthma specialists.¹⁸⁻²¹ Moreover, the Arabic version of the ACT is a valid tool for Arabic-speaking patients to assess asthma control.²² In general, the majority of patients found the ACT questions were easy regardless of age, gender, and level of education. Furthermore, they were willing to repeat the test at each clinic visit.

The limitation of our study is that 30% of the patients had no formal education. The answers which may have affected their level of understanding to these questions, or they may be influenced or biased by interviewers who helped in answering these questions. The strength of our study includes a recorded number of more than 1,000 patients treated at the tertiary hospitals with excellent facilities and infrastructures, including the availability of specialists in treating bronchial asthma and asthma educators.

In conclusion, the results from this study are very important because they indicate that the majority of Saudi patients found the ACT easy, and were willing to repeat it during each clinic visit, as recommended by the asthma management guidelines. Physicians can use the ACT in the clinics, with confidence that patients can answer all questions without facing major problems, with special consideration for the elderly and uneducated patients who may need assistance in completing the test. This high level of acceptance of ACT questions will encourage physicians to improve education provided to the patients, and to encourage patients to improve compliance with asthma management.

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