



BAHRAINI SCHOOL TEACHERS' KNOWLEDGE OF ASTHMA

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Abstract

Background and Objectives: Bronchial asthma is a common and life-threatening problem affecting school children and adolescents. School teachers must be aware of this condition to educate their students, and to provide assistance to manage such attacks. This study is designed to assess the asthma knowledge of school teachers, and to determine if such knowledge is influenced by other variables.

Methods: From randomly selected schools representing all schools in Bahrain, 1140 teachers were surveyed. A pre-designed self-administered questionnaire was delivered to all teachers. It was designed to collect information related to asthma knowledge and other variables.

Results: Eighty nine percent returned the questionnaire. The study showed that Bahraini school teachers have only average or poor knowledge of asthma presentation and management. Teachers' knowledge was 82 percent for the complaint of shortness of breath as a presenting factor in asthma, and 81.7 percent for cough. Only 66.5 percent knew that wheezing after physical exertion is a strong indicator of asthma. Women and single teachers were better informed than others.

Conclusion: Health care reform requires an interdisciplinary approach from various organizations, particularly the schools. It is vital that school teachers' health knowledge be improved and continuously updated that it can be reflected in students' attitudes.

Key words: Asthma; school teachers' knowledge; benefits

Introduction

Bronchial asthma is a chronic disease that affects a high percentage of adolescents resulting in a significant restriction of daily activities, and to school absenteeism ^[1]. Managing asthmatic children in school, if dealt with correctly would help reduce absenteeism and improve participation in school activities" ^[2]. An Australian study confirmed that asthma is a common cause of quality of life impairment among year eight high school students ^[3]. The number of school students with asthma has recently increased ^[4]. Asthma is the most common chronic medical condition that school teachers may encounter among their students; however their role adopted towards this condition has only recently been explored ^[5]. In Al-Khobar in Saudi Arabia, the prevalence rate of asthmatics ranged between 8 percent and 9.5 percent ^[6]. Elsewhere the number of children with asthma as identified by teachers was 7.8 percent, which suggests that asthma may be unrecognized ^[7].

It has been reported that although teachers are known to be concerned about asthmatic students, and are often called upon to manage asthma at school, they may have little knowledge and understanding of the condition ^[7,8]. The results of a survey carried out with 98 primary school teachers in inner London schools showed that teachers had a limited understanding of asthma and its management ^[9]. When studying asthma health education in Wessex, England, it was found that none of the school health services had any planned education about asthma for teachers ^[10]. Clearly, schools and the teachers need to receive more information about asthma, both to enable them to better cope with their asthmatic students, and to allay the anxieties of teachers. The increasing number of children with asthma in schools necessitates an examination of the awareness of teachers of this condition. Consequently the preparedness of teachers in the care and management of children with asthma is of prime importance ^[11]. The purpose of this study is to assess the knowledge of asthma presentation in school children among teachers in Bahrain.

Methods

Of the 152 schools throughout the five geographic regions of Bahrain (Muharraq, Manama, Northern area, Central area and Western area) with a total number of 3360 teachers, a random sample of 49 schools representing all categories in the Kingdom of Bahrain (primary, elementary and secondary) was selected. Such selection was done giving appropriate representation to the five regions, and taking into account the number of Bahraini teachers in each school, the type of school, and the locality. All teachers working in each selected school were included in the study.

Based on a comprehensive review of the literature a self administered questionnaire was developed. The questionnaire collected information about the school, the teachers' demographic characteristics and their knowledge of bronchial asthma. Sets of 10 statements representing signs, symptoms or complications of asthma were listed in the questionnaire. Four of those 10 statements had incorrect answers, and the teachers' knowledge was so tested. To the series of statements about asthma, the teachers should have answered 'Yes' (agree), 'No' (do not agree), or 'Do not know'. Each blank space was considered a missing value (i.e. teachers did not respond to it).

Distributing it to doctors in various specialties and obtaining their feedback, tested the questionnaire's face value and content validity. It was also tested for repeatability by sending it again to the same doctors after a one-week lapse. A pilot study was also done to test the questionnaire.

The questionnaires were handed to the teachers and collected from them the next day. A letter was attached to the questionnaire giving the teachers information about the study, its aims, and how to complete. Data were analyzed using the SPSS program version 11.5 and a P value of <0.05 was considered significant.

Results

Of the 1248 teachers included in the sampling, 1140 (89 percent) responded. The general characteristics of non-respondents, including age, gender and types of school were found to be no different than the responders. Of the selected schools, 60 percent were primary level (45 percent of the teachers), 24 percent were intermediate (25 percent of the teachers) and 16 percent were from high schools (30 percent of the teachers).

The teachers' ages ranged from 20 to 58 years with a mean of 32.7 years, and 78 percent of them were married. Women accounted for 60 percent. There were 774 teachers who were married and had children, and their families numbered from one to 16 children with a mean of three. The male teachers had more children than the women teachers (65 percent vs 35 percent).

Their qualifications included: 81 percent had a graduate education, and 19 percent had a lower qualification (having completed high school). More women than men had higher qualifications (81 percent vs. 70 percent). The duration of their occupation as a teacher ranged between one and 35 years with a mean of 12.3 years. Only 13 percent had worked for more than 20 years. Seven percent of the teachers were smokers who used between two to 60 cigarettes per day with a mean of 20 cigarettes per day. They had smoked for periods ranging from three to 33 years with a mean of 15 years. More men than women were smokers (14 percent vs 0.6 percent). Only 14 teachers admitted to drinking alcohol, of whom all were men. Regular exercise was practiced by only 18 percent of the teachers.

Nearly 90 percent of the teachers answered the questions related to their knowledge of asthma. Table 1 shows the number of teachers responding correctly or incorrectly to the questions concerning their asthma knowledge. Many of them did not correctly answer the questions related to false information about the signs and symptoms of asthma. The highest non-response rates included the questions related to false signs and symptoms, which was as high as 20.8 percent.

A score of one was given for the correct answer and zero for wrong answers or if the teachers did not know the answers. Since 10 questions were asked, the maximum score that any teacher could obtain if they answered all the questions correctly was 10. These scores were assessed as percentage scores. The teachers' asthma knowledge score ranged between one and 10 with a mean of 5.16, a median of five and a Standard Deviation of 2.185.

A trial was made to relate each area of knowledge with the other variables. The results of the statistically significant relationships are shown in Tables 2 and 3 of which a few are:

- * women had significantly better knowledge in certain areas related to asthma than men
- * single teachers were better informed than married
- * surprisingly, the married teachers with smaller family size had better information than those teachers with a large family
- * teachers who perceived their general health as satisfactory had more knowledge than those who thought their health was unsatisfactory
- * teachers with a shorter duration of occupation had better knowledge in a few areas than those who had worked for a longer time
- * unexpectedly teachers not doing regular exercise had more information than those who engaged in regular exercise.

Discussion

Asthma is a life-threatening condition ^[12], which attacks school-age population periodically, debilitating them, and leading to a decrease in their educational attainments due to frequent absenteeism ^[11]. It often prevents them from involvement in physical activity and exercise ^[4]. Since most asthmatic children lack self-care and most do not use their anti-inflammatory inhaler ^[13], it is important that school teachers should be aware of this condition. A large number of these students may not be diagnosed early enough due to lack of knowledge/information among parents and/or teachers. Researchers have shown that teachers might find difficulty in recognizing and managing attacks of asthma, which can happen to students during school hours ^[5,7-9,14-16]. Such ignorance may lead to severe complications for the students.

Our study shows that asthma knowledge among the Bahraini school teachers is deficient (mean score of 5.16 +/- 2.185 out of possible 10). Similar results were reported in Portugal (mean group scores: 17.7 of a possible 30) ^[1]. Although such findings were obtained by others ^[3,8-10], researchers in other part of the world indicated that teachers do not lack knowledge but poor understanding on how to manage the condition ^[5,7,14-16]. A report from Australia showed that teachers suffering from asthma had more knowledge than non-asthmatic teachers, but knowing someone with asthma made no significant difference to teachers' knowledge ^[17]. Studies have also found that teachers who had contact with an asthmatic individual or who had received previous training on asthma had a significantly greater knowledge ^[14]. Although such factors were not examined in this study, it is strongly recommended that they should be considered in future studies.

The teachers' most common knowledge of asthma are shortness of breath, coughing and wheezing (82% responded correctly). Only 66.5 percent knew that wheezing after physical exertion is a strong indicator of asthma in comparison to 57 percent of Danish teachers ^[16]. A large proportion of teachers also had wrong information about the signs, symptoms and complications of asthma. For example, teachers thought the following are related directly to asthma:

- * 45.3 percent thought that one of the major symptoms of asthma is diarrhoea
- * 46.7 percent thought that it could lead to a sore throat
- * 17.1 percent thought that asthma would lead to excessive sleep.

Asthmatic students of such teachers who not only lack knowledge but have wrong concepts may be at greater risk than those who are under the care of teachers who completely lack asthma knowledge: Significantly more single teachers and more women teachers were aware of asthma than married and male teachers. Married teachers with a smaller family size (one to three children) had better knowledge than those with a larger family. Other variables such as teachers' demographic characteristics, duration of occupation and type of school did not influence the teachers' knowledge of asthma. The Ministry of Education in the Kingdom of Bahrain recently enforced a regulation not to employ any teacher unless they have either a university degree or a diploma in education. As the results of the study indicate, younger teachers with shorter durations of occupation and having a small family size are better informed about asthma than the others. It is expected that such findings are characteristics of teachers with a higher education. These findings suggest that teachers' education plays a role in improving their asthma knowledge, although direct comparisons between levels of education and knowledge were not significantly related. Usually educational programs demonstrate that they have an important role in the management of asthmatic patients. In patients with asthma, better results can be obtained with an intensive group asthma education program than with the individual and a simplified program ^[18]. School teachers' involvement is therefore vital in such programs.

Conclusion

Nowadays, health care reform efforts are focusing on interdisciplinary, comprehensive approaches to health care delivery. Reports have highlighted the importance of school health education for improving the health of society ^[11]. There is a need to provide school teachers with specific education on asthma and its management ^[5,15]. Effective school-based education must be comprehensive, continuous and interdisciplinary, and must offer information, motivation and skills. There is a need for the implementation of asthma education programs in schools in order to improve asthma management for adolescents and the students ^[1].

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Table 1. The asthma knowledge of school teachers

Symptoms/Signs		Rate and No. of Responses	Percentage of teachers with knowledge			Non- responders
			Correct* responses	Incorrect* responses	Don't know*	
True	Cough	991(87%)	(810) 81.7%	8.8%	9.5%	149 (13%)
	Wheeze	970(85.1%)	(645) 66.5%	13.4%	20.1%	170 (14.9%)
	Shortness of breath	1003(88%)	(823) 82%	7.6%	10.4%	137 (12%)
	Exercise intolerance	947(83.01)	(593) 62.6%	19.2%	18.2%	193 (16.9%)
	Exhaustion (tired)	958(84%)	(601) 62.7%	18.3%	19%	182 (16%)
	Anorexia during attack	952(83.5%)	(447) 47%	25.6%	27.4%	188 (16.5%)
False	Diarrhea	919(80.6%)	(489) 53.2%	19.3%	27.5%	221 (19.4%)
	Sore throat	937(82.2%)	(278) 29.7%	46.7%	23.6%	203 (17.8%)
	Excessive sleep	903(79.2%)	(404) 44.7%	17.1%	38.2%	237 (20.8%)
	Insomnia	923(81%)	(225) 24.4%	45.3%	30.3%	217 (19%)

* All the percentages were derived from the total number of those who responded

Table 2. Relationship of asthma knowledge to various variables

Variables	Signs and symptoms	Cough	Wheezing	Shortness of	Exercise	Exhaustion (tired)	Anorexia during	No diarrhea	No sore throat	No excessive sleep	No insomnia
Sex	Men	66%	43%	66%	44%	34%	25%	38%	21%	31%	26%
	Women	71%	66%	77%	58%	66%	19%	46%	27%	38%	16%
	P value	<0.002	<0.000	<0.001	<0.000	<0.001	<0.007	<0.004	<0.004	<0.001	<0.000
Marital status	Married		55%			51%		42%	23%		
	Single		62%			59%		47%	29%		
	P value		<0.05			<0.05		<0.01	<0.05		
Exercise	Yes			67%	40%			36%			
	No			75%	50%			45%			
	P value			<0.05	<0.01			<0.01			
	Satisfactory		55%		53%	53%	23%	54%		35%	

Perception of Health	Un- satisfactory		18%		54%	56%	18%	41%		38%	
	P value		<0.0 5		<0.0 5	<0.0 01	<0.0 5	<0.0 5		<0.0 5	

1- Cough, 2-Wheezing, 3- Shortness of breath 4- Exercise intolerance, 5- Exhaustion (tired), 6- Anorexia during attack, 7- No diarrhea, 8- No sore throat, 9- No excessive sleep, 10- No insomnia

Table 3. Relationship of asthma knowledge to various variables (continued)

Variables	Signs and symptoms	Cough	Wheezing	Shortness of breath	Exercise intolerance	Exhaustion (tired)	attack	No diarrhea	No sore throat	No insomnia
<i>Duration of occupation</i>	1 to 10 years			75%		56%				
	11 to 20 years			72%		54%				
	>21 years			64%		43%				
	P value			<0.05		.05>P<0.1				
<i>Type of school</i>	Primary	75%			45%			28%	26%	
	Intermediate	72%			48%			23%	20%	
	Secondary	64%			40%			26%	29%	
	P value	<0.01			0.05>P<0.01			0.05>P<0.01	<0.01	
	1 to 3 child.		59%		54%		23%	44%	26%	21%
	4 to 6 child		55%		47%		18%	37%	18%	19%

Number of children	>7 child		32%		37%		17%	37%	17%	20%
	P value		<0.01		<0.02		<0.02	<0.001	<0.02	.05>P<0.1

1- Cough, 2-Wheezing, 3- Shortness of breath 4- Exercise intolerance, 5- Exhaustion (tired), 6- Anorexia during attack, 7- No diarrhea, 8- No sore throat, 10- No insomnia