Asthma Knowledge among Asthmatic School Students

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Abstract

Objectives: Bronchial asthma is a common and life threatening problem affecting school children and adolescents. The flare-up of asthma may lead to impaired daily function and absence from school. These complications of bronchial asthma could be influenced by poor knowledge, poor use of inhaler technique, non-compliance and negative attitude toward the illness and drugs. The study is designed to assess the asthma knowledge of school students suffering form asthma and identify the resources of the knowledge.

Methods: All diagnosed asthma students (131 cases) selected from school health register grade 7-12 was included in this study. The self administrated questionnaire was distributed among them. It was designed to collect information of the students about epidemiology of asthma, source of their information and effect of the disease on their school attendance. Special knowledge score was constructed to measure the level of the students' knowledge.

Results: The study showed that from 131 diagnosed asthma cases 90% (118) aware about their diagnosis. Medical and paramedical personnel were found to be the source of knowledge for 49.4% (65) of the students, while teachers were mentioned by only 9.2% (12) of the students as their source of information. Regarding the effect of asthma on school absenteeism, 66% (87) of school students may miss their school due asthma attack.

Conclusion: Health education about bronchial asthma is a need for school students. This require inter-disciplinary approach from various organization particularly the schools. It is vital that school teachers' knowledge be improved and continuously updated that it can reflect in students' knowledge and attitudes too.

Keywords: Bronchial Asthma; School students; Health education; Asthma knowledge.

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Introduction

Bronchial Asthma (BA) is a chronic inflammatory disease of the airways that can cause difficulty in breathing, recurrent wheezing, recurrent cough and chest tightness at rest. It can leads to mild, moderate and severe quality life impairment.[1] World wide asthma is increasing, in USA the current asthma cases estimated about 15 million people, 5 million of whom are under the age of 18 years.[2]

According to a study conducted by the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, nearly one in six (16%) high school students were suffering from asthma.[3] In Iran the prevalence of asthma symptoms among high school students (14-20 years) was 15.9%.[4] In Oman the prevalence rate of asthma cases diagnosed by standard questionnaire among school children aged 13-14 years was 20%,[5] while in Qatar using the same questionnaire the prevalence was 19%.[6]

In school age children asthma has medical, psychological and physical effects. The flare-up of asthma may lead to impaired daily function and absence from school. A study from California [7] showed that on average, a child with active asthma missed 2.6 school days per year.[7] Mostly, the complications of bronchial asthma could be influenced by poor knowledge,[1] poor use of inhaler technique, non-compliance and negative attitude toward the illness and the drugs.

Objective

To study the asthma knowledge of asthmatic students in grade 7-12 (wilayate Mattrah – Muscat governorate).

Materials and Methods

1- Study design

This is a quantitative, cross-sectional study, based on self-reported questionnaire to be distributed to all target students. The research procedures had been explained to the participants to be assured that he/she is free to refuse to participate and has a right not to complete the questionnaire at any time. Also, they had been informed that the data are confidential and will be used for research purposes only.

2- Target group

The studied sample comprised all the clinically diagnosed asthma cases by school health doctors. They were collected from school health registers of the academic year 2007-2008.

The selected cases amounted to 131 students representing 2% of the total students (6370) who are enrolled in 13 governmental schools (grades 7-12) in wilyate Muttrah. Their ages ranged from 13-18 years. The female to male ratio is 1:1.3 as the number of male schools in Wilyate Muttrah is greater than the number of female schools and consequently, the total number of male students (3598) is greater than the total number of female students (2772).

The results of this study revealed that 40% (52) of asthma cases belonged to grades 7 -9 (preparatory level) while 60% (79) enrolled in grades 10- 12 (secondary level).

3- Criteria of exclusion

Cases belong to less than grade seven; were excluded due to possibility of unable to understand the questionnaire properly.

4- Questionnaire design

The questionnaire (Arabic version) was designed to meet the objective of the study. It included socio-demographic data, with questions about gender, age, grade of education, and family history of asthma. The questionnaire inquired also about knowledge of the students regarding epidemiology of bronchial asthma as well as the source of their information and the effect of the disease on their school attendance. The designed questionnaire had been piloted with 10 participants and it took approximately 20 minutes to be completed. No major modification was done.

The total number of questions used to measure the asthma knowledge of students is 20 questions with one degree for each right answer. So the total score is 20 degrees. To measure the level of students' knowledge the total score is divided into three grades:

- Low grade of knowledge: from 0-6 degrees
- Intermediate grade of knowledge: from 7-13 degrees
- High grade of knowledge: 14-20 degrees.

Data management

This study was conducted during the academic year 2007/ 2008. The enrolled students were assured that their participation is voluntary and the questionnaire does not ask for name. The response rate is 100%.

Data analysis aims to link between questionnaire variables in a comprehensive and appropriate manner. Especially statistical program (SPSS) was used for data analysis and the results were represented in the form of tables, graphs and charts. The relationship between variables was discussed in terms of significance. The level of significance was at 0.05.

Results

Table 1: Students' Awareness of their Disease

Awareness About their diagnosis	*Boys*		*Girls*		*Total*	
	No.	*%*	*No.*	*%*	*No.*	*%*
YES	71	89.8%	47	90.3%	118	90%
NO	8	10.2%	5	9.6%	13	9.9%
Total	79	100%	52	100%	131	100%

Table (1) illustrated that the majority of the studied cases (90%, 118) were aware about their illness. Girls were slightly more aware (90.3%, 47) than the boys (89.8%, 71).

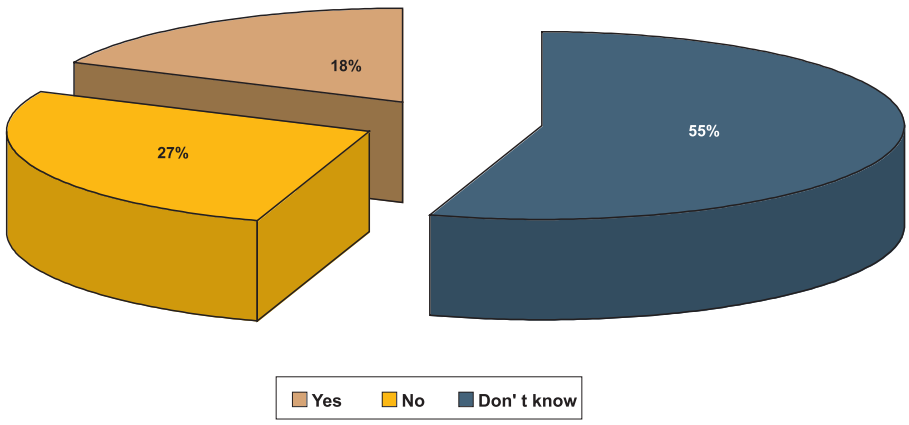

Figure 1: Family history of bronchial asthma

Positive Family history of bronchial asthma was stated by 55% (72) of the cases compared to 27% (35) who recorded negative family history of the same disease while 18% (24) answered "don't know".

Table 2: Knowledge of the studied sample about the epidemiology of bronchial asthma

Knowledge in Bronchial Asthma	Yes		No		Don't know		Total	
	No.	%	No.	%	No.	%	No.	%
- is an infectious disease	10	7.6	101	77.1	20	15.3	131	100
- is a hereditary disease	98	74.8	10	7.6	23	17.6	131	100
-could be completely cured	42	32.1	40	30.5	49	37.4	131	100
- could affect children & adults	123	93.9	3	2.3	5	3.8	131	100
-may causes dangerous complications	74	56.5	16	12.2	41	31.3	131	100
- could be treated	92	70.2	13	9.9	26	19.8	131	100
- is a preventable disease	75	57.3	16	12.2	40	30.5	131	100

Table 2 demonstrates knowledge of the students. It was found that 77.1% (101) of the sample stated that "BA is not an infectious disease", and almost three quarter 98 students (74.8%) mentioned "it is genetically inherited disease" and big number; 123 students (93.9%) reported "it can affect both children and adults". About one third of the cases (30.5%, 40) recorded that "it is curable disease", and more than the half (56.5%) (74 students) considered BA a dangerous disease. Regarding prevention and control; 70% (92) stated it can be controlled by medication and 57.3% (75) believe that it is a preventable condition.

Table 3: Knowledge of the studied sample about the symptoms of bronchial asthma

Symptoms of Bronchial Asthma	Yes		No		Don't know		Total	
	No.	%	No.	%	No.	%	No.	%
difficult breathing	125	95.4	2	1.5	4	3.1	131	100
cough during night	78	59.5	32	24.4	21	16.0	131	100
joints' pain	35	26.7	63	48.1	33	25.2	131	100
chest tightness	120	91.6	5	3.8	6	4.6	31	100

Table 3 summarizes student's knowledge about symptoms of BA. Most of the students said that, BA causes shortness of breath (95.4%) (125 students), chest tightness (91.6%) (120 students) and (59.5%) (78 students) night cough. About one quarter of the participants (26.7%) (35 students) reported "it causes joint pain".

Table 4: Knowledge of the studied sample about the aggravating factors of bronchial asthma

Aggravating Factors of Bronchial Asthma	Yes		No		Don't know		Total	
	No.	%	No.	%	No.	%	No.	%
- smokes	123	93.9	2	1.5	6	4.6	131	100
- exercise	80	61.1	36	27.5	15	11.5	131	100
- common cold & or rhinitis	83	63.4	28	21.4	20	15.3	31	100
- perfumes or Bekhor	105	80.2	16	12.2	10	7.6	131	100
- animals	55	42.0	39	29.8	37	2.2	131	100
- special types of food	43	32.8	43	32.8	43	34.4	131	100
- changes in whether	100	76.3	13	9.9	18	13.7	131	100
- dust	118	90.1	6	4.6	7	5.3	131	100
- tension & social troubles	67	51.1	31	24.4	32	24.4	131	100

Student's knowledge about the aggravating factors of bronchial asthma was presented in table 4. Smokes and dust were recorded as the main aggravating factors by high percentages of the participants (93.9% and 90.1% respectively), followed by Perfumes & Bakhour

(80.2%), then the weather changes (76.3%) and common cold (63.4%). Anxiety and stress, exposure to animals, and intake of some types of food were mentioned by smaller percentages of the students (51.1%, 42% and 32.8% respectively).

Table 5: Knowledge score of the studied sample about bronchial asthma

Score	Boys		Girls		Total	
	No.	%	No.	%	No.	%
Low (0 – 6)	3	3.75	0	0	3	2.3
Intermediate (7 – 13)	43	53.75	22	43.1	65	49.6
High (14 – 20)	34	42.5	29	56.8	63	48.1
Total	80	100	51	100	131	100

P > 0.05

The total knowledge score ranged form 0 to 20. Only three students had the lowest score (0-6). The intermediate and high scores were obtained by nearly equal percentages of the students (49.6 % and 48.1% respectively). The percentage of high score was higher among girls (56.8%) (29 students) than boys (42.5%) (34 students) but this difference was statically not significant (P-value >0.05).

Table 6: Sources of information (knowledge) among the studied sample

Knowledge score	Number	Percentage
- medical or paramedical personnel	65	49.6%
- relatives and family members	35	26.7%
- Teachers	12	9.2%
- newspapers or magazines (printed materials)	12	9.2%
- Friends	6	4.6%
- television & radio	1	0.7%
- Total	131	100%

The students mentioned the sources of their knowledge and it was found that half of the studied sample (49.6 %) (65 students) received their knowledge about BA from medical and paramedical personnel while one fourth (26.7 %) (35 students) received it from their relatives. School teachers' and printed materials were recorded as source of information by same percentages of the participants (9.2%) (12 students). Only one student stated the T.V & Radio as a source of his knowledge.

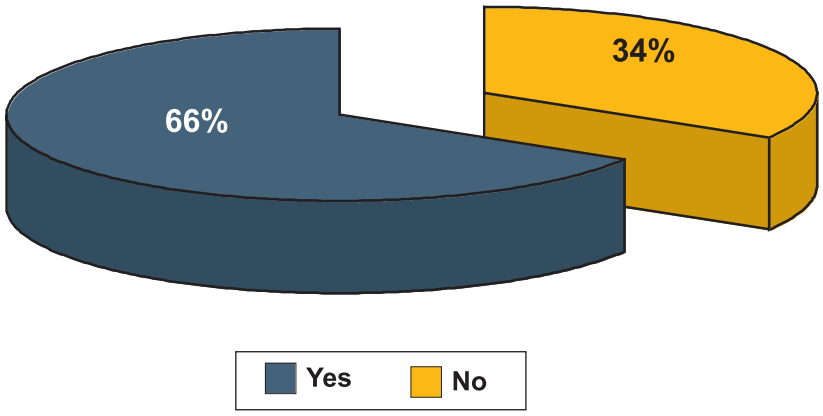

Figure 2: The effect of bronchial asthma on the school attendance

The diagram shows the opinion of the students regarding the effect of asthma on school absenteeism; in which 66% (87) of the students stated that they miss the school due to BA while 34% (44) considered that the disease has no effect on their attendance.

Discussion

It is known that the adult behavior patterns and attitudes develop in early childhood, especially during school age. It was our goal to study the awareness of students suffering from bronchial asthma regarding that disease. We hypothesized that the cases of bronchial asthma were well informed about their affected disease.

The clinically diagnosed cases of bronchial asthma who are participated in this study amounted to 131 students from governmental schools (grade 7-12) located in Wilayat Muttrah. They formed 2% of the total students (6370). The prevalence of bronchial asthma in our study is nearly in accordance with the prevalence of Iran study (4%) which is a clinical based diagnosis study.[4] The results showed that most of the cases were boys (79 boys & 52 girls); that is because the total number of male students in this sample was higher than the total number of female students.

It was alarming that about 10% of the cases were unaware of their illness despite they have been registered in the school health registry. This could be attributed to the presence of inappropriate registration or improper information system or miss use of school health records.

The finding of this study show that more than half of the studied students have positive family history of bronchial asthma. This finding was in accordance with the results of several studies which proved that bronchial asthma is a familial disease and it can also be caused due to external aggravating factors. [8]

Regarding students' knowledge about bronchial asthma fortunately, high percentages of the students got an intermediate and high knowledge score, but, still there is a need for further studies to assess their knowledge about other health problems in order to detect deficient health information to be covered by suitable health education messages.

Overall students showed good knowledge in area of epidemiology of bronchial asthma, its symptoms and the aggravating factors.

Unfortunately, there is a lack in the students' information regarding the complications and prevention of bronchial asthma especially in the role of the environment, exercise and types of food which also consider factors inducing acute attacks of asthma.

In general, poor health knowledge could be attributed to the fact that health education is not a priority at many schools; in addition health education are usually not included in the final year examination. Also, there are no formal or special health education programs covering the health needs of school children.

Surprisingly, this study revealed that, teachers and school personnel play a minimal role in the students' awareness, as the medical and paramedical personnel are found to be the first source of students' information, followed by relatives and family members. Such findings are supported by a study conducted in Bahrain which concluded that there was a deficiency in the teachers health knowledge,[9] and this ultimately affect their ability either to deliver health education or to manage acute health problems in the school.

In a Canadian study on the effectiveness of school based health education, [10] it was found that the delivery of consistently high quality health education in schools requires that all teachers are adequately prepared and acquire a substantial body of knowledge.

Asthma has medical, psychological and physical effects on school age children. The flare-up of asthma may lead to impaired daily function and absence from school. A study from California showed that on average,[7] a child with active asthma missed 2.6 school days per year. This is in accordance with our finding 66% of the studied cases mentioned that bronchial asthma affected their school attendance and they missed several school days. We have to consider this finding as a warning signal to give more attention to the role of health education as an important preventive tools for many health problems, which in turn affect the school attendance and the scholastic achievement of the students.

Conclusion

This study concluded that there is a need to educate the students about health matters especially for some chronic diseases as bronchial asthma which affects about 2% of school children. Also, especial attention should be given to the role of school teachers as an important source of students' information. There -for pre-service and in-service training programs regarding common health problems affecting school children are highly recommended to the school teachers to be able to propagate the sound health behaviors and to play their important role as health educators in school community. Health and education ministries in Oman should organize joint seminars to discuss and develop a suitable education package to be implemented in all levels of schools.

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