Knowledge of Bronchial Asthma Management among PHC Physicians in Qassim Region

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Abstract

Background: Asthma is a major but remediable global health problem. The prevalence of asthma in Saudi Arabian adults is 4.05 % and 8% - 25% in Saudi children. Most of the bronchial asthma care is provided by primary health care (PHC) physicians. Thus, the knowledge of the systemic nature of the disease of these physicians should be assessed. **Objectives:** To evaluate the theoretical knowledge of bronchial asthma management of primary health care physicians and family medicine residents in ArRass, Unayzah and Buraydah city. **Methodology:** A crosssectional study was conducted among PHCCs physicians of the largest three cities of Qassim region including FM residents' level 2 and 4. A self-administered questionnaire updated and redesigned according to SINA guidelines was used to evaluate theoretical knowledge of Bronchial asthma. Scoring was established and collected data was analysed and necessary statistical tests were applied. **Results:** Females physicians were 50.6% and 53% of the physicians were worked in Buraydah. 63% of the study participants from General practitioners and only 5.9% of them have good knowledge in managing BA. 67.9% of the males had poor knowledge compare to females approximately 32.1%. The knowledge of the residents was better than that of the PHC physicians. **Conclusions:** Based on study results, in general the knowledge of bronchial asthma management was little less than an expected general practitioner knowledge should have.

Key words: *Age, PHC Physicians, FM Residents, Bronchial asthma knowledge.*

Introduction

Worldwide, asthma remains one of the major non-communicable disorders contributing to morbidity and mortality. It is a hugely depressing fact that, despite the availability of effective treatments and evidence-based guidelines, outcomes have stalled, prompting the recent Lancet asthma commission.[1] It is one of the common diseases seen by primary care physician in Saudi Arabia; its prevalence is nearly 4.1%, and around 2 million people are affected in Saudi Arabia [2,3] and around 334 million people in the world are found to be affected as stated in the global asthma report [4]

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Global Initiative for Asthma (GINA) was established in 1993 by the World Health Organization and National Heart Lung and Blood Institute; the goal is to have a standard to prevent and manage asthma;[5] also, GINA guidelines shifted from subdividing asthma by severity because of its difficulty of application in practice; a tool was developed to help better assess the patients and to categorize them based on the control: controlled, partially controlled, and uncontrolled.[6, 7]

Furthermore, SINA is customized to align with available medication in the country. SINA was reviewed twice in 2012 including the guidelines for difficult-to-treat asthma and 2016, when this study was conducted; final version was focused on paediatric management, difficult patient and patient education.[8]

It is also vital to provide them with continuing postgraduate education about risk factors, diagnosis, management, control and prevention of the disease.[9,10] In view of the above, present study was designed to find

the knowledge of Bronchial asthma management among the primary health care physicians of Qassim region.

Objectives:

1. To find the level of theoretical knowledge of BA management of PHC physicians and family medicine residents.

2. To determine factors that affect physician's knowledge such as demographic factors and other factors association with Bronchial asthma management.

Materials and Method

Study Design and Setting:

This was a cross sectional study carried out in the PHC centres of randomly selected cities. These three cities were Buraidah, Unizah and ArRass. In which, these were the largest regarding number of PHCCs, physicians and population according to general authority of last report in 2017.

Sampling method:

In relation to selection of PHCCs, ArRass and Unizah we included all the PHCCs. But due to the large number of PHCCs in Buradah, which were around 44, we used Micro soft office Excel for the random selection of 22 PHCCs (Which accounts 50% of PHCCs in Buraidah). For the study participants selection, we included all physicians are working at PHCCs during our visit.

Sample size:

Sample size was calculated using WHO software for sample size determination. At 95% confidence level, 10% of absolute precision and an expected prevalence of 41%.[2] Sample size was 93 participants.

Study period:

This study was conducted from 1st July 2018 to June 2019. All physicians are working there at PHCCs at the time of our visits to those PHCCs.

Exclusion criteria:

Present family residents' level R1 and R3 residents and also Family medicine board consultants/specialist working at primary health care centres.

Inclusion Criteria:

All primary care physicians working at primary health care centres and Family medicine residents' level R2 and R4.

Method of Data Collection:

The data collection was done on two phases. First phase was the data collection of the family residents during one of the family medicine board education activities. Second phase of the data collection done by the principal investigator (first author) and two trained final year medical students on 20th of May. So, after random selection of the three cities: ArRass, Unazah and Buradah. The data collectors took the permission of each PHCC director before distributing the questionnaire. The data collectors were also asked to inform each participant about the purpose of the study explained verbally and also written in the questionnaire. They also asked to observe the participant, so they will not use a book or any kind of sources to solve the questions.

We started our data collection in ArRass to do our study and those physicians were willing to participate. On the next day we went to Unazah city and divided the 17 PHCCs into two days. We ended up with 21 participants in Unizah. Buradah city has around 44 PHCCs and we randomly selected 22 PHCCs using Micro soft Excel for random selection of the PHCC centres (which accounts 50% of Buraidah Primary health Care centres). Where we got 12 PHCCs Directors allowed us to do our study and provided those physicians willing to participate in our study. We ended up with 28 participants. The questionnaire has gone through four stages

Pilot study:

Pilot study conducted on 15 R1 family residents and later necessary modifications done.

Data analysis:

Statistical analysis was done by using the statistical software spss -21.0 version. Each question from 18 – 32 is scored: 0 as incorrect, 1 point as partially correct and 2 points as correct. So, a total of 15 questions = 30 points. A descriptive analysis was done for certain variables like age, sex, years of experience, qualification. For the categorical analysis of variables chi square test was applied. Fisher exact test was applied when > 25% of the cells had an observed frequency of less than 5. Multiple logistic regression analysis was done to assess the factors associated with good score. The level of significance of probability (P) was considered as 'p' less than equal to

0.05.

Ethical Clearance: Institutional ethical committee certificate was received from Regional Ethics committee, Buraidah, Qassim province, registered at National Bio & medical ethics committee, registration No: H-04-Q-001.

Results

In the study population, about 50.6% were in the age group of 25 to 35 years. In the present study clearly shown that about 55.6% of physicians were having fair knowledge, 9.8% were having good knowledge and 34.6% were having poor knowledge. In the study participants, among the 25-35 years of age group physicians, about 61% were scored as fair and 14.6% were scored as good. There was statistically significant association was observed between male physicians and poor BA score (P<0.05).

Among the Saudi physicians, about poor BA knowledge score was 23.1% and among the Non-Saudi physicians, approximately 40% of the physicians were poorly scored. In the study population, among the FM residents, about 15% of the residents were scored poor. Whereas other physicians, approximately 41% of the physicians scored poor bronchial asthma score. Physicians were having more than 10 years of experience have scored 43.6% poor BA score.

In the study population, those were having bronchial asthma disease, about 46.7% of physicians scored poor BA score. Whereas those were not having BA disease, approximately 31.8% scored poor BA score. Present study highlighted that those were having asthma material in their clinics, about 33.9% of the physicians scored poor bronchial asthma score.

Table: 1 - Professional profile status among the study population of Qassim region primary health care centres physicians.

Professional profile		Number	Percentage
Speciality	General Practitioner	51	63
	FM Consultant/Specialist	10	12.3
	FM R4	8	9.9
	FM R2	12	14.8
Year of Graduation	2007 or before	42	51.9
	After 2007	39	48.1
Years of Experience	10 years or less	42	51.9
	More than 10 years	39	48.1
Qualification	MBBS	62	76.5
	Diploma	15	18.5
	Saudi Board	0	0
	Arab Board	3	3.7
	Others	1	1.2

FM - Family Medicine. R - Resident.

Table 1 depicts that about 63% of the study participants from General practitioners, only 12.3% were from family medicine consultant or diploma.

Table: 2 - Experience and academic profile of physicians about Bronchial Asthma knowledge in study population.

Experience of BA profile		Number	Percentage
BA seen per Week	3 patients or less	47	58
	More than 3 patients	34	42
Patient seen per day	10 patients or less	34	42
	More than 10 patients	47	58
Do you have/had BA	Yes	15	18.5
	No	66	81.5
Family history of BA	Yes	36	44.4
	No	45	55.6
Guidelines	I don't use guidelines	5	6.2
	SINA	54	66.7
	GINA	19	23.5
	Others	3	3.6
Read SINA guidelines 2016	Yes	47	58
	No	34	42
Attend any BA conference	Yes	45	55.6
	No	36	44.4
Any materials in the clinic related to BA	Yes	56	69.1
	No	25	30.9

BA - Bronchial Asthma.

Table: 3 - Distribution of gender status according to Bronchial Asthma score.

Gender compare to score					
		Score			Total
		Poor	Fair	Good	
Gender	Male	19 (67.9)	16 (35.6)	5 (62.5)	40
	Female	9 (32.1)	29 (64.4)	3 (37.5)	41
Total		28	45	8	81
Fisher Exact test - 7.816, 2 df, P- 0.020*					

* - Statistically significant.

Table 3 revealed that among the study population, about 67.9% of the males were scoring poor category and among the females approximately 32.1% were scored poor bronchial asthma score.

Table: 4 - Multi-variable logistic regression analysis of the different factors associated with good Bronchial asthma knowledge score in study population.

Multi-variable logistic regression model for factors associated with good score in knowledge of BA management				
Variable		**OR**	**95% CI**	**P-Value**
Type of Physicians	Others	1	(0.86 - 45.8)	0.07
	Residents	6.27		
Gender	Male	1	(1.74 - 19.42)	0.004*
	Female	5.81		
Qualifications	MBBS	1	(0.74 - 15.45)	0.115
	Others	3.39		
Graduation Year	Before 2007	1	(0.53 - 65.69)	0.149
	After 2007	5.89		
Years of Experience	Less than 10 years	1	(0.44 - 39.6)	0.212
	More than 10 Years	4.19		
Patient seen per day	Less than 10 patients	1	(0.101 - 1.62)	0.201
	More than 10 patients	0.4		
Do you personally have BA	Yes	1	(0.73 - 18.30)	0.119
	No	3.63		
Attended a conference	Yes	1	(0.65 - 1.53)	0.153
	No	0.32		
Guideline	SINA	1	(0.43 - 8.30)	0.39
	Others	1.9		
Read SINA 2016	Yes	1	(0.1 - 1.84)	0.25
	No	0.43		

Table 4 stated that in the study population, after adjustment of all other factors, gender was significantly associated with Bronchial asthma knowledge score in the study (odd's ratio 5.81, P<0.05).

Discussion

In the present study, the mean age of the physicians and standard deviation were noticed as 38.20 ± 9.319. Approximately 50.6% were in the age group of 25 to 35 years in the present study. Alrabiah AM, Elsaid T, Tourkmani A et al conducted a study in Riyadh stated that under 40 yrs of the physicians working at primary health care centres of Riyadh region was shown as 73.1% [12] and same study revealed that females represented 57% of the sample.[12]

Similar classification observed by another studies conducted in Nigeria [11] and study conducted by Abudahish A, Bella H et al in Asser region of Abha and Khamis Mushayat [13] health sectors, in the year 2001 and similar scoring was followed.

In the current study among the primary health care physicians, the BA knowledge score observed as poor in 34.6%. Similar finding observed by a study done by Yousef HA, Koura M, Yousef AA et al in Saudi Arabia highlighted that among primary health care physicians about knowledge of BA score as poor in 41%.[2] Another study conducted by Abudahish A, Bella H et al revealed that poor knowledge score was observed about 37.7%.[13] Other studies done by Al-Hadad et al [16] (61% score),

Finkstien et al [14] (74% score), and Doerschug et al [15] (60% fair score) different studies in different places.

Considering different study populations, different age groups, variety of specialist doctors and methods of data collection. This higher percentage of knowledge may be due to the less strict cut-off point (50%) used in these studies in comparison to our study (60%).[12] In present study, the males were scoring poor category score and among the females comparatively. A study done by Wisnivesky JP, Lorenzo J, Lyn-Cook R, Newman T et al [17] revealed that female physicians have higher knowledge score comparatively males.

A study conducted by Cabana MD, Rand CS, Becher OJ et al [18] and alsoAlrabiah AM, Elsaid T et al stated that general practitioners showed lower average scores in BA management comparatively higher degree physicians. In our study FM residents shown higher score, still there is a gap to improve further and to get good score from poor knowledge.

A study conducted in Al-Khobar region revealed that in their study only 8.1% of the PHC physicians were used SINA guidelines and also mentioned only 8% of the physicians had good knowledge of management of Bronchial asthma score [2,19,20]. In spite of many challenges faced by investigators in relation to distance, PHC directors permission and physicians interest. Similar studies are important to substantiate present research study findings.

Conclusions

Based on study results, the knowledge of bronchial asthma management among PHC physicians was little less with other similar studies conducted in USA and Egypt and same BA knowledge score with other studies conducted in Saudi Arabia in different regions. Periodically training course of SINA guideline for all PHCCs physicians is required.

Source of Funding: None

Conflict of Interest: None

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