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International Journal of Health Research, December 2009; 2(4): 315-321

Available at http://www.ijhr.org

Original Research Article

Open Access
Online Journal

Assessing the Knowledge of Asthma Among Community Pharmacists in Edo State

Received: 09-Jun-09 **Revised:** 25-Dec-09 **Accepted:** 26-Dec-09

Abstract

Purpose: To assess the knowledge of community pharmacists about asthma and its management.
Methods: Seventy-six registered community pharmacists in Edo State completed a structured questionnaire consisting of open and close ended questions which addressed issues relating to their knowledge of asthma
Results: The mean knowledge score of the pharmacists was 8.04±1.79 over a maximum possible score of 14 (range of 4 to 14) corresponding to 57.4% which was thought to be average performance. Respondents performed best in issues relating to the definition of asthma and recognizing the features of asthma symptoms while areas of knowledge deficiency included recognizing the main symptoms of asthma, factors that can cause asthmatic attacks and the proper mode of delivering asthma medications. The knowledge of the respondents was unrelated to gender, age, additional qualifications and location of their premises. Pharmacists who had received a recent training on asthma had statistically significant higher scores (p=0.04).
Cconclusion: The knowledge of asthma by the community pharmacists surveyed was average. These results bring into focus the need for community pharmacists to undergo continuing professional education in order to update their knowledge and skills.

Keywords: Knowledge, Community pharmacists, Asthma, Benin City.

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Introduction

Community pharmacists have expanded their role in recent years to include giving health care advice to people with acute and chronic illness [1]. Pharmacists have the duty of providing pharmaceutical care to asthmatic patients and the quality of care will depend greatly on their attitudes to the knowledge base they possess on the pathophysiology and pharmacotherapy of the disease. A combination of right attitudes and vast knowledge of pharmacists and other health professionals are required for provision of excellent pharmaceutical care services to sufferers.

Epidemiological studies suggest that the prevalence, severity and mortality of asthma is rising at a time when mortality from other common treatable conditions is falling [2]. Under diagnosis and inappropriate treatment have been identified as major factors contributing to morbidity and mortality due to asthma [3].

In a study of 153 randomly selected south Australian general practitioners to determine the knowledge of, and reported asthma management, it was revealed that substantial differences existed between general practitioners in their knowledge and management practices including the assessment of the severity of asthma, the need for objective monitoring using spirometry, flow meters, and the use of medication [4]. Other studies have shown an improvement in asthma knowledge and management due to pharmacist's intervention [5-8]. In yet another study conducted to assess the level of knowledge of bronchial asthma by primary healthcare physicians serving a rural population on the Island of Crete, both before and immediately after a one – day educational course, Rothivis et al demonstrated the success of continuing medical education and affirmed that recent graduates in the studied population could be educated with more positive results than the fully qualified practitioners [4]. Patient counseling by pharmacists has also been found to improve the effective use of inhalers [9].

This study was carried out to assess the knowledge of community pharmacists in Benin City, Nigeria about asthma, and to establish the effect of variables such as gender, marital status, additional qualifications, years of qualification, places of practice and recent training on their knowledge about asthma.

Methods

Study Population

The study was carried out in Edo State, in the Southern part of Nigeria. The population employed comprised superintendent pharmacists who were either the founding or resident pharmacists in the community pharmacies across the State. Community pharmacy, which is also referred to as "General Practice Pharmacy" is the area of the profession that engages in distribution and retailing of ethical as well as proprietary medicines to their clients who constitute the end users of the products. As at the time of this study, there were about 80 registered community pharmacies in Benin City, the Edo State capital, and about eighty others scattered across other parts of the State.

Study design

The study was conducted among all the registered pharmacists practicing in the community setting primarily in Benin City and a convenient additional sample of twenty-five other community pharmacists practicing in other parts of the State. The research instrument was a structured asthma knowledge questionnaire consisting of open and close-ended questions with multiple choice responses which was self-administered to all the pharmacists. The questionnaire was made up of two parts. While the first part contained the respondents' demographic details such as age, sex, marital status, qualification, additional qualification, years of qualification

(experience), practice location (whether rural or urban) and whether or not they had received any recent training on asthma, the second part utilized the standard questionnaire of the Department of Chest Diseases and Tuberculosis of the Faculty of Medicine, Suleyman Demirel University, Istanbul, Turkey which consisted of 14 multiple choice questions used to assess students' knowledge of asthma [10]. This instrument covered questions on the definition and symptoms of asthma, changes in the airway structure during acute attacks of asthma, prophylaxis and treatment, prevention strategies. Other knowledge-related questions in the instrument included the most adequate delivery form, dosage form for asthma medications and the predisposing factors, among others.

Analysis of data

Each correctly answered question was given a score of 1 and the total score was calculated for each respondent as a percentage of 14 (100%), being the maximum obtainable score. Data collected from the questionnaire were collated and entered into the Microsoft Excel package. They were then fed into the SPSS version 10.0 and Graphpad Instat version 3, respectively, in order to obtain the descriptive and inferential statistics, using a two-tailed test. At 95% confidence interval, p values less than 0.05 were considered to be significant.

Results

Of the 85 pharmacists administered the questionnaire, 76 responded giving a response rate of 89.4%. The mean age of the respondents was 38.14 years while the modal age range was 31-40. Only one respondent was over 60 and females accounted for 36.8% of the respondents (Table 1). Of the 76 pharmacists, 52 (68.4%) were married. All had a BPharm degree as the basic degree required for the practice of the profession. Some of them (55.3%) had no additional qualifications while 34 (44.7%) had various additional qualifications as shown in Table 1. The average number of years of experience of the respondents was 11.4 while the modal range was 1 – 5 years. All except one (1.3%) of the respondents obtained their first degree in Nigeria. Twenty-two (28.9%) of the respondents claimed that they practiced in rural areas while 54 (71%) practiced in the urban setting. Only 15 (19.7%) of the community pharmacists who completed the questionnaire had a recent training on asthma.

Table 1: Sociodemographic variables of respondents

Variable	Frequency (%)
AGE (YEARS)	
25 – 30	17 (22.4)
31 – 40	32 (42.1)
41 – 50	21 (27.6)
51 – 60	5 (6.6)
> 60	1 (1.3)
SEX	
Female	28 (36.8)
Male	46 (60.6)
Not indicated	2 (2.6)
MARITAL STATUS	
Married	52 (68.4)
Single	24 (31.6)
ADDITIONAL QUALIFICATION	
FPC Pharm, PhD	42 (55.3)
MPH	1 (1.3)
MSc	2 (2.6)
MSc, FPC Pharm	11 (4.5)
MSc, MBA	2 (2.6)
MBA	1 (1.3)
PGDE	1 (1.3)
PharmD	1 (1.3)
PharmD, MPH	14 (18.5)
YEAR OF QUALIFICATION	
Not indicated	1 (1.3)
1 – 5 years	22 (28.9)
6 – 10 years	20 (26.4)
11 – 15 years	6 (7.9)
16 – 20 years	12 (15.8)
Over 20 years	15 (19.7)

Table 2: mean knowledge score among respondents

Variables	N	Score (mean±SD)	%	P value
SEX				
Female	28	8.10±1.95	57.86	0.68
Male	46	7.92±1.58	56.57	
AGE				
25 -30	17	8.35±1.9	59.64	0.783
31 – 40	32	7.81±1.8	55.78	
41 – 50	21	8.14±1.9	58.14	
51 – 60	6	8.0±1.1	57.14	
Additional qualification	34	7.71±1.7	55.07	
No additional qualification	42	8.31±1.8	59.36	0.145
LOCATION				
Rural	22	7.64±1.9	54.57	0.213
Urban	54	8.20±1.7	58.57	
RECENT TRAINING				
Yes	15	8.87±1.36	63.36	0.04
No	59	7.81±1.86	55.78	

The mean knowledge score for all pharmacists in the study was 8.04±1.79 (range, 4-14) corresponding to a mean percentage score of 57.4%. Only 1 pharmacist (1.3%) answered all the questions correctly. There was no significant difference in the knowledge score of the respondents based on gender, age, additional qualification and location. However, pharmacists who reported that they had a recent training on asthma had significantly higher scores than those who had no recent training (p=0.04, Table 2). There was also no significant correlation between the years of qualification and knowledge scores (r = 0.024 (0.2087–0.2545).

Table 3 shows the performance of the respondents in correctly answering the questions in descending order of magnitude. Respondents performed best in the definition of asthma as 72 (94.7%) of them answered the question correctly. This was closely followed by their ability to recognize the features of asthma symptoms by 71 (93.7%) of them. Sixty-six (86.8%) responded that asthma medications do not cause addiction while 63 (82.9%) answered correctly that asthma is related to inheritance. Respondents recorded their worst performance in recognizing the main symptoms of asthma as 71 (93.4%) answered the question poorly. Majority of them 59 (77.6%) also fared badly in stating the factors that can cause asthmatic attacks. It is pertinent to note that 33 (43.4%) of the respondents did not know the adequate way of delivering asthma medications while 27 (35.5%) could not identify the characteristics of inhaled medications.

Discussion

The role of the pharmacist in the prevention and treatment of asthma demands that the health professional that provides comprehensive pharmaceutical care should be adequately equipped with sound knowledge of the disease and its management. The average knowledge of asthma among the pharmacists studied is a reflection of the likely way the respondents manage patients with asthma. This is a grim and crucial finding especially when considered against

Table 3: frequency distribution of answers to questionnaire items

Question	Correct answer N (%)
1. Which is the definition or asthma?	72 (94.7)
2. Which is a feature of asthma symptoms?	71 (93.4)
3. Do asthma medications cause addiction?	66 (86.8)
4. Is asthma a disease related to inheritance?	63 (82.9)
5. Is it possible to control asthma completely with treatment and carry on a normal life?	55 (72.4)
6. How does the airway wall structure change during an acute attach of asthma?	54 (71.1)
7. Which is correct about the prophylactic treatment of asthma?	44 (57.9)
8. Which of the following is the first choice drug during an asthma attack?	43 (56.6)
9. How can asthma attack be prevented during exercise?	43 (56.6)
10. Which is the most adequate way of delivering asthma medications?	33 (43.4)
11. Mark the correct answer for the inhaled medication of asthma	27 (35.5)
12. Which is the prophylactic medication to prevent asthma attacks?	19 (25.0)
13. Write down all the factors you know that can cause asthma attacks	17 (22.4)
14. What are the main symptoms of asthma?	5 (6.6)

the backdrop of the fact that community pharmacists are key professionals from whom patients with asthma seek advice on matters concerning their disease and asthma medication use [11,12].

Majority of the pharmacists were able to correctly define asthma, recognize and state the important symptoms as expected. Many of them also responded that asthma medications do not possess addictive tendencies and quite a number recognized the linkage between this disease and inheritance, as would be expected of pharmacists. These were the areas where the pharmacists demonstrated high levels of knowledge of the disease. Pharmacists should be able, not only to define and characterize disease states but also to recognize their clinical features in order to perform their counseling and therapeutic drug monitoring roles effectively. Pharmacists in this study have been able to demonstrate adequate knowledge in these important aspects.

It has been documented that safe and effective drug therapy most frequently occurs when patients are well informed about their medications [16]. However, in this study, respondents recorded their worst performances in the recognition of the main symptoms of asthma while majority of them could also not state the factors that could precipitate asthma attacks. Surprisingly, many of the respondents could not correctly state the most adequate way of delivering asthma medications. This is probably due to the business inclination of most community pharmacists who may not appreciate the need to acquire skills and knowledge in these areas, or may not make out time to do so. More intriguing was the finding that many pharmacists in the group did not know the prophylactic medications for asthma while a good number also did not know the features of inhaled medications. These are very serious areas of knowledge deficit which could impact on the quality of pharmaceutical care given to the asthma sufferers. This poor knowledge of pharmacists in these vital areas, if not addressed, may lead to poor compliance by patients and result in

treatment failure. For instance, it has been reported that incorrect use of inhalers has led to sub-optimal treatment in up to 75% of patients using metered-dose inhalers [12].

Gender difference did not contribute significantly to the knowledge score of the studied population. This was expected since there is no gender discrimination in the training of pharmacists and sex therefore was not expected to have predictive influence on the knowledge of the practitioners. Similarly, differences in age groups did not also have any effect on mean knowledge scores; this implies that amongst our respondents', age did not contribute significantly to asthma awareness. The poor impact of the additional qualifications acquired by our surveyed community pharmacists on their knowledge of asthma may appear curious on the surface but would become well understood on the basis of the wide differences that existed in the nature of the various additional qualifications obtained by the respondents, most of which had little or no bearing with the knowledge of the subject under investigation. Even the acquisition of a PharmD degree, which involves patient oriented pharmacy education, did not seem to make a difference since most of its holders did not perform better than others. This may be an important predictor of some apparent deficits in the training programme which may need to be addressed if the course is to meet its desired lofty objectives.

The difference between the mean score of the respondents who practiced in the rural areas and those in the urban areas was found to be of no statistical significance. This suggests that location of practice does not necessarily serve as a motivating factor for pharmacists to acquire increased knowledge. It was obvious from results obtained that years of experience did not prove to exert any significant influence on the knowledge score of the pharmacists. This may mean that pharmacists in community practice do not seek to improve their knowledge after graduating from pharmacy schools, and where they do, the knowledge is inadequate or not relevant to the topic under study here. This is further buttressed by the fact that those who reported that they had a recent training on asthma, irrespective of their years of experience, did significantly better than those who had not received any training on management of the disease. This result further implies that specific and continuous training on regular basis is important for acquisition and sustenance of knowledge. Rothivis et al, who assessed the knowledge of bronchial asthma among primary healthcare physicians in Crete immediately before, and after an educational course, earlier reported that continuing medical education significantly contributed to improvement of knowledge in the management of the disease [13]. Educational programmes based on self-learning in small peer groups, have also been said to be effective in improving knowledge of asthma management [14]. Another study demonstrated that educating pharmacy practitioners resulted in improved patient outcomes [15].

Limitations of the study

The results of this study are limited by the relatively small sample size used in the study. A nation-wide survey of this type study may produce a more reliable information about the knowledge of pharmacists.

Conclusion

Pharmacists in this study demonstrated average knowledge regarding asthma. Age, gender, years of experience, possession of additional qualifications and practice location had no significant influence on the knowledge of community pharmacists about asthma, in Edo state of Nigeria. However, participation in recent training programmes that were focused on asthma had statistically significant impact on the outcome of the study. Knowledge gaps were also detected in very important areas which may have arisen as a result of deficiencies in the training curriculum of pharmacists, especially

in the areas of pathophysiology and symptomatology. Even more striking was the discovery of deficiency in the knowledge of pharmacists on asthma medications. The most important outcome of this study is the evidence of the significance of disease-specific trainings, seminars and workshops on continuous basis as a necessary tool for updating and refreshing knowledge of practitioners on various aspects of their practice.

It is therefore recommended that community pharmacists should be encouraged to undergo continuous training in order to arm themselves with adequate knowledge and skills needed to provide quality pharmaceutical care services required of them. Also, the areas of knowledge gaps in pathophysiology and chemotherapeutics should be promptly addressed if pharmacists are to be sufficiently equipped for patient – oriented healthcare service delivery. The need for residency training in specialties and sub-specialties, at this juncture is advised.
We declare no conflict of interests

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