ORIGINAL ARTICLE

Knowledge and Attitude of Physicians in Management of Asthma According to GINA Guidelines

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ABSTRACT

Objective: To determine the knowledge and attitude related to the management of asthma according to GINA guidelines among healthcare professionals working at Tertiary Care Hospitals of Karachi.

Study Design: Cross-sectional study.

Place and Duration of Study: The study was conducted at the Department of Pediatrics, Abbasi Shaheed Hospital in Karachi, from October 2021 to April 2022.

Material and Methods: Data from 97 healthcare practitioners were gathered after securing verbal consent. Quantitative data were analyzed using basic descriptive statistics such as mean and standard deviation, while qualitative variables were represented through frequencies and percentages. Stratification was utilized to account for effect modifiers and evaluate their impact on the outcome variable. Subsequently, post-stratification chi-square tests were conducted, with significance set at ≤0.05.

Results: This study comprised 97 healthcare professionals. Of these, 56 (57.7%) were male and 41 (42.3%) were female. Among the 97 healthcare practitioners, knowledge about the management of asthma according to GINA guidelines was as follows: 45 (46.4%) had good knowledge, 25 (25.8%) had moderate knowledge, and 27 (27.8%) had poor knowledge.

Conclusion: The study revealed that there was good knowledge of epidemiology and clinical features of asthma according to GINA guidelines, but a small number of the doctors had knowledge of pathophysiology and treatment of the disease Nevertheless, they exhibited a positive attitude toward asthma management according to GINA guidelines. For best practices in asthma management, there is a need for further education

Key Words: *Knowledge, Asthma, GINA guidelines and health care professional.*

INTRODUCTION

Asthma is a chronic inflammatory disease that is one of the major causes of mortality and morbidity around the world.[1] Currently, approximately 300 million people are affected worldwide.[2] According to previous studies, the prevalence of asthma in developed countries is reported to be more than

10%, while prevalence rates are increasing in developing countries due to urbanization.[3] Among Pakistani children, 10.2% asthma prevalence was recorded according to the ISAAC (International Study of Asthma and Allergies in Childhood) study.[4]

Asthma is still underdiagnosed and undertreated, and 50% of patients are found to have poor control.[5,6] To standardize asthma management, the Global Initiative for Asthma (GINA) was started in 1989.[7] Several surveys have been conducted, indicating that health facilitators are not implementing these guidelines.[8] This issue is especially evident in low-income countries, where lack of awareness, poverty, minimal resources, and cultural and environmental factors are the major barriers.[9] The initial asthma management is usually conducted by General Practitioners (GPs) because patients first present to them in our community.[10] In America, a study by Janson and Weiss showed a lack of knowledge about the pathophysiology and management of asthma among different doctors.[11] In Taiwan, discernible disparities in both knowledge and practice were evident across different categories of doctors.[12] Despite new information and guidelines, physicians are unable to follow these guidelines for several reasons, such as reliance on previous practice and inadequate knowledge of guidelines.[13,14]

Through Continuing Medical Education (CME) programs, doctors are trying to close the gap between evidence-based practice and practices that are actually taking place.[15] Salama et al. assessed physicians' knowledge involved in direct childhood asthma care in Cairo, Egypt, revealing their understanding of the subject to be 71.5% good and 28.5% poor.[16]

MATERIAL AND METHOD

This cross-sectional study was conducted at the Department of Pediatrics, Abbasi Shaheed Hospital, Karachi, over six months, from October 2021 to April 2022, after approval from the concerned authority. The sample size was calculated using WHO software, with poor knowledge prevalence at 28.5 %, margin of error at 9%, and a confidence level of 95%.[16] The required sample size came out to be 97 healthcare professionals. The sample was collected using a non-probability consecutive sampling technique. Healthcare professionals engaged in direct childhood asthma care for more than three months in different tertiary care hospitals in Karachi were included. All healthcare professionals provided informed consent before their inclusion in the sample and utilization of their data for research purposes.

A self-administered questionnaire with 31 questions was used to assess the knowledge of healthcare professionals. The survey evaluated participants' understanding of the recommended treatments, diagnostic criteria, and management strategies according to the GINA guidelines. The questionnaire was organized into two primary sections. The first section collected demographic details such as age, gender, years of work experience, and job description. The second section addressed healthcare professionals' awareness and knowledge of the changes and updates introduced by GINA in 2019.[17]

The data were analyzed using SPSS version 20. Quantitative variables, such as age and years of experience, were described using mean and standard deviation, while frequency and percentage were calculated for qualitative variables, including gender, qualification, attendance at asthma CME events, and knowledge. Effect modifiers were managed by categorizing the data based on gender, age, years of experience, and qualification to assess their impact on the outcome variable. A post-stratification chi-square test was conducted with a significance level set at $p \leq 0.05$ to determine statistical significance.

RESULTS

A total of 97 healthcare professionals (HCP) in the Department of Pediatrics at Abbasi Shaheed Hospital, Karachi, matched the inclusion criteria to become part of this study.

Table 1 shows that among the sample of 97 HCPs, 56 (57.7%) were male and 41 (42.3%) were female. The frequency distribution of age showed that out of 97 healthcare professionals, 37 (38.1%) were in the age group of 25-35 years, 36 (37.1%) in 36-45 years, 10 (10.3%) in 46-55 years, and 14 (14.4%) in 56-65 years. Among healthcare professionals, 60.8% had less than five

years of experience, while 39.2% had more than five years of experience. The frequency distribution according to job description revealed that out of 97 healthcare professionals, 44 (45.4%) were house officers, 10 (10.3%) were medical officers, 22 (22.7%) were residents, and 21 (21.6%) were consultants. Additionally, 30.9% of participants had attended asthma CME, whereas 69.1% had not attended asthma CME.

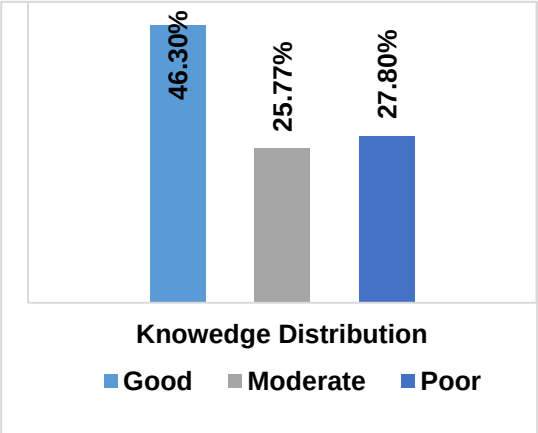

Fig 1: Knowledge distribution regarding management of asthma according to GINA guidelines (n=97)

TABLE 1: Demographic characteristics (n=97)

Variables	Frequency	Percentage
Gender		
Male	56	57.73
Female	41	42.27
Age Distribution		
25-35 Years	37	38.14
36-45 Years	36	37.11
46-55 Years	10	10.31
56-65 Years	14	14.43
Years of Experience		
< 5 Years	59	60.82
> 5 Years	38	39.18
Job Description		
House Officers	44	45.36
Medical Officers	10	10.31
Residents	22	22.66
Consultants	21	21.65
Asthma CME Attendance		
Yes	30	30.93
No	67	69.07
Higher	78	48.1

Out of 97 healthcare professionals, 45 (46.4%), 25 (25.8%), and 27 (27.8%) had good, moderate, and poor knowledge, respectively, about managing asthma according to GINA guidelines (fig 1).

TABLE-2: Knowledge Distribution According to Age (N=97)

Age (Years)	Knowledge			Total (%)
	Good (%)	Moderate (%)	Poor (%)	
25-35	20 (44.4)	08 (32.0)	09 (33.3)	37 (38.1)
36-45	20 (44.4)	04 (16.0)	12 (44.4)	36 (37.1)
46-55	02 (4.4)	06 (24.0)	02 (7.4)	10 (10.3)
56-65	03 (6.7)	07 (28.0)	04 (14.8)	14 (14.4)
Total	**45 (100.0)**	**25 (100.0)**	**4 (100.0)**	**97 (100.0)**
p-value		0.01		

Stratification for age regarding Knowledge showed that 20 (44.4%), 20 (44.4%), 02 (4.4%), and 03 (6.7%) healthcare professionals who were between age 25-35 years, 36-45 years, 46-55 years and 56-65 years had good knowledge respectively. Whereas 08 (32%), 04 (16%), 06 (24%), and 07 (28%) healthcare professionals who were in the age group 25-35 years, 36-45 years, 46-55 years, and 56-65 years had moderate knowledge respectively. Finally, 09 (33.3%), 12 (44.4%), 02 (7.4%), and 04 (14.8%) healthcare professionals who were in the age groups 25-35 years, 36-45 years, 46-55 years, and 56-65 years had poor knowledge respectively. A significant association was found as the p-value was 0.01.

TABLE-3: Knowledge Distribution According to Gender (n=97)

Gender	Knowledge			Total (%)
	Good (%)	Moderate (%)	Poor (%)	
Male	24 (53.3)	15 (60.0)	17 (63.0)	56 (57.7)
Female	21 (46.7)	10 (40.0)	10 (37.0)	41 (42.3)
Total	45 (100.0)	25 (100.0)	4 (100.0)	97 (100.0)
p-value		**0.70**		

Stratification for gender in accordance to knowledge revealed that 24 (53.3%) males had good knowledge, 15 (60%) males had moderate knowledge, and 17 (63%) males had poor knowledge in this area. On the contrary, 21 (46.7%), 10 (40%), and 10 (37%) females had good, moderate, and poor knowledge, respectively, with a p-value of 0.70 (Table 3).

TABLE 4: Knowledge Distribution According to Years of Experience (N=97)

Years of experience	Knowledge			Total (%)
	Good (%)	Moderate (%)	Poor (%)	
<5 Years	28 (62.2)	15 (60.0)	16 (59.3)	59(60.8)
>5 Years	17 (37.8)	10 (40.0)	11 (40.7)	38(39.2)
Total	45 (100.0)	25 (100.0)	4 (100.0)	97(100.0)
P value		**0.96**		

Stratification for years of experience with respect to knowledge showed that 28 (62.2%), 15 (60%), and 16 (59.3%) who had years of experience for < 5 years had good, moderate, and poor knowledge, respectively. Meanwhile, 17 (37.8%), 10 (40%), and 11 (40.7%) who had years of experience for > 5 years had good, moderate, and poor knowledge, respectively, with a p-value of 0.96. (Table 4)

TABLE 5: Knowledge Distribution According to Qualification Status (N=97)

Qualification status	Knowledge			Total (%)
	Good (%)	Moderate (%)	Poor (%)	
House Officers	19 (42.2)	13 (52.0)	12 (44.4)	44 (45.4)
Medical Officers	05 (11.1)	02 (8.0)	03 (11.1)	10 (10.3)
Residents	11 (24.4)	06 (24.0)	05 (18.5)	22 (22.7)
Consultants	10 (22.2)	04 (16.0)	07 (25.9)	21 (21.6)
Total	45 (100.0)	25 (100.0)	4 (100.0)	97 (100.0)
p-value		**0.96**		

Stratification for qualification status with respect to knowledge showed that 19 (42.2%), 05 (11.1%), 11 (24.4%), and 10 (22.2%) health care professionals who were in qualification status group house officer, medical officer, residents, and consultants had good knowledge respectively. Whereas 13 (52%), 02 (8%), 06 (24%), and 04 (16%) health care professionals who were in the qualification status group house officer, medical officer, residents, and consultants had moderate knowledge, respectively. Finally, 12 (44.4%), 03 (11.1%), 05 (18.5%), and 07 (25.9%) healthcare professionals who were in the qualification status group house officers, medical officers, residents, and consultants had poor knowledge, respectively, with a p-value of 0.96. (table 5)

DISCUSSION

Asthma is one of those non-communicable diseases that affect about 235 million individuals around the world. In accordance with GINA guidelines, the purpose of asthma therapy is to achieve and sustain disease control. Before 2006, according to the GINA, assessment of the severity

of asthma was advised to approach treatment stepwise. However, assuming severity as a major outcome measure has been challenging for asthma management as it has restricted value in anticipating the type of treatment and its response to that particular therapy. Asthma management based on its control seems to be more beneficial and easier to use than severity, as asthma is considered a variable condition and better indicates the consequences of the disease and medication required.

One Egyptian study showed that 76.2% of the studied physicians were in agreement with asthma guidelines; however, those physicians who disagreed with the guidelines alleged that this was mainly due to some patient factors, in which the major factor was found to be the poor socioeconomic standard of the patient (18.1%) and 16% due to poor patient compliance. Whereas the physicians included in the study were found to have poor knowledge (28.5%), poor practice (43.6%), and poor attitude (43.6%). Results showed that the qualification of physicians had a significant association with knowledge, practice, and attitude, as the p-value was <0.01.[18]

A study conducted in Pakistan concluded that 28.6% of GPs had adequate knowledge of the core concepts of asthma, while only 10.4% had adequate practice in asthma management.[19] In this study, more than 40% of healthcare professionals demonstrated good knowledge related to asthma management. According to a previous study, insufficient physician knowledge is a key factor in inconsistent adherence to clinical guidelines, particularly outside specialized pulmonology settings. While patients in the pulmonology OPD were consistently managed according to GINA guidelines, fewer than half of those seen in general medical OPD or local GP practices received care aligned with these standards.[20]

Desalu et al. showed that the doctors' overall knowledge score regarding asthma control management (ACM) tools averaged 4.49 ± 2.14 out of a maximum of 12. Pulmonologists demonstrated the highest level of knowledge, scoring 10.75 ± 1.85. However, most (69.6%) doctors exhibited a poor understanding of ACM tools.

Only 25.8% of doctors assessed their patients' asthma control, with 17.5% doing so at every visit. Only 20.1% of doctors incorporated ACM tools into their consultations, with 15.0% using GINA-defined control and 5.2% employing the asthma control test (ACT). The utilization of ACM tools was more common among pulmonologists, those who had attended a continuing medical education (CME) session within the previous six months, and those who had graduated within the past five years.[16]

In a separate study conducted in Nigeria, 283 doctors were surveyed. Almost 88% of them recognized asthma as a common disease in their environment (p = 0.04), but they did not find it related to socioeconomic status. Medical officers and registrars showed poor knowledge of asthma epidemiology (p= 0.04).

The findings revealed that a large proportion of doctors (80%) recognized the importance of bronchospasm in exacerbations, while 58.6% (166/283) identified chronic inflammation as a significant factor in asthma pathogenesis (p < 0.001). Notably, 84.1% were knowledgeable about using steroids in acute exacerbations, but 59.4% considered aminophylline as the primary medication for exacerbations (p = 0.02). Only a small fraction (1.7%) demonstrated awareness of using steroids as controller medication. Furthermore, just 47.3% (134/283) of the participants were familiar with the Global Initiative on Asthma guidelines (p-value 0.03). In certain countries, there are limitations, such as resource constraints and technical challenges, as well as limited availability of infrastructure for conducting tests like spirometry, nonspecific bronchial reactivity tests, exhaled nitric oxide (FeNO), and sputum eosinophils. These tests can be expensive and not widely accessible. The optimal instrument for gauging asthma control should be user-friendly and suitable for use across all healthcare settings. It should also be time-efficient, yield consistent results, and feature a simple scoring mechanism. Furthermore, it should display sensitivity to alterations in asthma control over time, provide recommendations for treatment modifications, and maintain consistent performance regardless of the availability of lung function data.[5] Since most objective measures do not meet the criteria of an ideal tool,

questionnaires for recording patient-reported outcomes are considered the best approach to assessing asthma control. The Global Initiative for Asthma (GINA) working scheme recommends using certain tools for this purpose.

CONCLUSIONS

The survey results shed light on the frequent lack of asthma control in routine practice, which is partially attributed to physicians' insufficient grasp of asthma management guidelines. Integrating new guidelines into clinical practice necessitates a complex change in physician behavior. Physicians need to comprehend the implications of new guidelines and scientific findings for patient care and incorporate these changes into their clinical practice. Continuing medical education (CME) often serves as a conduit for disseminating such information to physicians. To improve the effectiveness of CME initiatives, it's essential to regularly evaluate physicians' educational requirements and confirm their comprehension of pertinent guidelines.

Conflict of interest: Nil

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