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Breaking Barriers in Pharmacy-Based Asthma Care: Challenges and Pathways to Effective Asthma Management

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ABSTRACT

Introduction: Asthma, chronic respiratory disease affecting many people worldwide and remains public healthcare concern. Many scientific developments over the last 20 years have enhanced our knowledge of asthma and our capacity to successfully cope with and regulate it Since therapy and accurate medication consumption can decrease signs of asthma and disease development, recent recommendations emphasize the need to educate patients to how to manage their own conditions. **Objectives:** To study the barriers in asthma management and gathering the data regarding percentage of pharmacists managing asthma patients. Pharmacists are chosen voluntarily. **Method:** We surveyed 234 pharmacists currently working in community and hospital pharmacies in Lahore. The study outcome was self-reported that pharmacists have enough confidence, skills and time to asthma counseling and monitoring. Potential barriers included that the patients do not have enough time about empathetic discussions and counseling and providers do not receive incentives for counseling. **Result:** Most pharmacists reported that they have enough time for counseling (41%) and have enough confidence and skills in asthma monitoring (45%) and check patients inhalation techniques (41%) but patients' point of view is that counseling is not pharmacist's job and don't agree on empathetic discussion with pharmacist (36%). **Conclusion:** Pharmacists are skilled and active in asthma management, improving patient self-care and adherence to guidelines. However, challenges include patient reluctance and pharmacists' lack of incentives and support for further education.

INTRODUCTION

The condition known as asthma affects the conducting airways, which spontaneously and in reaction to a variety of intrinsic and extrinsic stimuli constrict excessively and too readily. Raised production of mucus and elevated sensory irritation of airway are associated with this airway increased responsiveness. Variations in the external variables that interact with the airways to induce both chronic and acute inflammation, as well as differences in the contributions of smooth muscle contraction, fluid retention, and modifying of the established parts of the airways, are responsible for the various clinical presentations of asthma. The varying responses to medicines are also associated with the diversity of asthma. Though no one gene or external variable is responsible for the condition, asthma is thought to be an excellent illustration of how genes and environment interplay. (Holgate 2008)

The percentage of people with asthma in the general population or in a specific subgroup (such as 13 to 14-year-olds) at a certain time is known as the asthma prevalence. Since many asthmatics have sporadic symptoms and may not have any on the study day, this typically necessitates a review of symptoms over a predetermined time period (such as the previous year).Studies on asthma that are population-centered are

typically conducted beyond of the primary school age range. When consulting a physician is not feasible, questionnaires are the preferred method. Consequently, written questionnaires have been the main tool used for assessing the frequency of asthma symptoms in community research. These questionnaires need to be standard in order to allow for meaningful comparisons; that is, they need to adhere to a set of inquiries in an organized questionnaire and be distributed in accordance with a predetermined protocol that includes information about the number of participants, age range, and sampling structure.

Global Health Survey "The most comprehensive and extensive source of data on adult asthma in nations with low revenues is the World Health Survey (WHS), which was conducted in 2002–2003 by the World Health Organization(WHO).

There were variations of up to 21 times between the 70 countries in worldwide rate of occurrence of adult wheezing (8.6%), clinical/treated asthma (4.5%), and doctor-diagnosed asthma (4.3%)."Asher, García-Marcos et al. (2020)

Many scientific developments over the last 20 years have enhanced our knowledge of asthma and our capacity to successfully cope with and regulate it. However, guidelines for asthma management must be tailored to specific situations worldwide due to the variety of medical facilities and discrepancies in the accessibility of asthma medicines. Health professionals need to know about how much asthma therapy prices are and how to create initiatives and amenities that correspond to the specific requirements and conditions in their nations. Bateman, Hurd et al. (2008)

Since therapy and accurate medication consumption can decrease signs of asthma and disease development, recent recommendations emphasize the need to educate patients to how to manage their own conditions.Approximately ninety percent of hospital admissions related to asthma, according to some specialists, can be avoided if patients receive more regular, persistent therapy, guidance, and instruction. However, research has shown that asthmatics have limited understanding of asthma and comply inadequately to medication treatment. Mangiapane, Schulz et al. (2005)

The establishment of a collaborative relationship between the asthmatic and their medical service provider—or, in the case adolescents with asthma, their parents or guardians—is essential for effective control of asthma. Bateman, Hurd et al. (2008)

Using the information, views, and behaviour framework, suppliers hurdles to complying to asthma regulations were assessed. This approach, which has been used in related research in the past, implies that adhering to a program requires overcoming both intrensic and extrensic challenges. Extrinsic challenges generally limit the ability of the practitioner to enforce compliance, whereas intrensic challenges generally influence loyalty through the intellectual aspects of understanding, views, and practice pattern. In order to assess possible intellectual barriers, healthcare professionals were questioned regarding their knowledge and level of comfort with the NHLBI (National Heart, Lung, and Blood Institute) asthma regulations. Wisnivesky, Lorenzo et al. (2008)

Although failure to comply to inhaled treatment is widespread between people with asthma due to purposeful or accidental reasons, compliance to preventer therapies represents a significant issue. Although proper use of inhalers is necessary for efficient medication delivery, an evaluation of research revealed that inhaler technology improper use occurs commonly in operation, which leads to inadequate management of asthma. Therefore, the need of putting initiatives in place targeted at enhancing patients' understanding, abilities, and potential for control themselves their asthma has been emphasized in current asthma recommendations. García-Cárdenas, Sabater-Hernández et al. (2013)

The confirmation and straightforward treatment of asthma in youngsters shared a number of common aspects in the formation of these worldwide recommendations. Operationally, asthma was defined as "episodic wheeze and/or cough in a medical facility where asthma is probably and other uncommon illnesses have been eliminated" for the objective of the discussion. Obtaining a complete medical records is necessary before confirming asthma. Only the clinical perception and reliable information supporting treatment suggestions are utilised as justification for additional examination. A general characteristic of an integrated strategy is an understanding of the significance of education, guidance, and mental health concerns. The recommended order of dosages for medications is as follows: beta 2-stimulants for minor sporadic wheeze, sodium cromoglycate for minor to modest asthma, inhaled steroids for moderately to serious asthma, and steroids taken by mouth, xanthines, and ipratropium bromide for worse and persistent situations.Kids and their families should be confirmed that if asthma is properly managed there is no logic why the youngster should not lead usual and physiologically daily activities. Asthma can be effectively managed, and active involvement in athletics almost always makes a comeback to a "average" everyday life feasible. Warner, Götz et al. (1989)

To examine at community pharmacists' views on delivering advise and a requirement for training, as well as how much and what kind of advice they give to their patients regarding asthma.Questionnaire sent by mail asking if individuals with asthma had received guidance in the month before. Age and sex-based segmentation of feedback was used in a focus group meeting led by 13 pharmacists from various neighborhood pharmacy groups.The Grampian Health Board, located in Northeast Scotland, involves all local pharmacists.

Currently, advice pertaining to asthma is rarely provided. Patients' perceptions (i.e., lack of knowledge that pharmacists may play this function) and the restricted resources on the location are the causes for inadequate chances to provide such advise. Pharmacists are also inadequately trained in several areas of asthma therapy. Osman, Bond et al. (1999)

When it comes to asthma, South Asian youngsters are more likely than White British youngsters to experience unmanageable signs, severe asthma hospitalizations, and a lower likelihood of getting medication orders. Therefore,

addressing disparities in wellness requires a knowledge of barriers. We conducted a thorough investigation to find explanations

South Asian adolescent asthma control is influenced by both accelerators and obstacles. People of Bangladeshi, Pakistani, or Indian orgin were categorized as South Asians.Research using statistical, discriptive, or a combination of both that primarily aims to explain obstacles and/or enablers to asthma control in South Asian adolescents aged 0-18 years who have been confirmed to have asthma or are thought of having it, as well as their relatives and/or medical professionals, is eligible for participation.Controversies were resolved by discussions among the research team after the three writers simultaneously assessed gathered, and recovered relevant publications.Included in the 15 trials were 25,755 children, 18,483 parents/caregivers, and 239 medical expert.

METHODOLOGY

Ethical Consideration

This study was approved by the ethical committee of Akhtar Saeed College of Pharmaceutical Sciences. Before conducting the research, an informed consent was also obtained from each and every participant. Research ethics were also taken into account, as no deception or misleading information was employed as the basis for the study.

Study Design

A cross-sectional survey was carried out from January 2024 to June 2024. The target population for this study was pharmacists in Lahore, whose awareness, attitudes and considered barriers towards asthma management were evaluated.

Study Population

The research included a total of 234 participants (n=234). All pharmacists currently working in community and hospital pharmacies in Lahore, Pakistan were included in the study. Incomplete forms were excluded while evaluating results. The study was conducted in community and hospital pharmacies in Lahore.

Inclusion Criteria

Graduates and post graduates pharmacists aged below 30 years and older were included in the study population. All hospital and community pharmacists registered in Lahore, who were recognized by the Pharmacy Council of Lahore according to Pharmacy Act 1967 were included in the study.

Exclusion Criteria

All graduates and post graduates either enrolled in any job other than community and hospital pharmacists were excluded from the study. Pharmacists from any city except of Lahore were excluded from the study.

Procedure

Participants were drawn randomly from various community and hospital pharmacies, both private and public, who were certified by The Pharmacy Council of Lahore. Before the initiation of the survey, the participants were given a full explanation regarding the purpose of this research, and their consent to participate in the study was obtained. The questionnaires were in English language and were developed as a soft copy using the Google form and hard copy and distributed via various social media platforms and manually handover to the participants taking part in the research, respectively. The filled questionnaires were collected at the moment or later at a suitable time indicated by respondents. In some cases, pharmacists were not keen to participate in the study because of their busy schedule.

Sample Size

In the city of Lahore there are 3618 of total registered license pharmacies to offer the counseling of the asthma patients. This data has been collected from official website of National Library of Medicine, (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5518160/). Raosoft Calculator® was used to choose the sample size within a 95% confidence level, 5% margin of error and population size of 3618, yielding a sample size of 200 participants for the study that was estimated to be representative of the population of pharmacists currently working in Lahore. Considering a 10% dropout in mind, in order to get an optimal response ratio, a total of 234 sample size was the final number of responses required for data collection. Different participants were approached via various social media platforms available online or on web and by face to face.

Questionnaire Development

After reviewing already published literature and going through more than 20 publications on the Awareness, Attitudes and Barriers Among Pharmacists regarding asthma management, we developed a pre-tested and refined self-developed questionnaire for the purpose of research. The developed questionnaire was initially tested by sending it to the supervisor in order to ensure its legitimacy, authenticity and typography for consistency, significance and appropriateness and once it was approved it was shared with the participants. This survey comprised of 19 questions which required not more than 3 to 5 minutes to complete. This brief questionnaire was split into 4 sections/categories. The first section was designed to give a brief introduction to the participant and included the title of the survey, description of the research and the purpose of the study. The second section assessed the respondents' demographic attributes (6 Questions), while the third section was designed to assess the awareness and preference of the respondents regarding asthma management (8 Questions), the fourth section was designed specifically to check the attitude of participants towards barriers regarding asthma management (5 Questions}. Wherever necessary we used a Likert Scale to check different items of acceptability rate in participants (strongly agree, agree, Disagree, strongly disagree) OR (Yes, No) OR (most of the time, some of the time, seldom, never).

Method of Data Collection

An online Google form and hard copies for research were generated. In May 2024, the questionnaire was circulated among the desired study population (community and hospital Pharmacists) through online communication by using social platform and manually. Pharmacists from the

different community and hospital pharmacies in Lahore were approached randomly to participate in the study. After giving an introduction regarding the topic and purpose of research and taking consent from the respondent, the questionnaire (google form) was sent to them via various social media platforms available or most convenient to use for the respondent and also hard copies via manually. The questionnaire was in English language, distributed as soft copy using the Google form and distributed via various social media platforms available online to the participants taking part in the research and also hard copy via manually. The filled questionnaires were collected at the moment or later at a suitable time indicated by respondents. In some cases, the pharmacists were not keen to participate in the study because of their busy schedule. Participants were able to read the aim of the research study, the research title, its purpose, its objective and their permission to participate in the study once the questionnaire was provided to them. For ease of comprehension, the study questions were stated in clear, simple, and well-defined words. The research coordinators were accessible to answer any questions at any time to provide case to the respondents. The data collected online and manually was retrieved in June, 2024 from google database and results were calculated.

Validation and Reliability

In order to make sure that the developed questionnaire was authentic and trustworthy enough a pilot test was initially conducted on 15 participants. The first 15 participants who responded were not included in the research when evaluating the data collected. Once the data from these 15 participants was collected a primary statistical analysis was run on it. Cronbach's alpha was applied in order to measure the internal consistency and to measure the scale of reliability of our self-developed questionnaire. It was calculated to be 0.40.

Statistical Analysis Tools

Data analysis was accompanied using Statistical tools. Statistical Package for Social Sciences (IBM SPSS, version 22.0), has been used for analysis of the collected data. Then descriptive statistics were applied for calculation of frequencies and percentages.

RESULTS

The results of our study show in the form of frequency and percentage. Data analysis was accompanied using Statistical tools. Statistical Package for Social Sciences (IBM SPSS, version 22.0), has been used for analysis of the collected data. Then descriptive statistics were applied for calculation of frequencies and percentages. Cronbach's alpha was applied in order to measure the internal consistency and to measure the scale of reliability of our self-developed questionnaire.

Table 1 shows that in below 30 age group of pharmacists, 17.5% are strongly disagree, 34.5% are disagree, 16.5% are agree and 7.5% are strongly agree that they do not have enough time for patients counseling and in above 30 age group, 12.0% are strongly disagree, 6.5% are disagree, 4% are agree and 1.5% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.005).

Table 1

Reviews about Patient Counseling on the Basis of Time in Different Age Groups of Pharmacists

Age in years	I do not have enough time for patients counseling								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Below 30	35	17.5%	69	34.5%	33	16.5%	15	7.5%	0.005
Above 30	24	12.0%	13	6.5%	8	4.0%	3	1.5%	
Total	59	29.5%	82	41.0%	41	20.5%	18	9.0%	

Table 2 shows that in below 30 age group of pharmacists, 25.0% are strongly disagree, 36.5% are disagree, 9.5% are agree and 5% are strongly agree that they do not have enough confidence and skills for patients counseling and in above 30 age group, 13.5% are strongly disagree, 8.5% are disagree, 1.0% are agree and 1.0% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.026).

Table 2

Reviews about Patient Counseling on the Basis of Skills in Different Age Groups of Pharmacists

Age in years	I do not have enough confidence and skills in asthma counseling and monitoring								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Below 30	50	25.0%	73	36.5%	19	9.5%	10	5%	0.026
Above 30	27	13.5%	17	8.5%	2	1.0%	2	1.0%	
Total	77	38.5%	90	45.0%	21	10.5%	12	6.0%	

Table 3 shows that in different education level of pharmacists, the graduates participants in which 1.5% have never, 28.0% have sometimes, 9.5% have often and 5% have always identify modifiable risk factors for poor asthma outcomes and the post graduates participants in which 2.0% have never, 8.0% have sometimes, 10.5% have often and 2.5% have always and the table shows the significant results with 95% confidence interval (i.e. 0.016).

Table 3

In Different Education Levels of Pharmacists, The Identification of Modifiable Risk Factors

Education level	Do you identify modifiable risk factor for poor asthma outcome?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Graduates	3	1.5%	56	28.0%	52	26.0%	43	21.5%	0.016
Post graduates	4	2.0%	16	8.0%	21	10.5%	5	2.5%	
Total	7	3.5%	72	36.0%	73	36.5%	48	24.0%	

Table 4 shows that in different education level of pharmacists, the graduates participants in which 5.0% have never, 23.0% have sometimes, 22.0% have often and 27.0% have always teach patients about self-monitoring of symptoms and the post graduates participants in which 0.0% have never, 11.0% have sometimes, 7.0% have often and 5.0% have always and the table shows the significant

results with 95% confidence interval (i.e. 0.039).

Table 4

In Different Education Levels of Pharmacists, Teaching Patients in Self- Monitoring

Education level	Do you teach patients about self-monitoring of symptoms?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Graduates	10	5.0%	46	23.0%	44	22.0%	54	27.0%	0.039
Post graduates	0	0.0%	22	11.0%	14	7.0%	10	5.0%	
Total	10	5.0%	68	34.0%	58	29.0%	64	32.0%	

Table 5 shows that in different education level of pharmacists, the graduates participants in which 4.5% have never, 24.0% have sometimes, 17.5% have often and 31.0% have always that they advise patient to discuss with you before stopping any of their medication and the post graduates participants in which 0.5% have never, 6.0% have sometimes, 11.5% have often and 5.0% have always and the table shows the significant results with 95% confidence interval (i.e. 0.003).

Table 5

Reviews, Depending on the Educational Level Advises to Patients for Discussion about Stopping the Medications

Education level	Do you advise patient to discuss with you before stopping any of their medication?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Graduates	9	4.5%	48	24.0%	35	17.5%	62	31.0%	0.003
Post graduates	1	0.5%	12	6.0%	23	11.5%	10	5.0%	
Total	10	5.0%	60	30.0%	58	29.0%	72	36.0%	

Table 6 shows that in different education level of pharmacists, the graduates participants in which 20.0% are strongly agree, 36.0% are disagree, 14.5% are agree and 6.5% are strongly agree that they do not have enough time for patient counseling and the post graduates participants in which 9.5% are strongly disagree, 5.0% are disagree, 6.0% are agree and 2.5% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.025).

Table 6

Reviews about patient counseling on the basis of time in different educational level

Education level	I do not have enough time for patient counseling								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Graduates	40	20.0%	72	36.0%	29	14.5%	13	6.5%	0.025
Post graduates	19	9.5%	10	5.0%	12	6.0%	5	2.5%	
Total	59	29.5%	82	41.0%	41	20.5%	18	9.0%	

Table 7 shows that in community pharmacists, 2.0% have never, 15.5% have sometimes, 15.0% have often and 23.5% have always check patients' inhalation technique and in hospital pharmacists, 1.0% have never, 6.0% have sometimes, 19.5% have often and 17.5% have always and the table shows the significant results with 95% confidence interval (i.e. 0.026).

Table 7

Reviews about Patient's Inhalation Technique on the Basis of Pharmacy Type

Pharmacy type	Do you check patients inhalation technique?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Community pharmacy	4	2.0%	31	15.5%	30	15.0%	47	23.5%	0.026
Hospital pharmacy	2	1.0%	12	6.0%	39	19.5%	35	17.5%	
Total	6	3.0%	43	21.5%	69	34.5%	82	41.0%	

Table 8 shows that in community pharmacists, 5.5% have never, 14.0% have sometimes, 21.0% often and 15.5% have always have an empathetic discussion with patients about their adherence and in hospital pharmacists, 2.5% have never, 22.0% have sometimes, 9.5% have often and 10.0% have always and the table shows the significant results with 95% confidence interval (i.e. 0.003).

Table 8

Reviews about Empathetic Discussion & Adherence on the Basis of Pharmacy Type

Pharmacy type	Do you open an empathetic discussion with patients about their adherence?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Community pharmacy	11	5.5%	28	14.0%	42	21.0%	31	15.5%	0.003
Hospital pharmacy	5	2.5%	44	22.0%	19	9.5%	20	10.0%	
Total	16	8.0%	72	36.0%	61	30.5%	51	25.5%	

Table 9 shows that in community pharmacists, 14.0% are strongly disagree, 22.0% are disagree, 12.5% are disagree, 12.5% are agree and 7.5% are strongly agree that they do not have enough time for patients counseling and in hospital pharmacists, 15.5% are strongly disagree, 19.0% are disagree, 8.0% are agree and 1.5% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.050).

Table 9

Reviews about Patients Counseling on the Basis of Time at Different Pharmacy Type

Pharmacy type	I do not have enough time for patients counseling								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Community pharmacy	28	14.0%	44	22.0%	25	12.5%	15	7.5%	0.050
Hospital pharmacy	31	15.5%	38	19.0%	16	8.0%	3	1.5%	
Total	59	29.5%	82	41.0%	41	20.5%	18	9.0%	

Table 10 shows that in community pharmacists, 2.5% are strongly disagree, 7.5% are disagree, 19.5% are agree and 26.5% are strongly agree that they do not get incentive for patients counseling and in hospital pharmacists, 4.0% are strongly disagree, 10.5% are disagree, 21.0% are agree and 8.5% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.001).

Table 10
Reviews about Counseling on the Basis of Incentive at Different Pharmacy Type

Pharmacy type	Incentive for counseling								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Community pharmacy	5	2.5%	15	7.5%	39	19.5%	53	26.5%	0.001
Hospital pharmacy	8	4.0%	21	10.5%	42	21.0%	17	8.5%	
Total	13	6.5%	36	18.0%	81	40.5%	70	35.0%	

Table 11 shows that the less than 5 years experienced pharmacists, 5.0% are strongly disagree, 13.5% are disagree, 35.0% are agree and 22.5% are strongly agree that they do not get incentive for patients counseling and more than 5 years experienced pharmacists, 1.5% are strongly disagree, 4.5% are disagree, 5.5% are agree and 12.5% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.018).

Table 11
Reviews about Patient Counseling on the Basis of Incentives

Years of pharmacy practice experience	Incentive for counseling								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Less than 5	10	5.0%	27	13.5%	70	35.0%	45	22.5%	0.018
More than 5	3	1.5%	9	4.5%	11	5.5%	25	12.5%	
Total	13	6.5%	36	18.0%	81	40.5%	70	35.0%	

Table 12 shows that in part time jobians, 3.0% have never, 6.5% have sometimes, 13.5% have often and 11.0% have always an open discussion with patients about their adherence and in full time jobians, 5.0% are choose never, 29.5%choose sometimes, 17.0% choose often and 14.5% choose always and the table shows the significant results with 95% confidence interval (i.e. 0.005).

Table 12
Reviews about Empathetic Discussion & Adherence Depending on the Nature of Job

Nature of job	Do you open an empathetic discussion with patients about their adherence?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Part time	6	3.0%	13	6.5%	27	13.5%	22	11.0%	0.005
Full time	10	5.0%	59	29.5%	34	17.0%	29	14.5%	
Total	16	8.0%	72	36.0%	61	30.5%	51	25.5%	

Table 13 shows that in part time jobians, 2.0% have never, 15.5% have sometimes,8.0% have often and 8.5% have always identify modifiable risk factors for asthma outcome and in full time jobians, 1.5% have never, 20.5% have sometimes, 28.5% have often and 15.5% have always and the table shows the significant results with 95% confidence interval (i.e. 0.028)

Table 13
Reviews about Identification of Risk Factors for Poor Asthma Outcomes Depending on Nature of Job

Nature of job	Do you identify modifiable risk factor for poor asthma outcome?								P value
	Never		Sometimes		Often		Always		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Part time	4	2.0%	31	15.5%	16	8.0%	17	8.5%	0.028
Full time	3	1.5%	41	20.5%	57	28.5%	31	15.5%	
Total	7	3.5%	72	36.0%	73	36.5%	48	24.0%	

Table 14 shows that in part time jobians, 10.0% are strongly disagree, 17.5% are disagree, 5.5% are agree and 5.5% are strongly agree that they do not have enough confidence and skills for patients counseling and in full time jobians, 28.5% are strongly disagree, 27.5% are disagree, 5.0% are agree and 5.0% are strongly agree and the table shows the significant results with 95% confidence interval (i.e. 0.047).

Table 14
Reviews about Patient Counseling on the Basis of Skills in Different Job Nature of Pharmacists

Nature of job	I do not have enough confidence and skills in asthma counseling and monitoring								P value
	Strongly disagree		Disagree		Agree		Strongly agree		
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)	
Part time	20	10.0%	35	17.5%	11	5.5%	2	5.5%	0.047
Full time	57	28.5%	55	27.5%	10	5.0%	10	5.0%	
Total	77	38.5%	90	45.0%	21	10.5%	12	10.5%	

DISCUSSION

Many asthma patients remain largely uncontrolled despite the availability of effective asthma treatments and the latest international guidelines according to the Global Initiative for Asthma (GINA) criteria (Said, Hussain et al. 2022). An obstacle to effectively intervening patient care is poor pharmacist knowledge, skills and confidence in asthma management which is reported by earlier studies. It is crucial to reorient the role of pharmacists from a mere focus on medication dispensing to providing patient-centered care. This patient-centered care by a pharmacist involves actively engaging with patients, conducting comprehensive medication reviews, offering education on asthma management techniques, and addressing patients' concerns and inquiries (Jarab, Al-Qerem et al. 2024).Moreover, the quality care provided by pharmacists to asthma patients greatly depends on their interventional knowledge, attitudes and practices.

This study demonstrates the knowledge, attitudes, practices and perceived barriers towards asthma management (Said, Hussain et al. 2022). The most reported barriers for asthma management include lack of time by patients, lack of incentives for pharmacists, insufficient knowledge, skills and confidence and lack of asking patients about their asthma action plan (Jarab, Al-Qerem et al. 2024). The results of our study showed that below 30 age group of pharmacists, 17.5% strongly

disagreed, 34.5% disagreed, 16.5% agreed and 7.5% strongly agreed that they do not have enough time for patients counseling and in above 30 age group, 12.0% strongly disagreed, 6.5% disagreed, 4% agreed and 1.5% strongly agreed. The reviews about patient counseling on the basis of skills in different age groups of pharmacists showed that in below 30 age group of pharmacists, 25.0% strongly disagreed, 36.5% disagreed, 9.5% agreed and 5% strongly agreed that they do not have enough confidence and skills for patients counseling and in above 30 age group, 13.5% strongly disagreed, 8.5% disagreed, 1.0% agreed and 1.0% strongly agreed.

The results of the identification of modifiable risk factors by pharmacists in different educational level shows that in different education level of pharmacists, the graduate participants in which 1.5% have never, 28.0% have sometimes, 9.5% have often and 5% have always identified modifiable risk factors for poor asthma outcomes and the post graduate participants in which 2.0% have never, 8.0% have sometimes, 10.5% have often and 2.5% have always identified them. The results for teaching patients about self monitoring of symptoms showed that in different educational levels of pharmacists, the graduate participants in which 5.0% have never, 23.0% have sometimes, 22.0% have often and 27.0% have always teach patients about self-monitoring of symptoms and the post graduate participants in which 0.0% have never, 11.0% have sometimes, 7.0% have often and 5.0% have always taught them. The reviews regarding advice to patients for discussion about stopping the medications showed that in different education level of pharmacists, the graduate participants in which 4.5% have never, 24.0% have sometimes, 17.5% have often and 31.0% have always said that they advise patients to discuss with you before stopping any of their medication and the post graduate participants in which 0.5% have never, 6.0% have sometimes, 11.5% have often and 5.0% have always did that. A review of time based patient counseling showed that in different education levels of pharmacists, the graduate participants in which 20.0% strongly agreed, 36.0% disagreed, 14.5% agreed and 6.5% strongly agreed that they do not have enough time for patient counseling and among the post graduate participants in which 9.5% strongly disagreed, 5.0% disagreed, 6.0% agreed and 2.5% strongly agreed about this point. The results about patient's inhalation technique on the basis of pharmacy type showed that in community pharmacists, 2.0% have never, 15.5% have sometimes, 15.0% have often and 23.5% have always checked patient's inhalation technique and in hospital pharmacists, 1.0% have never, 6.0% have sometimes, 19.5% have often and 17.5% have always did that.

The reviews about empathetic discussion & adherence on the basis of pharmacy type showed that in community pharmacists, 5.5% have never, 14.0% have sometimes, 21.0% often and 15.5% have always have an empathetic discussion with patients about their adherence and in hospital pharmacists, 2.5% have never, 22.0% have sometimes, 9.5% have often and 10.0% have always did that. The reviews about patients counseling on the basis of time at different pharmacy types showed that in community pharmacists, 14.0% strongly disagreed, 22.0% disagreed, 12.5% agreed and 7.5% strongly agreed that they do not have enough time for patients counseling and in hospital pharmacists, 15.5% strongly disagreed, 19.0% disagreed, 8.0% agreed and 1.5% strongly agreed about this point. Another barrier is based on incentives for the pharmacists so the reviews about counseling on the basis of incentives at different pharmacy types showed that in community pharmacists, 2.5% strongly disagreed, 7.5% disagreed, 19.5% agreed and 26.5% strongly agreed that they do not get incentive for patients counseling and in hospital pharmacists, 4.0% strongly disagreed, 10.5% disagreed, 21.0% agreed and 8.5% strongly agreed to this. The reviews about patient counseling on the basis of incentives in different tenure of experience showed that the less than 5 years experienced pharmacists, 5.0% strongly disagreed, 13.5% disagreed, 35.0% agreed and 22.5% strongly agreed that they do not get incentive for patients counseling and more than 5 years experienced pharmacists, 1.5% strongly disagreed, 4.5% disagreed, 5.5% agreed and 12.5% strongly agreed. The reviews about empathetic discussion & adherence depending on the nature of job of the pharmacists showed that in part time jobians, 3.0% have never, 6.5% have sometimes, 13.5% have often and 11.0% have always an open discussion with patients about their adherence and in full time jobians, 5.0% are choose never, 29.5%choose sometimes, 17.0% choose often and 14.5% chose always. The reviews about identification of risk factors for poor asthma outcomes depending on nature of job of the pharmacists showed that in part time jobians, 2.0% have never, 15.5% have sometimes, 8.0% have often and 8.5% have always identified modifiable risk factors for asthma outcome and in full time jobians, 1.5% have never, 20.5% have sometimes, 28.5% have often and 15.5% have always did that. The results about patient counseling on the basis of skills in different job nature of pharmacists showed that in part time jobians, 10.0% strongly disagreed, 17.5% disagreed, 5.5% agreed and 5.5% strongly agreed that they do not have enough confidence and skills for patients counseling and in full time jobians, 28.5% strongly disagreed, 27.5% disagreed, 5.0% agreed and 5.0% are strongly agreed to this point.

In summary, our study identified that the below 30 age group of pharmacists more strongly agreed about time based patient counseling, lack of confidence and skills in asthma counseling and monitoring, as compared to that of pharmacists with the above 30 age group. Among the pharmacists at different educational levels, the graduate participants had more percentage in identifying modifiable risk factors for poor asthma outcomes, teaching patients about self-monitoring of symptoms, advising patients to discuss with them before stopping any of their medication and time based patient counseling as compared to that of post graduate participants. The community pharmacists had a higher percentage in checking patient's inhalation technique, empathetic discussion with patients about their adherence, lack of time in patient counseling and lack of incentives as compared to that of hospital pharmacists. The pharmacists with less than 5 years of experience had more strongly agreed for not having incentives for patient counseling, in comparison with pharmacists with more than 5 years of

experience. Pharmacists with full time jobs had more empathetic discussion with patients about their adherence, identifying modifiable risk factors for poor asthma outcome and lack of confidence and skills in asthma counseling and monitoring as compared to those with part time jobs.

Limitations of Study

Inconsistent medication use effects outcomes. Lack of proper training hinders effective care. Health beliefs and misconceptions can cause serious consequences and complications. Inconsistent follow up leads to incomplete management and monitoring. We could have included these points in the study but we couldn't manage to do so.

CONCLUSION

The findings of our study shows that pharmacists are actively involved in asthma management, as they have the necessary skills, confidence, and time. They also counsel patients and contribute significantly to improving patients' self-management. This collaboration between pharmacists, physicians, and patients indicates that pharmacists are well-prepared to handle these responsibilities, leading to enhanced care and adherence to evidence-based guidelines. But patients don't have time, or they feel that this is not the pharmacist's responsibility. "Pharmacist may have limited incentives and support for providing additional education, affecting their motivation to engage deeply in asthma management.

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