

Impact of Pharmacist's Interventions on Asthma: Knowledge, Attitude and Practice Self Management Care in Asthma Patients- A Prospective Observational Study

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Abstract:

➤ *Background:*

Asthma, a chronic respiratory condition affecting millions of people worldwide, remains a significant public health problem especially in underdeveloped countries. Uncontrolled symptoms and frequent flare-ups arise from poor self-management, improper use of the inhaler, and inadequate understanding of the illness. Pharmacists play a crucial role in the disease management via education, counselling, and monitoring.

➤ *Aim & Objectives:*

To assess and compare the knowledge, attitude, and behaviour (KAP) related to asthma care among patients and pharmacists as well as the impact of pharmacist-led counselling on asthma self-management.

➤ *Methods:*

A future observational study was conducted across three months in hospital and community pharmacy settings. 101 pharmacists and 156 asthma patients participated. Data collected using self-administered, systematic questionnaires created from contemporary asthma treatment guidelines. Descriptive and inferential statistical research were conducted to evaluate KAP levels and correlations with significance.

➤ *Results & Discussion:*

Seventy-five per cent of those polled knew asthma as a chronic illness; 65.4% understood the need of regular inhaler use according to the study. Positive views of medication adherence were observed in 71.8% of patients. But especially in inhaler technique and continuous monitoring, holes in self-management routines were detected. Among hospital pharmacists (94–98%) against community pharmacists (62–89%) were demonstrated higher levels of understanding and practice. Notably lower among community pharmacists was inhaler technique assessment. Better self-management practices and higher patient awareness were connected with pharmacist advice.

Keywords: Attitudes, Inhaler Strategy, Asthma, Patient care, Knowledge, Practice, Pharmacist Intervention.

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I. INTRODUCTION

Asthma is known as an intermittent airflow restriction, bronchial hyper responsiveness, and recurring symptoms including cough, shortness of breath, chest tightness, and wheezing, asthma is a chronic inflammatory disease of the airways [1]. Particularly in underdeveloped and middle-income nations where access to appropriate education and healthcare may be restricted, it impacts people of all ages and is a major worldwide health burden. Poor understanding, improper inhaler technique, and low adherence to prescribed medication cause many patients to still have terrible disease management despite the availability of effective treatment options [2].

Good asthma management calls for a thorough plan consisting of patient education, precise diagnosis, appropriate drug therapy, and regular follow-up. The foundation of asthma treatment continues to be inhalational therapy, but its effectiveness depends mostly on the patient's ability to properly use inhaler equipment. Studies have found that many patients misuse inhalers, thereby reducing medication delivery and suboptimal therapeutic outcomes. Better disease management and fewer hospital stays call for the development of patient education and self-management ability [3,4].

Both in communities and in hospitals, pharmacists play a critical role in asthma management. Although community pharmacists provide on-going support, advice, and monitoring during hospital stays as easy-to-reach healthcare professionals, hospital pharmacists engage proactively in drug review, patient counselling, and clinical decision-making. Their involvement ensures accurate inhaler technique, enables patients to understand their condition, and enhances medication compliance [5,6].

Finding any gaps in present asthma treatment necessitates examination of the knowledge, attitude, and practice (KAP) of both patients and pharmacists. Understanding these components aids in the creation of tailored educational initiatives and elevation of overall treatment quality. Furthermore, comparing the duties of hospital and community pharmacists gives insightful knowledge about their contributions and highlights areas where more training or support might be needed (7).

II. METHODOLOGY

➤ *Study Site:*

Hospital pharmacies and community pharmacies in Bhavani, Erode district & kumarapalayam, Nammakal district.

➤ *Study Type:*

Prospective Observational study.

➤ *Study Duration:*

Three months (November 2025 to January 2026)

➤ *Study Size:*

Data were collected from 101 Pharmacist (48 community pharmacist & 53 hospital pharmacist) and 156 patients.

➤ *Inclusion Criteria:*

- Asthma patients discovered.
- Male as well as female patients.
- Patients on one or more anti-asthmatic medicines.
- Patients ready to provide informed consent (for future research).

➤ *Exclusion Criteria:*

- Patients with chronic respiratory diseases include COPD.
- Pregnant and nursing women.
- Patients who refuse to get involved.

➤ *Data Collection:*

A future observational study was carried out using an anonymous self-administered questionnaire meant to assess patients' KAP (knowledge, attitude, and self-management) on asthma and pharmacists' KAP (knowledge, attitude, and practice) among community pharmacists and hospital pharmacists [8,9]. Their names were not requested so as to keep anonymity and obtain an objective answer that better reflects the perspective of the participants. Data gathered from 101 pharmacists were professionals employed in a range of government and private sectors, and 156 asthma patients were readily provided access to this KAP study.

➤ *Statistical Analysis:*

The collected data were entered and analysed using Microsoft excel. Descriptive statistics were applied to summarize the responses. For each question, responses were converted into percentage to assess the knowledge, aptitude and self-care level in patients. Asthma knowledge level difference between hospital and community pharmacists also calculated using Microsoft excel.

III. OBSERVATION AND RESULTS

A total of 101 pharmacists & 156 asthma patients were enrolled in our study. Participants were rejected due to incomplete forms. The study subjects were followed one in 90 days (3 months).

➤ *Knowledge About Asthma Medication in Patient:*

Table 1 Knowledge About Asthma Medication in Patient

Knowledge About Asthma Medication in Patients	No. of. Asthma Patient (N=156)					
	Agree	Agree%	Disagree	Disagree%	Neither Agree Nor Disagree	Neither Nor Disagree%
Asthma is a chronic disease that affects the airways and breathing.	110	70.5	18	11.5	28	17.9
Difference between reliever inhalers and controller inhalers used in asthma	95	60.9	29	18.6	32	20.5
Regular use of prescribed inhalers can help prevent asthma attacks.	102	65.4	24	15.4	30	19.2
Incorrect inhaler technique can reduce the effectiveness of asthma medication	98	62.8	24	15.4	34	21.8

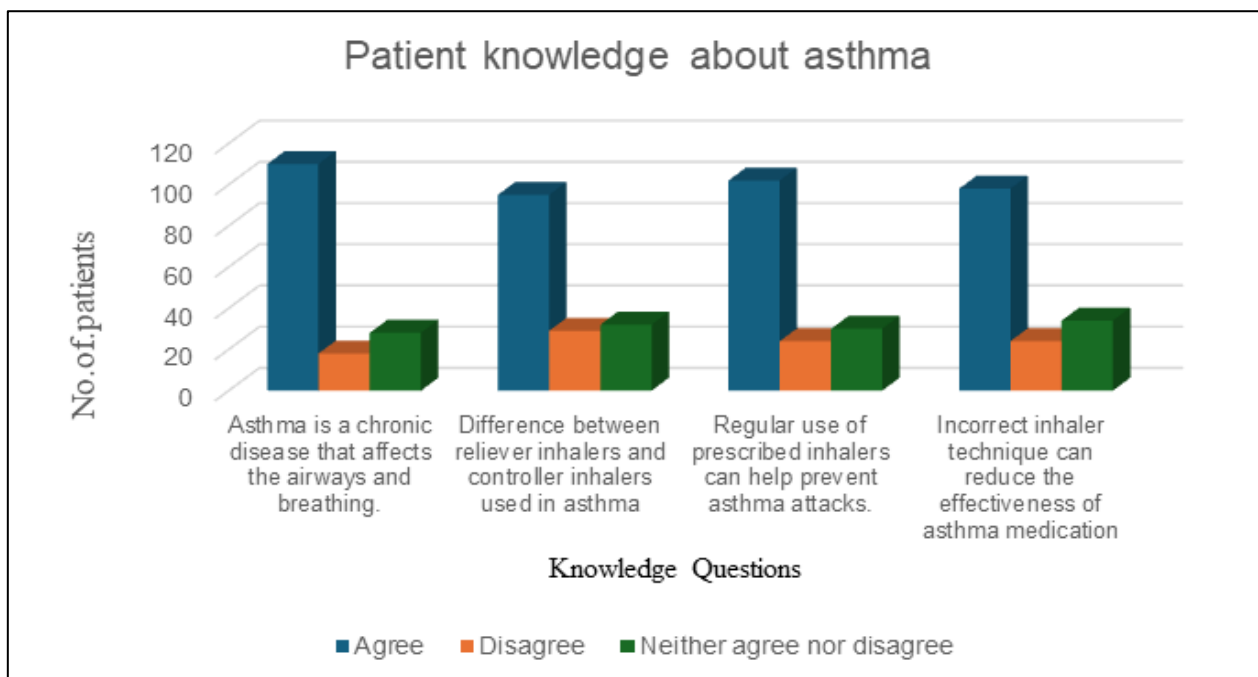


Fig 1 Patient Knowledge About Asthma

About 70.5% of patients recognized asthma as a chronic airway disease, and 65.4% agreed that regular inhaler use helps prevent attacks. Around 60–63% understood inhaler types and technique, but knowledge gaps remain. Nearly 17–

21% were unsure and 11–18% disagreed, indicating limited awareness among some patients.

➤ Attitude About Asthma Medication in Patient:

Table 2 Attitude About Asthma Medication in Patient

Attitude About Asthma Medication in Patients	No. of. Asthma Patient (N=156)					
	Agree	Agree%	Neither Agree Nor Disagree	Neither Nor Disagree%	Disagree	Disagree%
I believe that taking asthma medication regularly helps control my symptoms.	112	71.8	26	16.7	18	11.5
I believe that following the doctor’s instructions is important for managing asthma.	118	75.6	22	14.1	16	10.3
I feel confident using inhalers as prescribed by my doctor or pharmacist.	100	64.1	31	19.9	25	16.0
I believe that healthcare professionals can help me manage my asthma better.	115	73.7	25	16	16	10.3

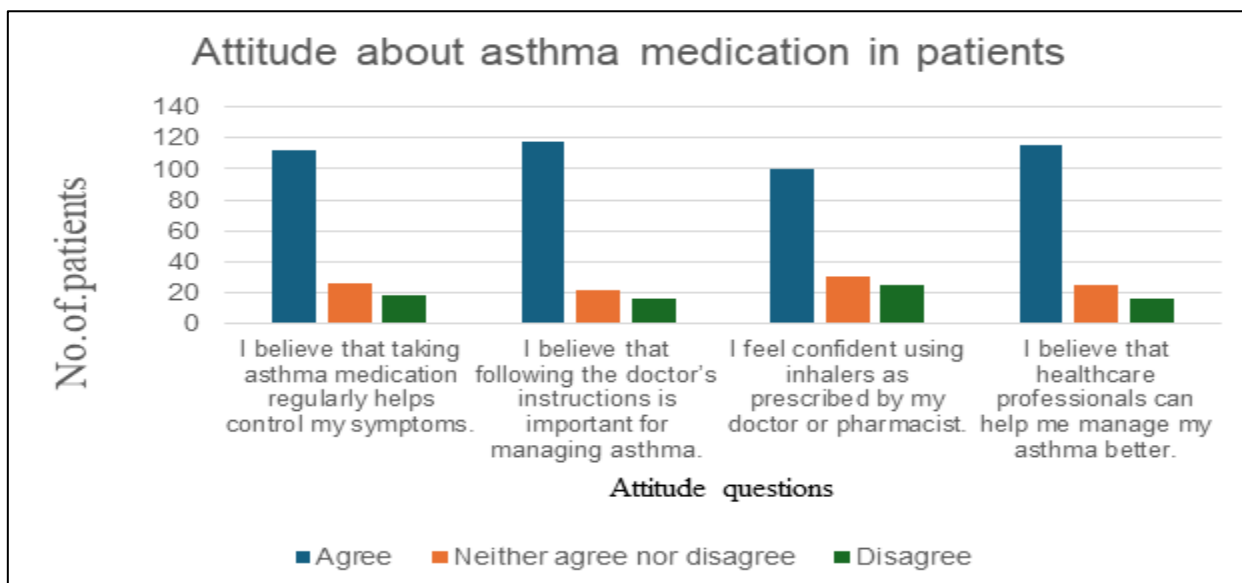


Fig 2 Attitude About Asthma Medication in Patients

About 71.8% agreed that regular medication controls asthma and 75.6% emphasized following doctors' instructions, with most patients showing confidence in inhaler use and trust in healthcare support. However, 14–19% remained neutral and 10–16% disagreed, indicating some

patients still lack a positive attitude toward asthma management.

➤ *Self-Management About Asthma Medication in Patient*

Table 3 Self-Management About Asthma Medication in Patient

Self- Management About Asthma Medication in Patients	No. of. Asthma Patient (N=156)				Disagree	Disagree%
	Agree	Agree%	Neither Agree Nor Disagree	Neither Agree Nor Disagree%		
I use my asthma medication regularly as prescribed by my doctor.	104	66.7	29	18.6	23	14.7
I carry my reliever inhaler with me in case of breathing difficulty.	97	62.2	33	21.2	26	16.6
I check my inhaler technique with a healthcare professional when needed.	90	57.7	36	23.1	30	19.2
I avoid triggers such as dust, smoke, or pollen that worsen my asthma symptoms.	108	69.2	27	17.3	21	13.5

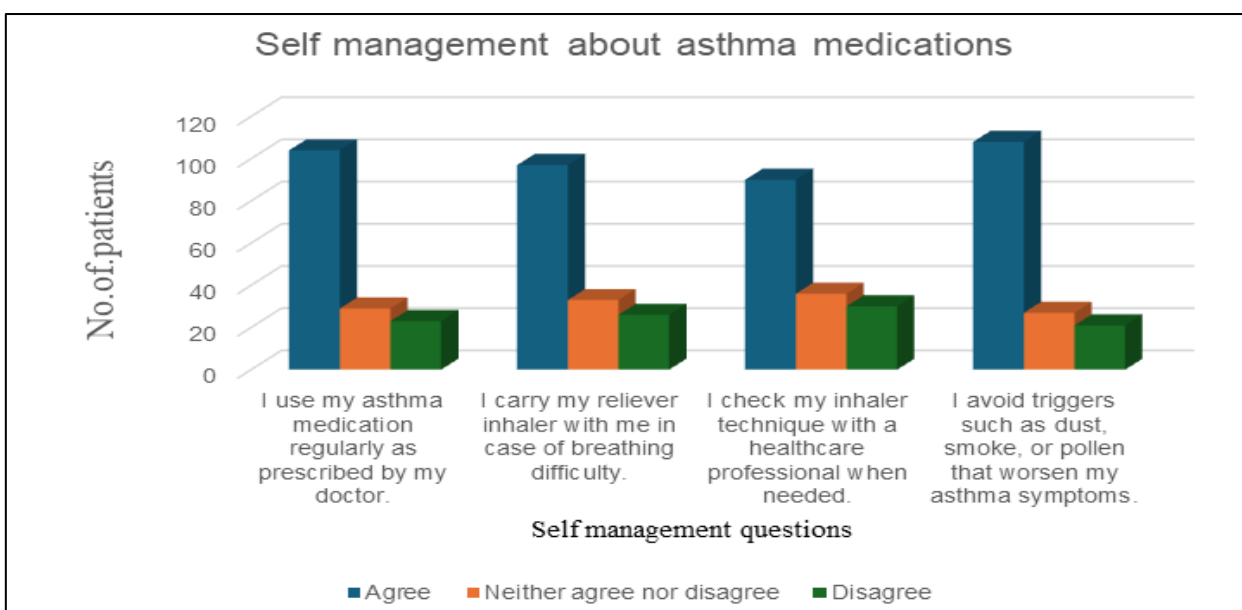


Fig 3 Self-Management About Asthma Medications

About 66.7% used medication regularly and 62.2% carried reliever inhalers, However, 23% were neutral and 13–19% disagreed, indicating gaps in asthma self-management.

➤ *Knowledge of Asthma Management Counselling in Pharmacist*

Table 4 Knowledge of Asthma Management Counselling in Pharmacist

Knowledge Level About Asthma	Agree				Neither Agree Nor Disagree				Disagree			
	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP %
The pharmacist play an important role in asthma care	43	89.6	52	98.1	5	10.4	1	1.9	–		–	
The proper use of inhaler and inhalation technique is an important aspect	43	89.6	52	98.1	5	10.4	1	1.9	–		–	
Asthma control is affected by many physiological & environmental factors	42	87.5	52	98.1	6	12.5	1	1.9	–		–	
Control of respiratory function in asthma care is very complex	42	87.5	52	98.1	6	12.5	1	1.9	–		–	

HP=Hospital pharmacist, CP=Community pharmacist

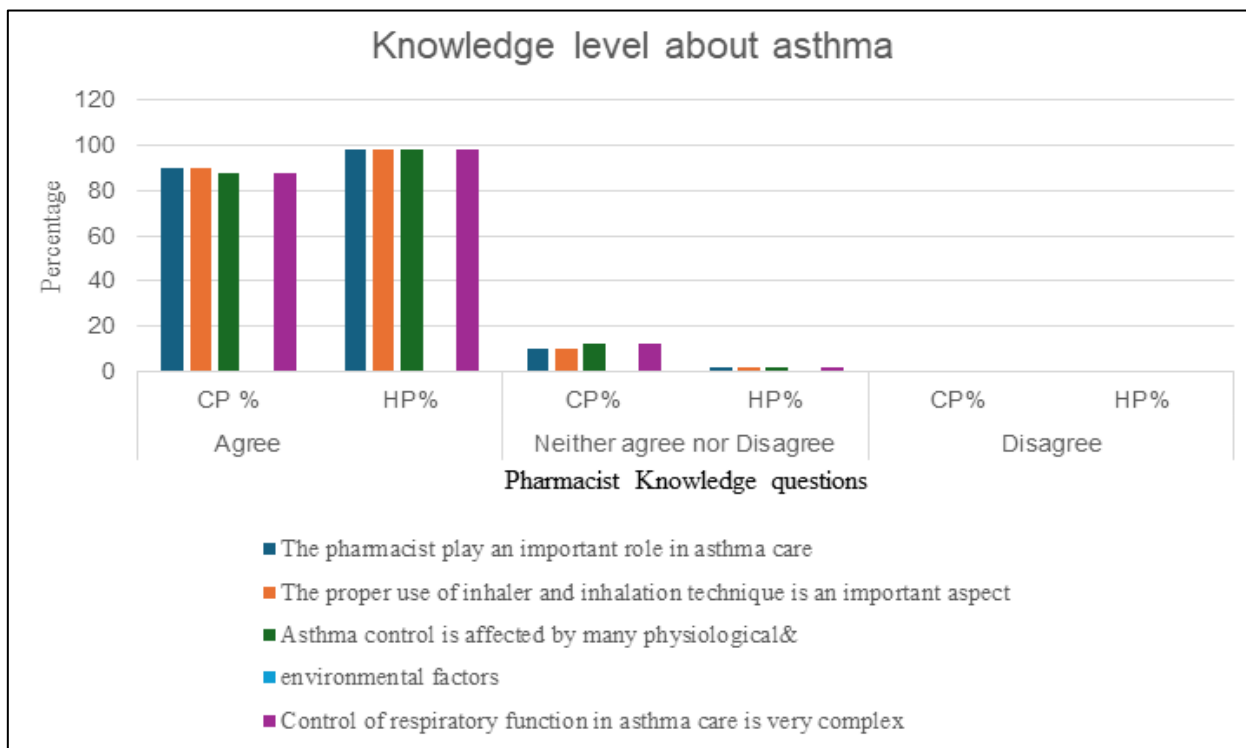


Fig 4 Knowledge of Asthma Management Counselling in Pharmacist

Hospital pharmacists showed higher agreement (98.1%) on asthma counselling knowledge than community pharmacists (87.5–89.6%), indicating better understanding. Neutral responses were higher among community

pharmacists (10–12.5%) compared to hospital pharmacists (1.9%), reflecting an 8–10% knowledge gap.

➤ *Practice of Asthma Management Counselling in Pharmacist:*

Table 5 Practice of Asthma Management Counselling in Pharmacist

Practice of Asthma Management	Agree	Disagree	Neither Agree Nor Disagree									
	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP%	(CP) (N=48)	CP%	(HP) (N=53)	HP %
Do you ask the patient about their treatment side effects	43	89.6	52	98.1	2	4.1	1	1.9	3	6.2	-	-
Do you advise patients to discuss with you before stopping any of their medication	43	89.6	52	98.1	1	2.0	1	1.9	4	8.3	-	-
Do you check patient's inhalation technique	42	87.5	52	98.1	3	6.2	1	1.9	3	6.2	-	-
Do you advise patients to regularly take their ICS as that might worsen their asthma medications	43	89.6	52	98.1	1	2.0	1	1.9	4	8.3	-	-

HP=Hospital pharmacist, CP=Community pharmacist

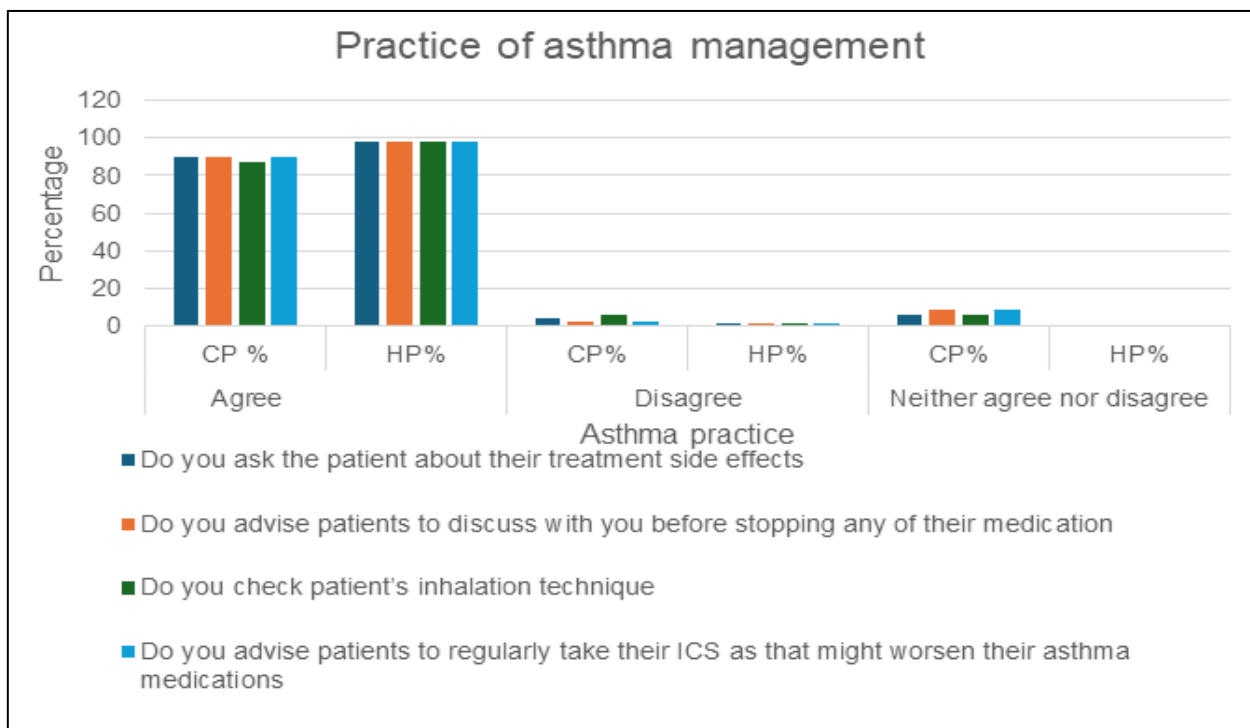


Fig 5 Practice of Asthma Management Counselling in Pharmacist

Hospital pharmacists showed very high agreement (98%) with counselling practices, while community pharmacists also agreed (95–97%) except for inhalation technique checking (41%). A major gap was seen in inhaler technique assessment, with 59% of community pharmacists

disagreeing, unlike hospital pharmacists who showed almost no disagreement.

➤ *Asthma Attitudes and Behaviour (AAB) Between Community Pharmacist and Hospital Pharmacist.*

Table 6 Asthma Attitudes and Behaviour (AAB) Between Community Pharmacist and Hospital Pharmacist.

Asthma Attitudes and Behaviour (AAB) Between Community Pharmacist and Hospital Pharmacist	Agree				Disagree				Neither Agree Nor Disagree			
	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP%	(CP) (N=48)	CP%	(HP) (N=53)	HP%
Pharmacist intervention has a positive impact on asthma-related outcomes in patients.	43	89.6	52	98.1	1	2.0	1	1.9	4	8.3	–	
Inhaler devices should be prescribed after providing the necessary training on the use of the device	42	87.5	52	98.1	2	4.1	1	1.9	4	8.3	–	
The technique of using asthma medications such as Turbuhaler should be demonstrated to the patient by pharmacists.	42	87.5	52	98.1	2	4.1	1	1.9	4	8.3	–	
There is a need for patient education about asthma	44	91.6	52	98.1	1	2.0	1	1.9	3	6.2	–	

HP=Hospital pharmacist, CP=Community pharmacist

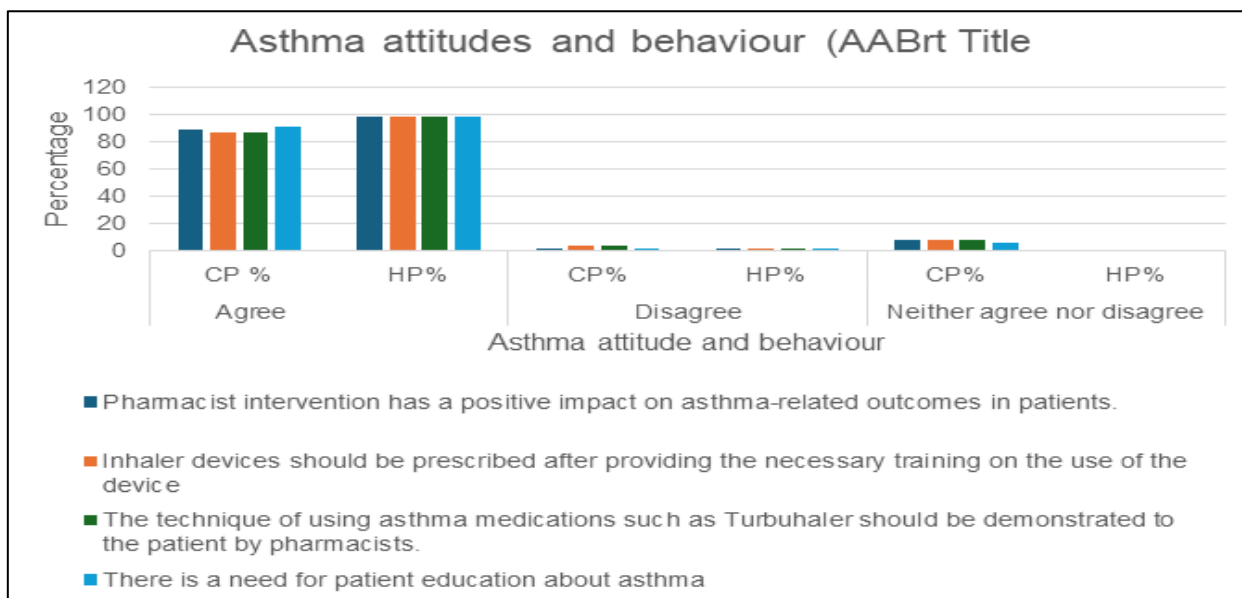


Fig 6 Asthma, Attitude and Behavior

Hospital pharmacists showed consistently high agreement (98%) across all aspects, while community pharmacists ranged from 41% to 97% with minimal neutral responses. A major gap was seen in device training and demonstration, where 55% of community pharmacists

disagreed, unlike hospital pharmacists who showed almost no disagreement.

➤ *Asthma Knowledge Between Hospital and Community Pharmacists:*

Table 7 Asthma Knowledge Between Hospital and Community Pharmacists.

Asthma Knowledge Level Between Hospital and Community Pharmacists.	Agree				Disagree				Neither Agree Nor Disagree			
	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP %
Overuse of short-acting beta agonists (SABA) without controller medication can worsen asthma control.	43	89.6	52	98.1	1	2.0	1	1.9	4	8.3	-	-
Proper inhaler technique is essential for effective asthma control and pharmacists should educate patients on inhaler use.	43	89.6	52	98.1	1	2.0	1	1.9	4	8.3	-	-
Inhaled corticosteroids (ICS) are considered the first-line controller therapy for persistent asthma.	42	87.5	52	98.1	2	4.1	1	1.9	4	8.3	-	-
Asthma is a chronic inflammatory disease of the airways that requires long-term management.	44	91.6	53	100	1	2.0	-	-	3	6.2	-	-

HP=Hospital pharmacist, CP=Community pharmacist

Asthma management knowledge was high in both groups, with hospital pharmacists (98.1%) showing slightly higher agreement than community pharmacists (87.5–91.6%). Neutral responses were more common among

community pharmacists (6–8%) compared to hospital pharmacists (<1.9%), indicating an overall 8–10% knowledge gap.

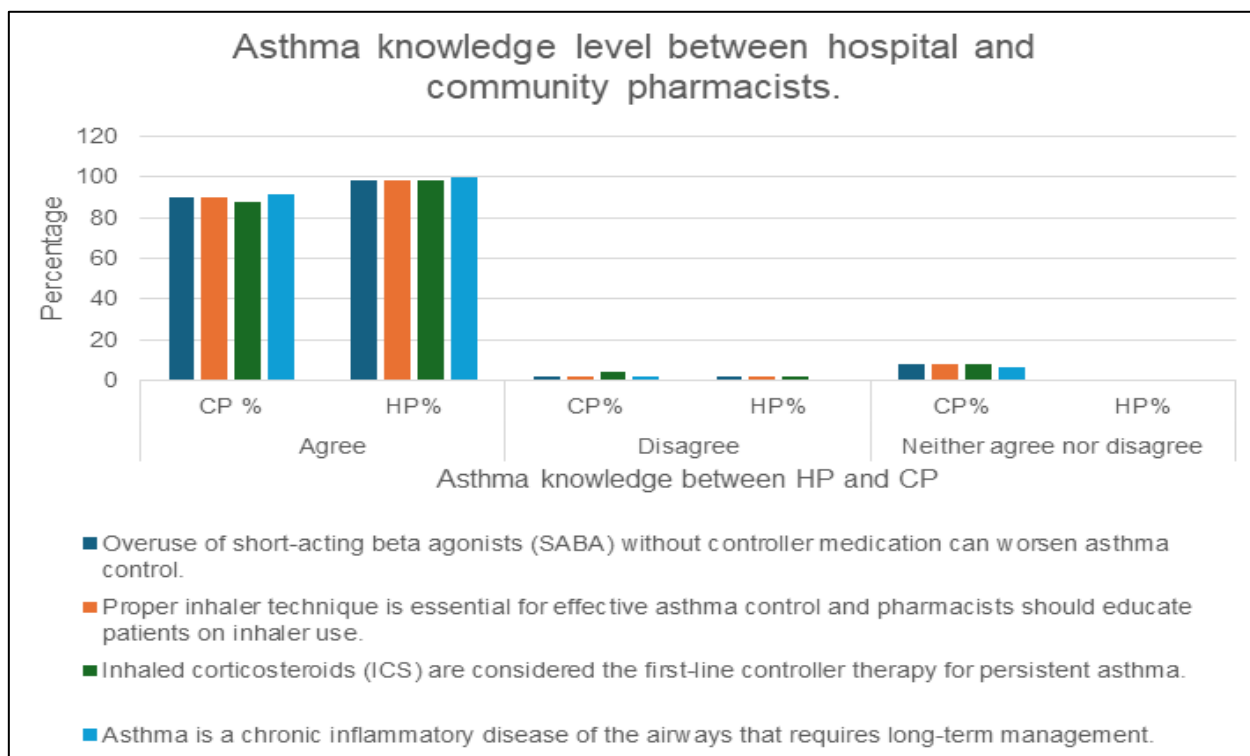


Fig 7 Asthma Knowledge Between Hospital and Community

➤ *Comparison of Total Pharmacist Interpretation Towards Attitude, Knowledge, Practice Between Community Pharmacist and Hospital Pharmacist:*

Table 8 Comparison of Total Pharmacist Interpretation Towards Attitude, Knowledge, Practice Between Community Pharmacist and Hospital Pharmacist.

Variables	Agree	Disagree	Neither Agree Nor Disagree									
	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP %	(CP) (N=48)	CP %	(HP) (N=53)	HP %
Education about asthma disease	43	89.6	52	98	1	2.0	0	0	4	8.3	1	1.8
Check inhalation technique	42	87.5	50	94.3	3	6.2	0	0	3	6.2	3	5.6
Pharmacist intervention improves outcomes	43	89.6	52	98.1	1	2.0	0	0	4	8.3	1	1.8
Inhaler device training before prescribing	42	87.5	51	96.2	2	4.1	0	0	4	8.3	2	3.7
Demonstration of inhaler technique to patients	43	89.6	50	94.3	2	4.1	0	0	3	6.2	3	5.6

HP=Hospital pharmacist, CP=Community pharmacist

Hospital pharmacists showed higher agreement (94–98%) in asthma care practices than community pharmacists (87–90%). This 8–10% gap indicates better involvement of

hospital pharmacists in education, inhaler technique assessment, and counselling.

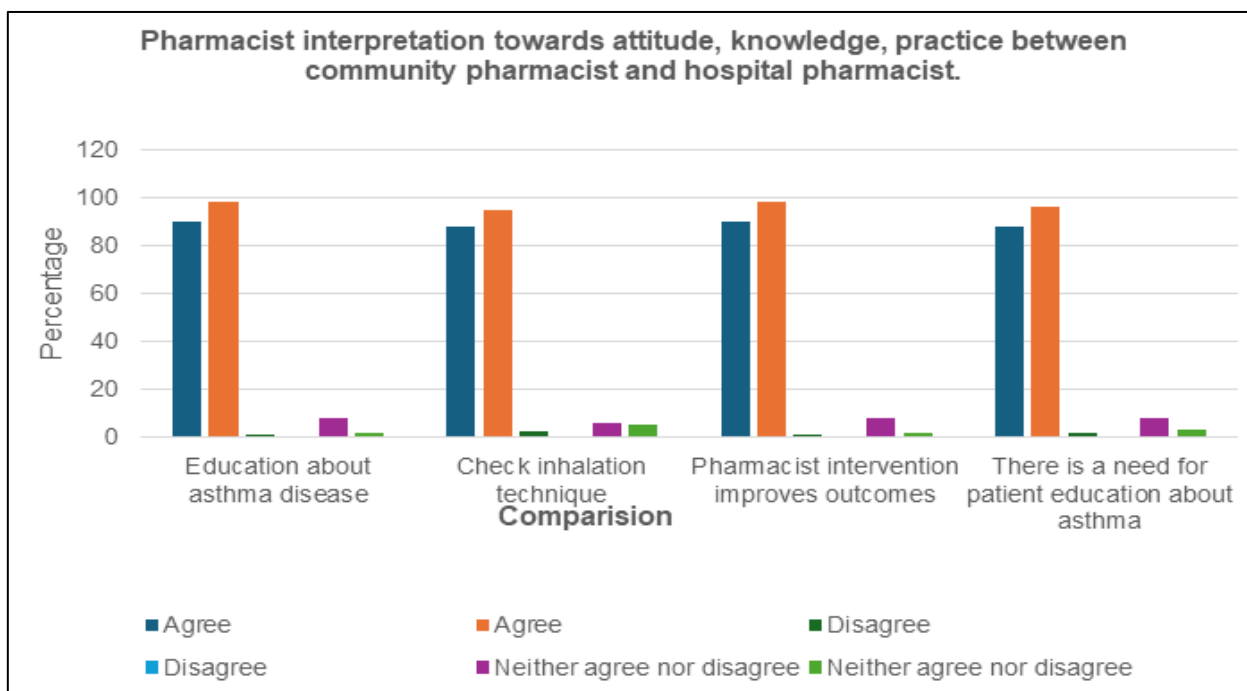


Fig 8 Comparison of Total Pharmacist Interpretation

IV. DISCUSSION

➤ Knowledge About Asthma Medication in Patient

Hospital pharmacists showed higher agreement (94–98%) in asthma care practices compared to community pharmacists (87–90%). This 8–10% difference suggests better involvement of hospital pharmacists in education, inhaler technique assessment, and counselling [10, 11].

➤ Attitude About Asthma Medication in Patient

Patients demonstrated moderate knowledge of asthma and its treatment. Around 70% understood that asthma is a chronic airway disease, and about 65% recognized the importance of regular inhaler use in preventing attacks. Approximately 60–63% were aware of the difference between reliever and controller inhalers and the impact of incorrect inhaler technique. However, a notable proportion (17–21%) remained neutral, and 11–18% disagreed, suggesting gaps in patient understanding of asthma medication [12].

➤ Self-Management About Asthma Medication in Patient

Regarding attitude, most patients showed a positive outlook toward asthma management. About 72% believed regular medication use helps control symptoms, and nearly 76% agreed that following medical advice is essential. Confidence in inhaler use was reported by 64% of patients, while around 74% trusted healthcare professionals for asthma management support. Despite this, 14–19% expressed neutral attitudes and 10–16% showed disagreement, indicating that not all patients fully embrace asthma treatment practices [13,14].

➤ Knowledge of Pharmacists Regarding Asthma Management Counselling

In terms of self-management, approximately 67% reported regular use of prescribed medication, and 62% carried reliever inhalers for emergencies. Around 58% checked their inhaler technique with healthcare providers, and 69% avoided known triggers such as dust or smoke. Nevertheless, 17–23% remained neutral and 13–19% disagreed, highlighting deficiencies in consistent self-management behaviours [15].

➤ Practice of Pharmacists in Asthma Management Counselling

Among pharmacists, knowledge of asthma management counselling was generally high. Community pharmacists showed agreement levels between 87.5% and 89.6%, while hospital pharmacists demonstrated higher agreement at 98.1%. Neutral responses were more common among community pharmacists (10–12.5%) compared to hospital pharmacists (1.9%), indicating a knowledge gap of about 8–10% [16,17].

➤ Attitudes of Pharmacists Toward Asthma Management

Pharmacists' practice patterns followed a similar trend. Positive counselling practices were reported by 87.5–89.6% of community pharmacists and 98.1% of hospital pharmacists. Neutral and disagreement responses were slightly higher among community pharmacists, whereas

hospital pharmacists showed minimal disagreement, reflecting stronger practical engagement [18].

➤ Attitudes of Pharmacists Toward Asthma Management

Attitudes toward asthma management were also favorable in both groups, though hospital pharmacists again showed slightly higher agreement levels (98.1%) compared to community pharmacists (87.5–91.6%). Neutral responses were more frequent among community pharmacists, reinforcing a modest difference in overall preparedness [19].

➤ Comparison of Pharmacist Attitude, Knowledge and Practice Between Community Pharmacist and Hospital Pharmacist

Overall, hospital pharmacists consistently outperformed community pharmacists across knowledge, attitude, and practice domains, with an approximate 8–10% higher agreement rate. This suggests that hospital pharmacists may be more actively involved in patient education, inhaler technique assessment, and counselling, while community pharmacists may benefit from further training to enhance asthma care delivery [20].

V. CONCLUSION

Overall, the study highlights that pharmacists have a positive attitude and adequate knowledge toward asthma care, but improvements are still needed in practical aspects such as inhaler technique demonstration and patient education. Strengthening pharmacist involvement through training programs and clinical counselling services can further improve asthma self-management and treatment outcomes in patients. The findings indicate that hospital pharmacists demonstrate better practice and attitudes toward asthma management compared with community pharmacists.

➤ Ethical Approval:

Informed consent was obtained from all participants. The study was conducted in accordance with ethical principles applicable to community health research.

➤ Conflict Of Interest:

The authors declare no conflict of interest. |

➤ Funding:

Nil

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