

Assessment Of Community Pharmacists' Awareness In Detecting And Reporting Adverse Drug Reactions Related To Hypertension Management In The Southern Part Of Kerala

¹Dr.Nithin Manohar R, ²Abi R, ²Aneesh M. A, ²Amina Mohammad Raji,
²Anakha SS, ³Ms.Anjana U.J, ⁴Dr. Prasobh G.R.

¹Guide, Professor and HOD Department of Pharmacy Practice, Sree Krishna College of Pharmacy and Research centre, Parassala, Thiruvananthapuram.

²Eight Semester B Pharm students, Sree Krishna College of Pharmacy and Research centre, Parassala, Thiruvananthapuram.

³Assistant Professor, Department of Pharmacy Practice, Sree Krishna College of Pharmacy and Research centre, Parassala, Thiruvananthapuram.

⁴Principal, Sree Krishna College of Pharmacy and Research centre, Parassala, Thiruvananthapuram.

Date of Submission: 25-01-2026

Date of Acceptance: 05-02-2026

ABSTRACT: A study was conducted to assess Adverse Drug Reaction (ADR) awareness and the knowledge, attitude, and practice (KAP) related to hypertension management in community pharmacies in the southern part of Kerala. This study analyzed ADR awareness and the KAP of community pharmacists regarding antihypertensive therapy. Knowledge, attitude, and practice were assessed using a suitably designed questionnaire. The study evaluated ADR awareness and overall hypertension management among community pharmacists before and after counselling. Data were collected from 100 community pharmacies involving 162 pharmacists. Demographic analysis showed a higher proportion of male pharmacists (60.5%), with most participants belonging to the 20–30 years age group (48%). Pharmacists aged above 50 years demonstrated inadequate knowledge regarding the latest ADR reporting guidelines and the adverse effects associated with antihypertensive medications. The study also revealed that the majority of community pharmacists were qualified with a Diploma in Pharmacy (65%). Initially, pharmacists' knowledge regarding ADRs and hypertension therapy was found to be below average, indicating a clear need for counseling on ADR awareness and the risks associated with antihypertensive treatment. Following counselling, significant improvements were observed in the knowledge, attitude, and practice of pharmacists related to ADRs and hypertension management. Knowledge of ADRs related to hypertension increased from 46% to 83%, while knowledge of hypertension therapy improved from 63.3% to 88.4%. Attitude scores increased from 38% to 57.9%, and practice scores improved

from 44.1% to 60.4%, with all improvements being statistically significant ($p < 0.05$). The most commonly dispensed drugs for hypertension were antihypertensives (52%), followed by diuretics (17%) and beta-blockers (13%). The study highlights the positive impact of providing ADR awareness and information regarding the appropriate use and side effects of antihypertensive therapy through patient counselling supported by information leaflets. It concludes that improving ADR identification, reporting, and understanding of hypertension therapy significantly enhances community pharmacists' knowledge, attitude, and practice toward effective hypertension management.

KEYWORDS: ADR, Hypertension, Counseling, Community pharmacists'

I. INTRODUCTION

Hypertension is a prevalent chronic condition affecting millions worldwide, and antihypertensive medications are crucial for managing it. However, underreporting of adverse drug reactions (ADRs) is a significant challenge. A project proposes using gamification to enhance public reporting of ADRs, improving pharmacovigilance efforts. The study will assess the impact of gamification on reporting rates, user engagement, and data quality. This project aims to improve medication safety and patient care in hypertension management, potentially inspiring innovative approaches to pharmacovigilance in other therapeutic areas.^[1]



Fig:1 Hypertension

Hypertension is a major global health problem and a leading cause of premature death, contributing to heart disease, stroke, kidney disease, and dementia. Though symptomless, long-term high blood pressure greatly increases cardiovascular risk. Worldwide, 1.13 billion people are affected, with two-thirds living in low- and middle-income countries (LMICs). India alone has about 199 million adults with elevated BP, and in 2016 hypertension accounted for over half of deaths from heart disease, stroke, and chronic kidney disease. To address this, India launched the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) in 2010, aiming to reduce hypertension-related premature deaths by 25% by 2025.

Definition of Hypertension

Hypertension in adults is defined by WHO/ISH and JNC7 guidelines as a systolic blood pressure of 140 mmHg or higher and/or a diastolic blood pressure of 90 mmHg or higher, confirmed on repeated measurements. The 2007 ESH/ESC guidelines further classify blood pressure into categories: optimal (<120/80 mmHg), normal (120–129/80–84 mmHg), and high-normal (130–139/85–89 mmHg). Hypertension is graded into three levels: mild (140–159/90–99 mmHg), moderate (160–179/100–109 mmHg), and severe ($\geq 180/\geq 110$ mmHg). Additionally, isolated systolic hypertension is defined as systolic ≥ 140 mmHg with diastolic <90 mmHg, and is graded according to systolic level. When systolic and diastolic pressures fall into different categories, the higher category is used to assess cardiovascular risk.

PHARMACOVIGILANCE

Pharmacovigilance, as defined by the World Health Organization, is the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other medicine-related problem. The word "pharmacovigilance" comes from the Greek word

pharmakon (medicinal substance) and the Latin word *vigilia* (to keep watch).^[10]

ACTIVITIES

- Pharmacovigilance involves the detection and collection of adverse drug reactions (ADRs) from healthcare professionals and patients.
- It includes the assessment and analysis of reported ADRs to identify new or known drug-related risks.
- Pharmacovigilance activities focus on the monitoring of drug safety throughout the product life cycle.
- It aims to prevent or minimize harm to patients by ensuring the safe and rational use of medicines.
- Pharmacovigilance supports regulatory decision-making and risk communication to healthcare professionals and the public.

PROGRAMS

- 1986: Started the ADR monitoring centre with 12 regional centers
- 1997: India joined WHO-ADR monitoring program
- 2004: National Pharmacovigilance Program
- 2010: Pharmacovigilance Program in India^[11]

ADVERSE DRUG REACTIONS [ADRs]

An unintended and harmful reaction to a medicine that occurs at the normal dose for treatment. ADRs are a leading cause of death in many countries. The World Health Organization (WHO) in 1972, defines ADRs as "a drug-related event that is noxious and unintended".^[12]

ADRs are unintended events that can occur after exposure to a drug, biological product, or medical device. They can lead to increased hospital stays, morbidity, and treatment costs, which can compromise patient safety. Pharmacists play key role in detecting, monitoring, and reporting adverse drug reactions (ADRs).^[1]

II. RESULTS AND DISCUSSION

In the study the data on demographic characteristic Knowledge Attitude and Practice score were collected from 100 community pharmacies with 165 pharmacists. The collected data were subjected to statistical analysis. The correlation between Knowledge Attitude and Practice were assessed using bar graph or pie Chart. All the analysis was carried out with help of statistical software.

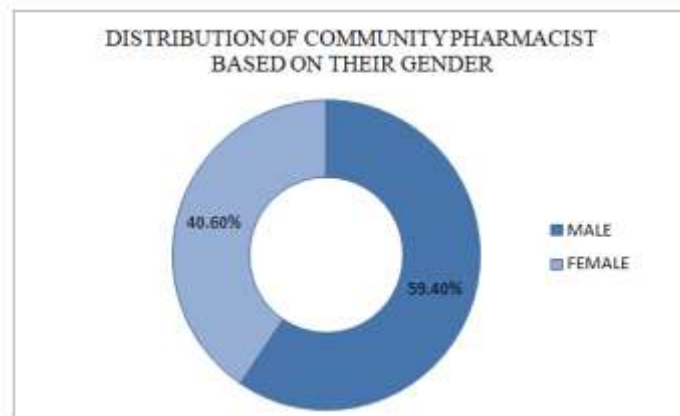
DEMOGRAPHIC CHARACTERISTICS OF COMMUNITY PHARMACISTS

In this section demographic characteristic of community pharmacist were collected represents as bar graph or pie chart.

DISTRIBUTION OF COMMUNITY PHARMACIST BASED ON THEIR GENDER

SLNO	GENDER	FREQUENCY (n=165)	PERCENTAGE
1	MALE	98	59.40%
2	FEMALE	67	40.60%

TABLE: 2



GRAPH:1

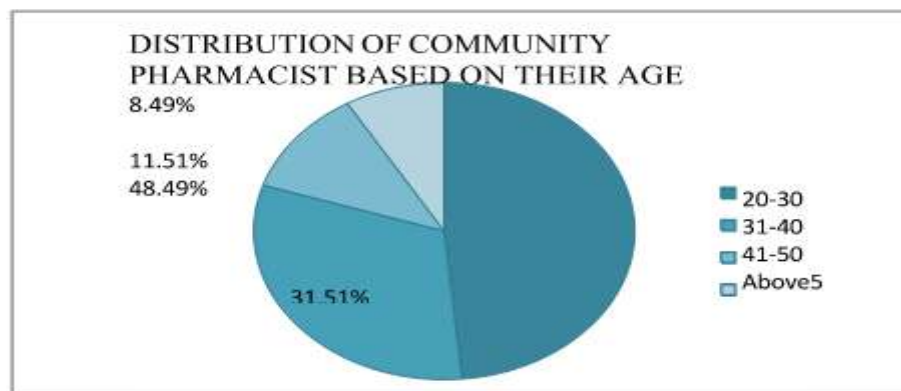
In this study 100 community pharmacies with 165 pharmacists were selected. For gender male community pharmacist is higher than female

community pharmacist. It was found that 40.60% of community pharmacists are Females & 59.40% are Males.

DISTRIBUTION OF COMMUNITY PHARMACIST BASED ON THEIR AGE

SLNO	AGE	FREQUENCY (n=165)	PERCENTAGE
1	20-30	80	48.49%
2	31-40	52	31.51%
3	41-50	19	11.51%
4	Above50	14	8.49%

TABLE: 3



GRAPH:2

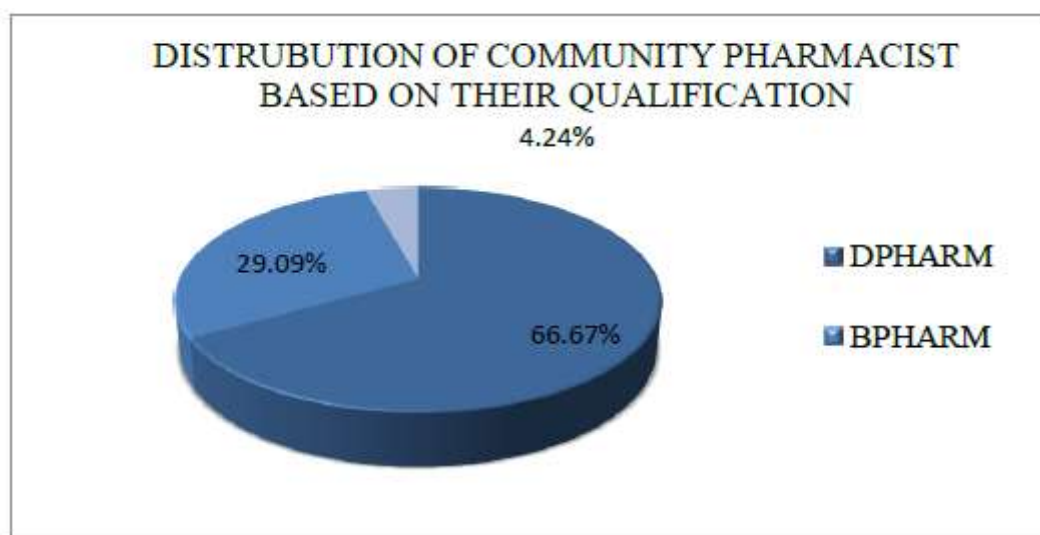
In this study, 100 community pharmacies involving 165 pharmacists were selected. The table indicates that the majority of community pharmacists belonged to the 20–30 years age group. Pharmacists in this age group demonstrated an average level of knowledge regarding hypertension. Approximately 8.49% of community

pharmacists were above 50 years of age, and this group was less updated with the latest guidelines for hypertension. Furthermore, 31.51% of the pharmacists were aged 31–40 years, 11.51% were in the 41–50 years age group, and about 8.49% were above 50 years of age.

DISTRUBUTION OF COMMUNITY PHARMACIST BASED ON THEIR QUALIFICATION

SLNO	QUALIFICATION	FREQUENCY (n=165)	PERCENTAGE
1	DPHARM	110	66.67%
2	BPHARM	48	29.09%
3	M PHARM	7	4.24%

Table 4



GRAPH:3

In this study, 100 community pharmacies involving 165 pharmacists were selected. The findings revealed that the majority of community pharmacists held a DPharm qualification, accounting for about 66.67% of the participants. This group showed limited awareness regarding the adverse effects and contraindications associated with respiratory tract infection therapy. Approximately 29.09% of the community pharmacists were BPharm graduates, while only 4.24% held an MPharm degree.

ADR ASSESSMENT IN THE MANAGEMENT OF HYPERTENSION

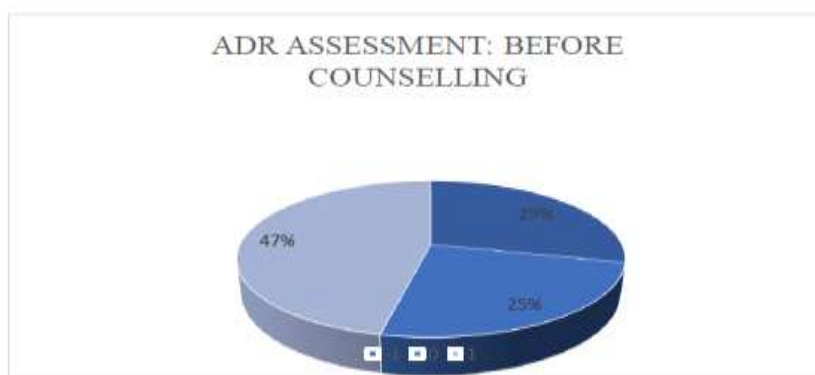
ADR Assessment in the management of Hypertension in community pharmacies were assessed by using the suitably designed questions. In this section scores on ADR assessment obtained from community pharmacies were selected and converted into percentage (%).

- Total number of pharmacies: 100
- Total number of pharmacists: 165
- Method: Questionnaire with Scoring method
- Number of questions includes: 5

**ADVERSE DRUG REACTION(ADR) ASSESSMENT:
 BEFORE COUNSELLING**

SL NO	QUESTIONS	SCORING		
		-1	0	+1
1	Are you aware of the Adverse Drug Reaction (ADR) associated with the management of Hypertension	13	57	95
2	Have you ever seen an Adverse Drug Reaction (ADR) reporting form?	9	35	121
3	Have you ever seen an Adverse Drug Reaction (ADR) reporting form?	56	63	46
4	Are you familiar with filling out an Adverse Drug Reaction (ADR) form?	19	30	116
5	Do you know the nearest Pharmacovigilance centre to report an Adverse Drug Reaction (ADR)?	140	20	5
	TOTAL	28.7%	24.8%	46.5%

TABLE:5



GRAPH:3

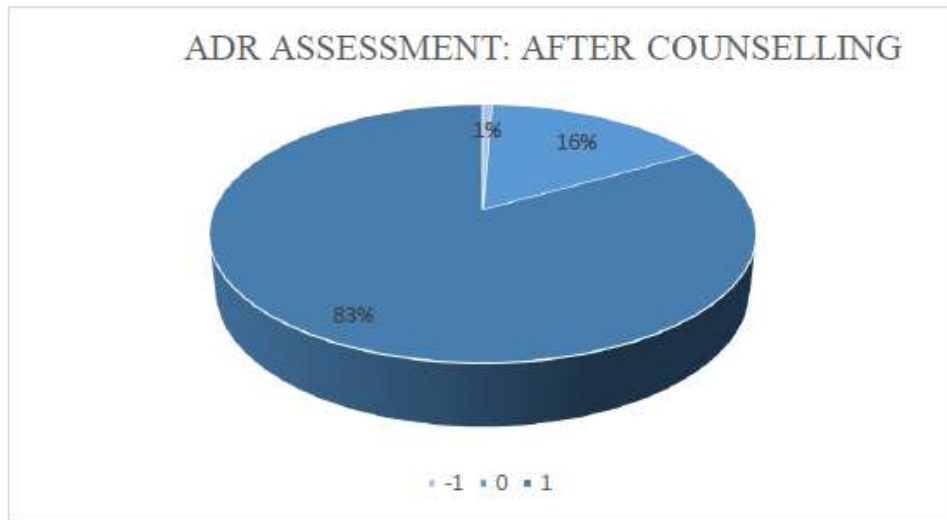
In our study, prior to counselling, the level of knowledge among community pharmacists regarding Adverse Drug Reaction (ADR) assessment in the management of hypertension was

low. Only 47% of pharmacists demonstrated good knowledge, 25% had moderate knowledge, and 29% exhibited poor knowledge.

**ADVERSE DRUG REACTION(ADR) ASSESSMENT:
 AFTER COUNSELLING**

SL NO	QUESTIONS	SCORING		
		-1	0	+1
1	Are you aware of the Adverse Drug Reaction (ADR) associated with the management of Hypertension	2	46	117
2	Have you ever seen an Adverse Drug Reaction (ADR) reporting form?	-	-	165
3	Have you ever seen an Adverse Drug Reaction (ADR) reporting form?	4	62	99
4	Are you familiar with filling out an Adverse Drug Reaction (ADR) form?	-	25	140
5	Do you know the nearest Pharmacovigilance centre to report an Adverse Drug Reaction (ADR)?	-	-	165
	TOTAL	0.7%	16.1%	83.2%

TABLE: 6



Graph. 4

In our study, the findings showed that a large majority of community pharmacists possessed a good level of knowledge regarding Adverse Drug Reaction (ADR) assessment in the management of hypertension, accounting for 83% of the participants. Additionally, 16% of the community

pharmacists demonstrated a moderate level of knowledge in this area. In contrast, only a small proportion, about 1%, exhibited poor knowledge of ADR assessment related to hypertension management.

COMPARISON OF OVERALL ASSESSMENT OF (ADR) AWARENESS

SL NO	QUESTIONS	BEFORE COUNSELLING	AFTER COUNSELLING	P-VALUE
1	Are you aware of the Adverse Drug Reaction (ADR) associated with the management of Hypertension	95	117	.013*
2	Have you ever seen an Adverse Drug Reaction (ADR) reporting form?	121	165	.001*
3	Have you ever seen an Adverse Drug Reaction (ADR) reporting form?	46	99	.001*
4	Are you familiar with filling out an Adverse Drug Reaction (ADR) form?	116	140	.001*
5	Do you know the nearest Pharmacovigilance centre to report an Adverse Drug Reaction (ADR)?	5	165	.001*
	TOTAL	46.5%	83.2%	.001*

*Significant p<.05

TABLE: 7

On comparing the overall knowledge of community pharmacists regarding ADR awareness in the management of hypertension, a marked improvement was observed. The level of overall knowledge among community pharmacists was 46.5% before counseling, which significantly increased to 83.2% after counseling.

In this section scores on KAP obtained from community pharmacies were selected and converted into percentage (%).

- Total number of pharmacies: 100
- Total number of pharmacists: 16
- Method: Questionnaire with Scoring method
- Number of questions includes: 5

KNOWLEDGE ATTITUDE AND PRACTICE OF HYPERTENSION IN COMMUNITY PHARMACIES IN THE SOUTHERN PART OF KERALA

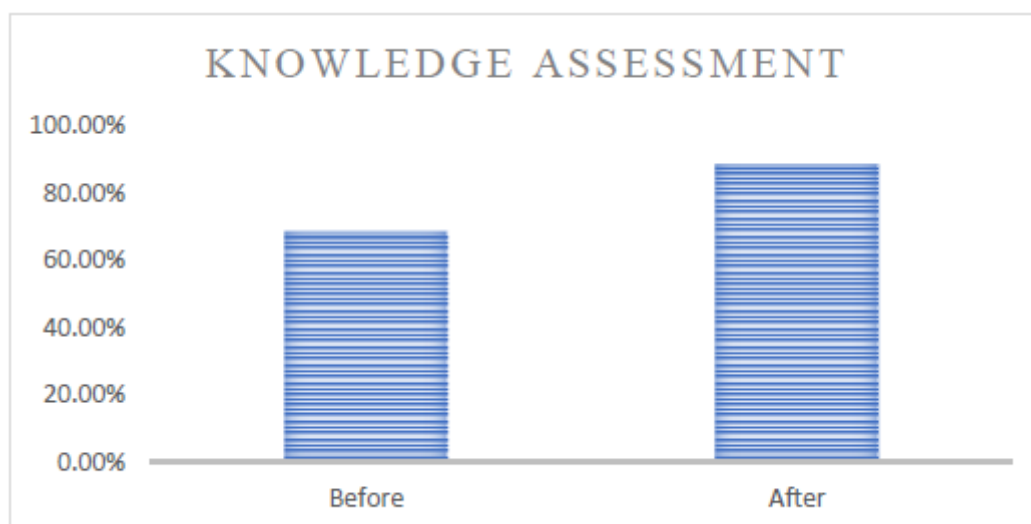
The Knowledge Attitude and Practice of Hypertension in community pharmacies were assessed by using the suitably designed questions.

KNOWLEDGE ASSESSMENT: BEFORE AND AFTER COUNSELLING

SL NO	QUESTIONS	BEFORE SCORING			AFTER SCORING			P-VALUE
		-1	0	+1	-1	0	+1	
1	Do you know about Hypertension?	-	-	165	-	-	165	NS
2	Do you know what the complications of Hypertension are?	43	59	63	8	39	118	.001*
3	Do you know normal level of BP?	30	56	79	11	14	140	.001*
4	Do you know the signs and Symptoms of Hypertension?	30	44	91	7	15	143	.001*
5	Do you think smoking and alcohol consumption cause Hypertension?	-	-	165	-	-	165	NS
	TOTAL	12.48%	19.27%	68.25%	3.15%	8.24%	88.61%	.002*

*Significant $p < .05$

TABLE:8



In our study, knowledge of community pharmacists about the management of hypertension were found to be increased. The overall knowledge before counseling of community pharmacist was

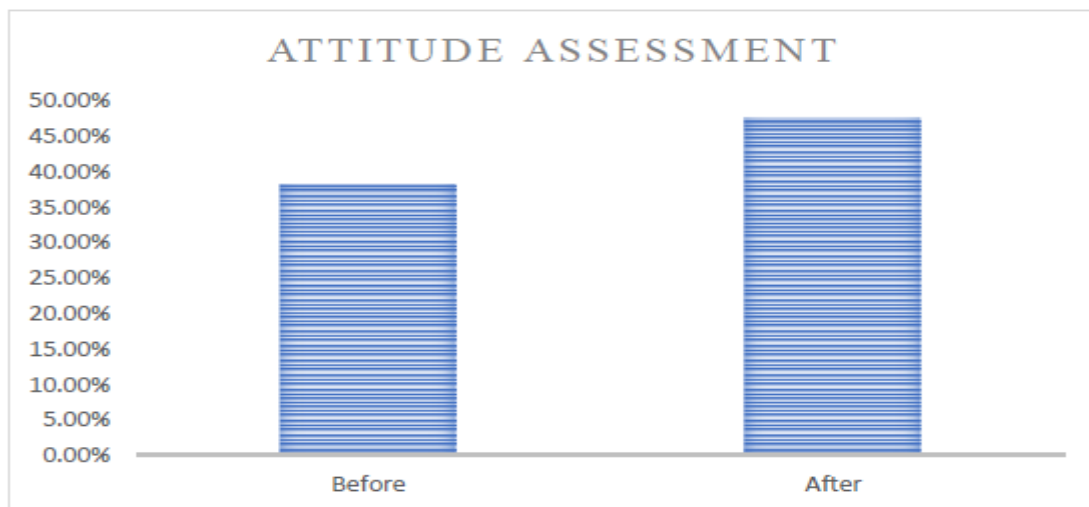
found to be 68.25% and it is increased to 88.61% after counseling. 88.61% of them have good knowledge, 8.24% have moderate knowledge and 3.15% have poor knowledge.

ATTITUDE ASSESSMENT: BEFORE AND AFTER COUNSELLING

SL NO	QUESTION	BEFORE SCORING			AFTER SCORING			P-VALUE
		-1	0	+1	-1	0	+1	
1	Do you think regular medication will improve the hypertension?	-	67	98	-	63	102	0.578
2	Do you think regular physical activity is essential?	22	49	94	13	34	118	.005*
3	Do you think that hypertension can be managed medication and lifestyle changes?	66	43	56	40	50	87	.002*
4	Are you confident in your ability to manage the patient's hypertension?	8	95	59	5	67	72	.002*
5	Are you knowledgeable enough about hypertension to treat a patient it?	111	47	7	88	69	8	.009*
TOTAL		25.18%	36.62%	38.20%	17.89%	34.68%	47.43%	.075

*Significant p<.05

TABLE: 9



GRAPH:7

In our study, knowledge of community pharmacists about the management of hypertension were found to be increased. The overall knowledge before counselling of community pharmacist was

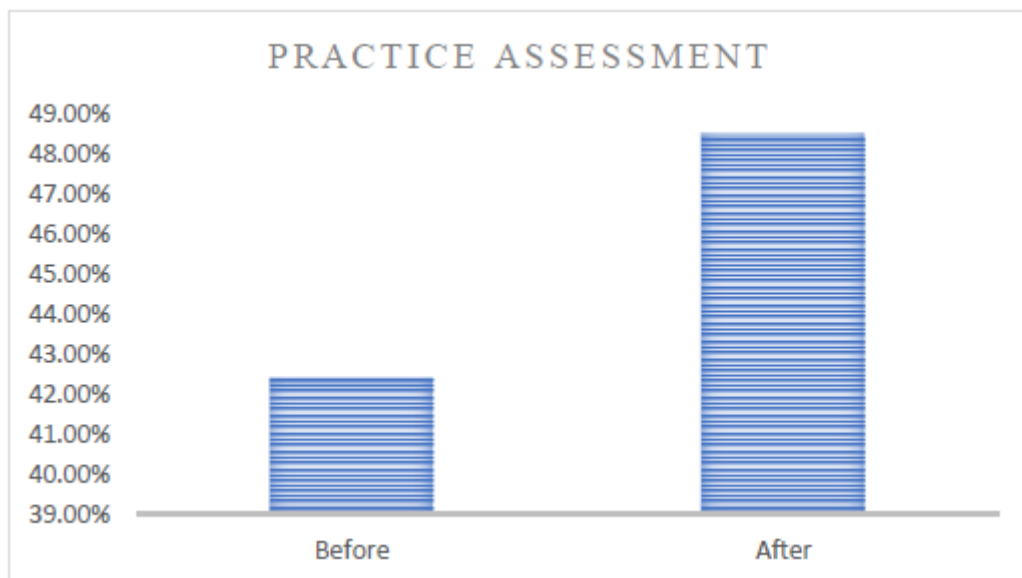
found to be 38.20% and it is increased to 47.43% after counselling. 47.43% of them have good knowledge, 34.68% have moderate knowledge and 17.89% have poor knowledge.

PRACTICE ASSESSMENT: BEFORE AND AFTER COUNSELLING

SL NO	QUESTION	BEFORE SCORING			AFTER SCORING			P-VALUE
		-1	0	+1	-1	0	+1	
1	Do you attend awareness class and campaigns based on hypertension?	80	15	70	22	63	80	.001*
2	Do you educate patient about hypertension therapy benefits and risk?	58	32	75	29	54	82	.001*
3	Do you dispense hypertension drugs as OTC Drugs?	49	36	80	-	80	85	.001*
4	Do you give any advice for taking medications (Frequency, route of administration, Dose, Duration)	62	38	65	26	61	78	.001*
5	Do you give any advice about lifestyle modification on Hypertensive patient?	97	8	60	9	81	75	.001*
	TOTAL	41.94%	15.64%	42.4%	10.42%	41.09%	48.5%	.001*

*Significant p<.05

TABLE: 10



GRAPH:8

Our study observed a significant improvement in the knowledge levels of community pharmacists regarding the management of hypertension. The baseline knowledge score rose from 42.4% pre-counseling to 48.5% post-intervention. Evaluation of post-counseling

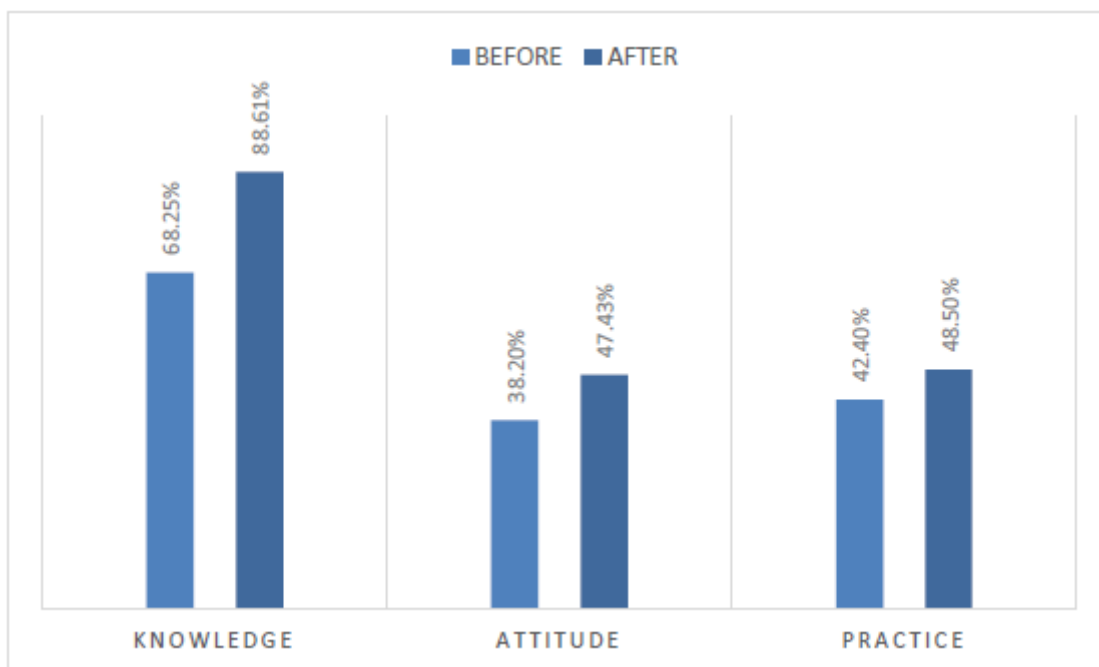
competency showed that 48.5% of pharmacists attained "good" knowledge, while 41.09% and 10.42% demonstrated "moderate" and "poor" knowledge, respectively.

COMPARISON OF OVERALL ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE

KAP	BEFORE COUNSELLING	AFTER COUNSELLING	P-VALUE
KNOWLEDGE	68.25%	88.61%	.001*
ATTITUDE	38.20%	47.43%	.098
PRACTICE	42.4%	48.5%	.202

*Significant p<.05

TABLE:11



GRAPH:8

The study demonstrated a significant improvement in the overall Knowledge, Attitude, and Practice (KAP) scores among community pharmacists following the counseling intervention. This suggests that targeted educational support effectively enhances professional competency across knowledge and a slight enhancement in attitude and practice respectively.

III. DISCUSSION

ADVERSE DRUG REACTION ASSESSMENT

In our study, the Knowledge of the community pharmacist about the Adverse Drug Reaction in the management of Hypertension, before and after counseling was found to be 46.5% and 83.2% respectively. It was found to be statistically significant. The P-value is 0.001*.

KNOWLEDGE, ATTITUDE AND PRACTICE ASSESSMENT

KNOWLEDGE

In this study, the level of knowledge among community pharmacists regarding the management of respiratory tract infections increased from 68.25% before counselling to 88.61% after counselling. This improvement was found to be statistically significant, with a p-value of 0.001*.

ATTITUDE

The improvement in attitude after counselling was not statistically significant (p-value 0.098) because attitudinal changes are gradual and influenced by deeply rooted beliefs, personal experiences, and professional culture. A single or short-term counselling intervention may increase awareness but may be insufficient to produce a substantial shift in attitude within a limited study duration.

PRACTICE

The change in practice was not statistically significant (p-value 0.202) as practice-related behaviors depend on external and systemic factors, such as time constraints, patient load, availability of resources, and organizational policies. Even with improved knowledge, pharmacists may face practical barriers that limit immediate implementation, leading to modest changes that do not reach statistical significance.

The overall study demonstrated a statistically significant improvement in knowledge following counselling, indicating that educational

interventions are effective in enhancing pharmacists' understanding within a short period. In contrast, although attitude and practice scores showed an upward trend, these changes were not statistically significant. This can be explained by the fact that attitudinal change requires sustained motivation and reinforcement, while practice modification is influenced by external, organizational, and contextual barriers that may limit immediate adoption. Therefore, while counselling effectively improves knowledge, long-term, repeated interventions and supportive practice environments are necessary to achieve significant changes in attitude and practice.

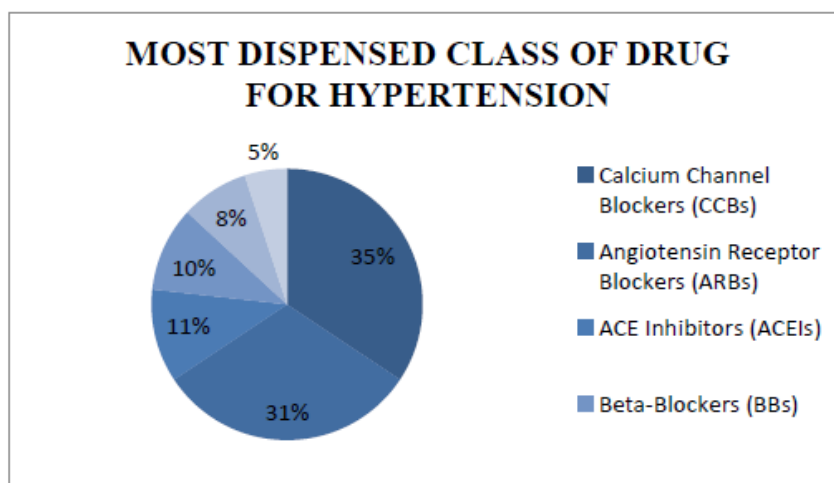
MOST DISPENSED CLASS OF DRUG FOR HYPERTENSION

Hypertension is a chronic non-communicable disease and a major contributor to cardiovascular morbidity and mortality worldwide. Effective management of hypertension relies largely on long-term pharmacotherapy, often requiring the use of one or more antihypertensive agents. Various classes of antihypertensive drugs are available, including diuretics, calcium channel blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, beta-blockers, and fixed-dose combinations. Evaluation of drug utilization patterns is essential to assess prescribing trends, rational drug use, and adherence to clinical guidelines. Such analyses provide valuable insights into real-world clinical practice and help identify the most commonly dispensed classes of antihypertensive medications.

Drug Class	Number per 100	Percentage (%)
Calcium Channel Blockers (CCBs)	34	34%
Angiotensin Receptor Blockers (ARBs)	31	31%
ACE Inhibitors (ACEIs)	11	11%
Beta-Blockers (BBs)	10	10%
Diuretics (Thiazides)	8	8%
Fixed-Dose Combinations (FDCs)	5	5%

Analysis of the dispensed antihypertensive drugs, standardized to a total of 100 drugs, revealed that calcium channel blockers (CCBs) were the most frequently dispensed class, accounting for 34% of the total. This was followed by angiotensin receptor blockers (ARBs), which constituted 31% of the dispensed drugs. Angiotensin-converting

enzyme inhibitors (ACEIs) represented 11%, while beta-blockers accounted for 10%. Diuretics, predominantly thiazide diuretics, comprised 8% of the total, and fixed-dose combinations (FDCs) accounted for the remaining 5%.



IV. RESULT

The distribution of antihypertensive drugs shows that **Calcium Channel Blockers (CCBs)** were the most dispensed class, accounting for **34% (34 out of 100 drugs)**. This was followed closely by **Angiotensin Receptor Blockers (ARBs)**, which constituted **31%** of the total dispensed drugs. **ACE inhibitors** represented **11%**, while **beta-blockers** accounted for **10%** of prescriptions. **Diuretics**, mainly thiazides, formed **8%**, and **fixed-dose combinations (FDCs)** contributed the smallest share at **5%**. Overall, CCBs and ARBs together comprised **65% of all antihypertensive drugs dispensed**, indicating their predominant role in hypertension management.

V. SUMMARY

A prospective observational study was conducted in the Department of Pharmacy Practice at Sree Krishna College of Pharmacy and Research Centre titled "A survey on assessment of community pharmacies awareness in detecting and reporting adverse drug reaction related to hypertension management in southern part of Kerala". The objectives of the study were to evaluate the knowledge, attitude, and practice of community pharmacists; to provide counselling to community pharmacists on hypertension management, and to compare their knowledge, attitude, and practice before and after counselling. The estimated sample size was 165. Demographic details of community pharmacists, including age, gender, and educational qualification were collected.

- A total of 100 community pharmacies comprising 165 pharmacists were included in the study.

- A structured questionnaire was administered to assess adverse drug reaction awareness and the knowledge, attitude, and practice of community pharmacists regarding hypertension management.
- The questionnaire scores before and one month after counselling were compared, and the results showed a significant improvement in knowledge, while attitude and practice did not show statistically significant changes.
- The awareness of adverse drug reactions and the knowledge of community pharmacists in the management of hypertension showed a significant improvement after counselling, while no statistically significant change was observed in their attitude and practice.
- The data collected was analyzed by plotting a suitable graph and compared the results.

VI. CONCLUSION

- Hypertension is a common chronic non-communicable disease and a major public health problem worldwide. It is often referred to as a "silent killer" because many patients remain asymptomatic for long periods while progressive damage occurs to vital organs such as the heart, kidneys, brain, and blood vessels. Poorly controlled hypertension significantly increases the risk of cardiovascular complications including myocardial infarction, stroke, heart failure, and chronic kidney disease. Therefore, effective management of hypertension is essential to reduce morbidity, mortality, and healthcare burden.
- The importance of hypertension management lies in maintaining blood pressure within the recommended range through a combination of

pharmacological therapy, lifestyle modification, and regular monitoring. Patient adherence to antihypertensive medications, dietary changes such as reduced salt intake, physical activity, weight control, and avoidance of smoking and alcohol play a crucial role in achieving optimal blood pressure control. Healthcare professionals, especially pharmacists, have an important role in patient education, counselling, and promoting adherence, which ultimately improves treatment outcomes and quality of life in hypertensive patients.

- The knowledge of community pharmacists about Adverse Drug Reaction (ADR) awareness and Knowledge, Attitude and Practice (KAP) in the management of hypertension plays a very important role in patient health care. Proper understanding of antihypertensive therapy, its side effects, and safe use is essential to prevent complications. However, a lack of adequate knowledge regarding adverse drug reactions, their identification, and reporting was observed among community pharmacists.
- In this study, 100 community pharmacies with 165 pharmacists were randomly selected from the southern part of Kerala. From the initial survey, it was found that community pharmacists aged above 50 years had poor knowledge regarding hypertension management, and their attitude and practice towards hypertension therapy were also not satisfactory. Many pharmacists were not regularly updating themselves with new treatment guidelines and government policies related to hypertension management.
- Most of the community pharmacists were D. Pharm qualified and had basic knowledge about antihypertensive drugs, but they were unaware of the risk factors, adverse effects, and long-term complications associated with hypertension therapy. It was also observed that some antihypertensive-related medicines were dispensed without adequate counselling, while others were dispensed only with prescriptions. The community pharmacies included government, private, and government-aided pharmacies.
- During the first phase of the study, the overall ADR awareness and KAP related to hypertension management were found to be below average. This indicated the need for greater attention towards the safe use of

antihypertensive drugs and proper patient counselling. Therefore, counselling was provided to community pharmacists using educational leaflets, focusing on adverse drug reactions, risk factors, government policies, and proper hypertension management.

- In the second phase of the study conducted after one month, the knowledge level of community pharmacists showed a statistically significant improvement after counselling. However, attitude and practice did not show significant improvement, mainly due to lack of practical exposure, long-standing dispensing habits, and poor awareness of government guidelines and policies related to hypertension management.
- Community pharmacists have a vital responsibility to screen patients, assess risk factors, and provide correct information to ensure safe use of antihypertensive drugs. Pharmacists should be aware of adverse effects and risk factors while dispensing medicines to minimize complications in patients. This study highlights that counselling through leaflets effectively improves knowledge, but continuous training and policy awareness programs are required to bring meaningful changes in attitude and practice among community pharmacists in hypertension management.

REFERENCES

- [1]. Remya Gayathri S, Aliyamma Alex H, Biju H, Jino J, Jamal S, Barsath S. A study on antihypertensive safety: enhancing public adverse drug reactions reporting. *Int J Pharm Res Appl.* 2024 May–Jun;9(3):1996–2002.
- [2]. Author(s). Hypertension: a national cross-sectional study in India. *Arch Turk Soc Cardiol.*
- [3]. Lee J, Hu P, Wilkens J, Meijer E, Sekher TV, Bloom DE. Hypertension awareness, treatment, and control and their association with healthcare access in the middle-aged and older Indian population: a nationwide cohort study. *PLoS Med.* 2022;19(1):e1003858.
- [4]. Ministry of Health, Iraq. Hypertension prevention, diagnosis, and treatment: national guidelines for primary health care physicians. Baghdad: Directorate of Public Health.

- [5]. Sawicka K, Szczyrek M, Jastrzębska I, Prasał M, Zwolak A, Daniluk J. Hypertension – the silent killer. *J Preclin Clin Res.* 2011;5(2):43–46.
- [6]. © 2024 IJNRD | Volume 9, Issue 12 December 2024 | ISSN: 2456-4184 | IJNRD.ORG Hypertension: An Overview of Risk Factors, Pathophysiology, Diagnosis, and Management Dr. Pradeep Balu¹, Dr. Rohith Venkatesha²
- [7]. Delacroix S, Chokka RG. Hypertension: pathophysiology and treatment. *J Neurol Neurophysiol.* 2014;5(6)
- [8]. Guzik TJ, Mohiddin SA, Dimarco A, Patel V, Savvatis K, Marelli-Berg FM, et al. COVID-19 and the cardiovascular system: implications for risk assessment, diagnosis, and treatment options. *Cardiovasc Res.* 2020;116(10):1666–1687. doi:10.1093/cvr/cvaa106.
- [9]. Al Kibria GA, Swasey K, Choudhury A, et al. The new 2017 ACC/AHA guideline for classification of hypertension: changes in prevalence of hypertension among adults in Bangladesh. *J Hum Hypertens.* 2018;32(9):608–616. doi:10.1038/s413710180080z.
- [10]. L. Harmark, A C Van Grootheest. Pharmacovigilance: methods, recent developments and future perspectives. 2008; 64: 743-752
- [11]. Olsson S. The Role of programme for International Drug Monitoring in coordinating Worldwide drug safety efforts. *Drud Saf.* 1998; 19: 1-10.
- [12]. Edwards IR, Aronson JK. Adverse drug reactions: definitions, diagnosis, and management. *Lancet* 2000; 356: 1255-259.
- [13]. Awlins M, Thompson W. Mechanisms of adverse drug reactions. In: Davies D, ed. *Textbook of adverse drug reaction.* Newyork: oxford university press 1977:10. 51 SREE KRISHNA COLLEGE OF PHARMACY AND RESEARCH CENTRE PARASSALA BIBLIOGRAPHY
- [14]. Stephens MDB, Stephens MDB, Talbot JCC, Routledge PA. Definitions and classifications of adverse reaction terms in: *The detection of new adverse reactions*, 4th edn. London: Macmillan reference, 1998; 32-44. 15]Edwards IR. Causality assessment in pharmacovigilance: still a challenge. *Drug Saf.* 2017; 40:365–72.
- [15]. Bowman L, Carlsted BC, Hancock EF, Black CD. Adverse drug reaction (ADR) occurrence and evaluation in elderly in patients *Pharmacoepidemiol Drug Safety* 1996; 5: 9-18.
- [16]. Nebeker JR, Barach P, Samore MH. Clarifying adverse drug events: a clinician's guide to terminology, documentation, and reporting. *An Intern. Med* 2004; 140: 795-801.