



Tropical Journal of Pharmaceutical and Life Sciences

(An International Peer Reviewed Journal)

Journal homepage: <http://informativejournals.com/journal/index.php/tjpls>



Evaluation of Clinical Pharmacy Knowledge and Perception of Patient Care Roles Among Students: A Research

Syeda Zuleqa Unnisa Begum*, Kareema Begum, Ayesha Tahoora, Afreen Muneeb Syed, Mohammed Ibrahim Uddin

Deccan School of Pharmacy, Darussalam, Hyderabad, India

ARTICLE INFO:

Received: 18th March 2026; Received in revised form: 17th April 2026; Accepted: 25th April 2026; Available online: 30th April 2026.

Abstract

Introduction: Clinical pharmacists treat patients to optimize medication therapy and promote health, wellness, and illness prevention. The goal of this study was to assess students' attitudes, understanding, and awareness of clinical pharmacy and its potential to enhance patient care and health outcomes.

Methodology: A cross-sectional questionnaire-based survey was used to assess the knowledge, awareness, and opinions of pharmacy and allied health science students regarding clinical pharmacy practice. Data was gathered over the course of two weeks using a self-administered online survey distributed via Google Forms. A total of 200 students were chosen through convenience sampling, and only complete responses were included in the final analysis. The knowledge and attitudes regarding clinical pharmacy, over-the-counter (OTC) medication use, patient counseling, drug interactions, and medication errors were evaluated in this study.

Result: The study included 218 participants, mostly aged 20–22 years, with a predominance of Females and B. Pharm graduates. Participants demonstrated good knowledge of medication safety, including, with over 85–95% showing awareness in these areas Knowledge of OTC medication risks was reported by 87%, while about 50% expressed concerns about their safe use without guidance. Awareness of medication safety aspects, including drug interactions (94%) and medication errors (>90%), was notably high. Additionally, a positive attitude toward clinical pharmacy was observed, with 58.5% expressing interest in pursuing it as a career.

Conclusion: The study shows that most participants have a clear understanding of clinical pharmacy and view its role in patient care positively. They are generally well aware of medication safety, counselling, and the importance of preventing drug-related problems, though a few areas like OTC medicine use still need better clarity. With more focused learning and practical exposure, their knowledge and confidence can improve further. Overall, the results reflect a promising outlook for clinical pharmacy and its role in enhancing patient care.

Keywords: Clinical pharmacy, Awareness, Patient counselling, Over-the-counter (OTC) medications, Drug interactions, Medication errors, Pharmacovigilance, Medication safety.

*Corresponding Author:

Syeda Zuleqa Unnisa Begum

DOI: <https://doi.org/10.61280/tjpls.v13i2.267>

© 2026 The Authors. Tropical Journal of Pharmaceutical and Life Sciences (TJPLS Journal)
Published by Informative Journals (Jadoun Science Publishing Group India)

This article is an open access article distributed under the terms and conditions of the
Creative Commons Attribution-NonCommercial 4.0 International License.

Introduction

Clinical pharmacy is crucial in the healthcare system as it optimizes medication therapy and enhances patient care outcomes. The comprehensive approach of clinical pharmacy includes medication management, patient education, interprofessional collaboration, and research driven quality improvement initiatives. One of the main duties of clinical pharmacists is medication management. They thoroughly examine prescription orders, determine whether medication therapy is appropriate, and offer suggestions to improve treatment plans.^[1]

It aids in identifying potential side effects, adjusting dosages based on patient-specific factors, and evaluating potential drug interactions. By ensuring that patients receive the appropriate medications at the appropriate dosages, clinical pharmacists help in reducing medication errors, adverse reactions, and treatment failures.^[1]

Initially, these services involved pharmacists participating in ward rounds or reviewing charts in a clinical setting, Clinical specialization, outpatient clinical management, and even the use of prescribing rights is now part of a pharmacist's duties in some nations.^[2] Patient education and counseling are crucial components of clinical pharmacy.^[1] Pharmacists provide patients with vital information about their medications, including adherence strategies, potential side effects, and proper dosage.^[1] Artificial intelligence (AI) has grown to be a powerful force in many industries, with potentially revolutionary implications for healthcare.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Because AI technologies can handle massive amounts of data, find patterns, and forecast outcomes, they have opened up opportunities for diagnosis, treatment planning, patient monitoring, and drug discovery.^[3] Hospital and clinical pharmacies are also seeing an increase in the use of AI. Pharmacometrics, pharmacovigilance, pharmacogenomics translation sciences, medication safety, and polypharmacy are just a few of the areas of clinical pharmacy practice where integrating AI has been demonstrated to improve patient care and treatment outcomes. AI also contributes significantly to improving patient care, ensuring patient safety, optimizing hospital pharmacy inventory, and simplifying medication administration processes.^[3] The rapid development and use of AI technologies in clinical pharmacy reflects the healthcare system's ongoing shift to a more data-driven, precision-based model.^[3]

Sampling

Google Forms was used to conduct the online questionnaire-based survey. Pharmacy degree holders and pharmacists were sent the link to the survey via email, groups, what's App, and classroom announcements. The questionnaire was self-filled, and a convenient sampling technique was employed to invite study participants. The information was gathered between January 9, 2026, and January 25, 2026.

Multiple-choice questions were used in the questionnaire-based survey to measure the pharmacy students' knowledge, attitudes, and perceptions of clinical pharmacy practice. Students were asked to rate their confidence in various aspects, and only completed responses were scored. The percentage of correct answers was calculated. These legitimate answers were taken into account.

Data Collection

Google Forms was used to conduct a survey questionnaire-based study. Our questionnaire survey was divided into eight sections, SEC-A, B, C, D, E, F, G, and H, with a number of questions pertaining to the following. Individual responses were gathered and then descriptively analyzed.

- Demographic information (year, gender, age, and course)
- Knowledge of clinical pharmacy procedures.
- Information about over-the-counter (OTC) medications.
- Perspective on medication compliance and patient counseling.
- Knowledge of pharmacist intervention and drug interactions.
- Knowledge of drug distribution systems and medication errors.
- Understanding of Pharmacovigilance and adverse drug reactions (ADRs).
- How clinical pharmacy is viewed as a potential career path.

Inclusion Criteria

Participants who satisfied the following requirements were added to the study:

- The study included students who were presently enrolled in courses related to health sciences, such as B. Pharmacy, Phar.D. M. Pharmacy, MBBS, and other allied health programs.
- To guarantee representation of different levels of academic and clinical exposure, students from all academic years [first year to final year] were eligible.
- In order to preserve inclusivity and lessen selection bias, participants of both genders male and female as well as those who opted not to reveal their gender were included.
- The study only included students who gave their informed consent and willingly participated.
- The final analysis included participants who filled out the questionnaire completely and provided accurate answers.

Exclusion Criteria

The following criteria were used to exclude participants from the study:

- At the time of data collection, participants who were not enrolled in courses related to pharmacy, medicine, or allied health sciences were not included in the study.
- Students who refused to participate or give informed consent were excluded.
- To guarantee the validity and reliability of the data, incomplete, partially completed, or duplicate questionnaire responses were eliminated.
- Questionnaires with unclear, inconsistent, or erroneous answers were excluded from the final analysis.

Result

A. Demographics Features

The study comprised 218 participants in total. The majority of respondents (57.1%) were between the ages of 20 and 22, followed by those between the ages of 23 and 25 (25.3%). A smaller percentage were under 20

(12.4%) and over 25 (5.1%). Of the participants, 81.6% were Women and 17.1% were men. In terms of educational background, the majority of respondents (61.8%) had a B. Pharm.degree, followed by a Pharm D. (27.6%), with the remaining participants having taken other courses. Fourth-year students made up the largest group (36.7%) in terms of academic advancement, followed by third-year students (26.6%), fourth-year students (17.9%), second-year students (9.6%), and fifth-year students (9.2%).

Table 1: Demographics Details

Demographics Details		Participants	Percentage
Age	20-22 years	124	57.1%
	23-25 years	55	25.3%
	20 years	27	12.4%
	Age above 25 years	12	5.5%
Gender	Male	40	18.3%
	Female	178	81.7%
Course of Study	B Pharmacy	135	61.8%
	Pharm D	60	27.6%
	Others	26	12%
Year of Study	1 st year	39	17.9%
	2 nd year	21	9.6%
	3 rd year	58	26.6%
	4 th year	80	36.7%
	5 th year	20	9.2%

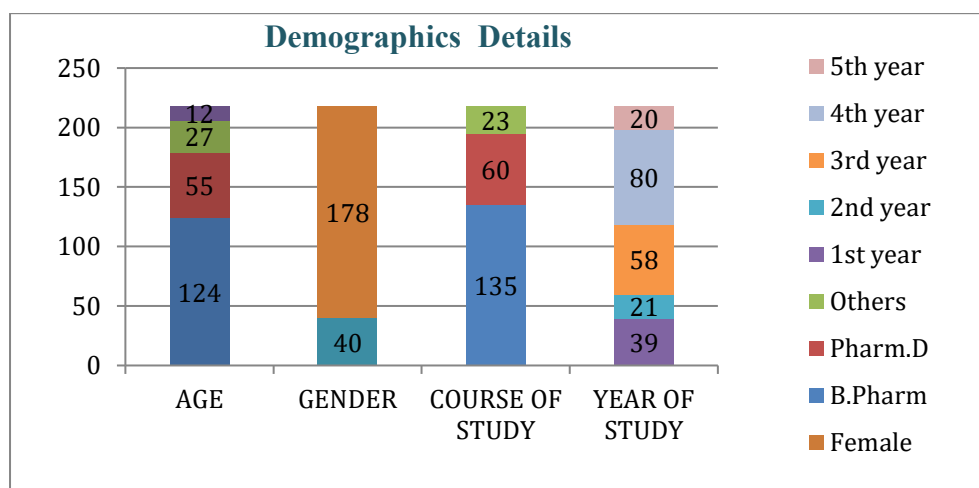


Figure 1: A Graph for Demographic details

B. Knowledge of Clinical Pharmacy

The results showed that only 6% of participants said they were unaware of the concept of clinical pharmacy, whereas 94% of participants were aware of it. While very few respondents connected clinical pharmacy with drug manufacturing or marketing, the majority of respondents (87.7%) correctly identified it as primarily focused on patient-oriented care. Furthermore, a sizable percentage of participants agreed or strongly agreed that clinical pharmacists are crucial to the provision of healthcare, demonstrating a favorable opinion of the field.

Table 2: Awareness of Clinical Pharmacy

Awareness of Clinical Pharmacy	Responses	Participants	Percentage
Aware of the concept of clinical pharmacy	Yes	205	94%
Unaware of the concept of clinical pharmacy	No	13	6%
Clinical pharmacy mainly focus on	Strongly agree	191	87.7%
Patient oriented care	Agree	27	12.4%
Drug manufacturing and marketing	Strongly agree	128	58.7%
Clinical pharmacy place an important role in health care	Agree	90	41.3%

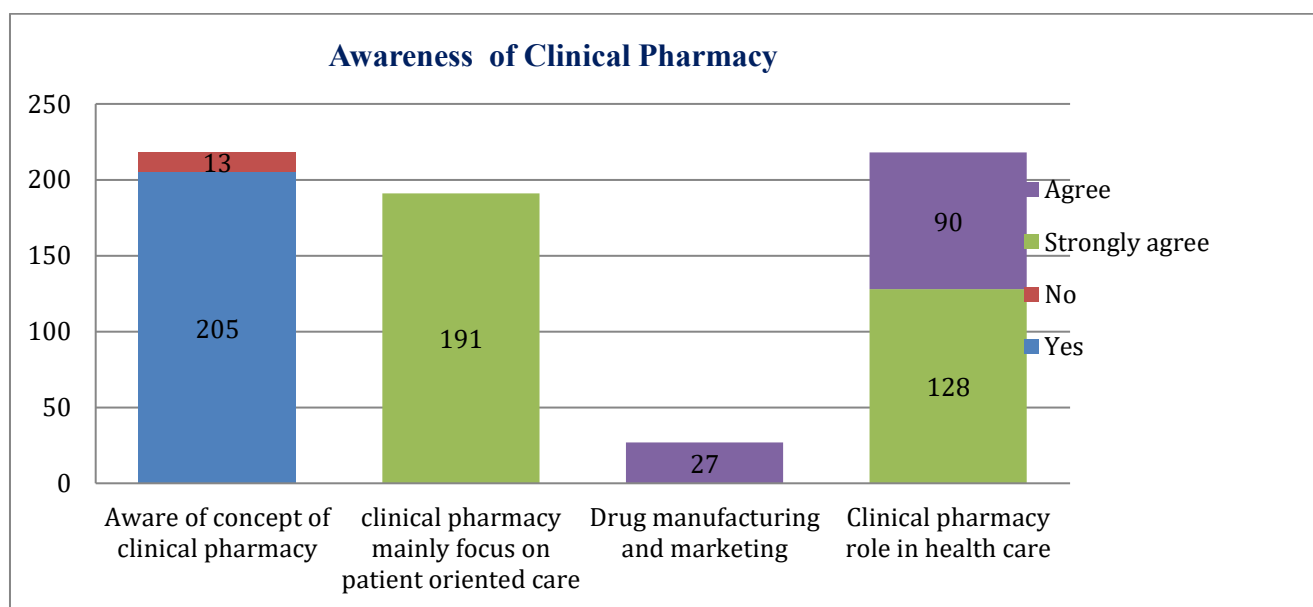


Figure 2: A Graphs for Awareness of Clinical Pharmacy

C. OTC Medication Knowledge

Responses about over-the-counter (OTC) medications revealed different levels of comprehension. While 26.3% thought over-the-counter medications were safe and 24% were unsure, nearly half of the participants (49.8%) thought they were not entirely safe when used without expert advice. Nonetheless, a sizable majority (87.1%) agreed that using over-the-counter medications improperly can have negative consequences. Additionally, the majority of respondents agreed that pharmacists should teach patients how to use over-the-counter medications correctly, highlighting the significance of pharmacist-led interventions.

Table 3: OTC Medicine Safeties and Misuse

OTC Medicine Safety and Misuse	Responses	Participants	Percentage
OTC medicine safes when use without professional advice	No	109	50%
	Yes	52	23.9%
	May be	57	26.1%
Misuse of OTC Medicines lead to adverse effects	Yes	190	87.2%
	No	28	12.8%
Pharmacist should educate the patient about proper use of OTC	Strongly agree	134	61.5%
	May be	21	9.6%
	Agree	63	28.9%

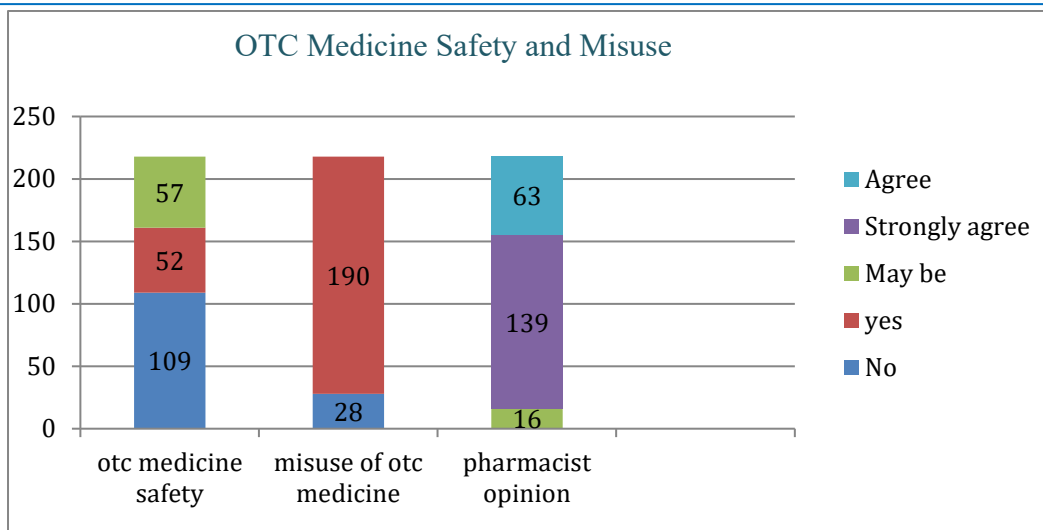


Figure 3: Graph for OTC medicine safety and Misuse

D. Patient Counselling and Medication Compliance (Adherence)

A significant percentage of participants showed a thorough comprehension of how patient counseling can enhance medication adherence. Counseling improves adherence outcomes, according to the majority, who either agreed or strongly agreed. The majority of respondents (94%) accurately noted that information on dosage, duration, storage conditions, and possible side effects is part of patient counseling. Furthermore, a significant percentage (86.2%) acknowledged that inadequate medication adherence could lead to treatment failure, demonstrating knowledge of its clinical implications.

Table 4: Patient Counselling and Adherence

Patient Counselling and Adherence	Responses	Participants	Percentage
Patient counseling improves medication adherence	Yes	108	49.5%
	May be	92	42.2%
	No	18	8.3%
Dose duration storage condition side effects	Yes	204	93.6%
	No	14	6.4%
Poor medication adherence result in Treatment failure and disease progression increase health care cost	Yes	188	86.2%
	No	23	10.6%

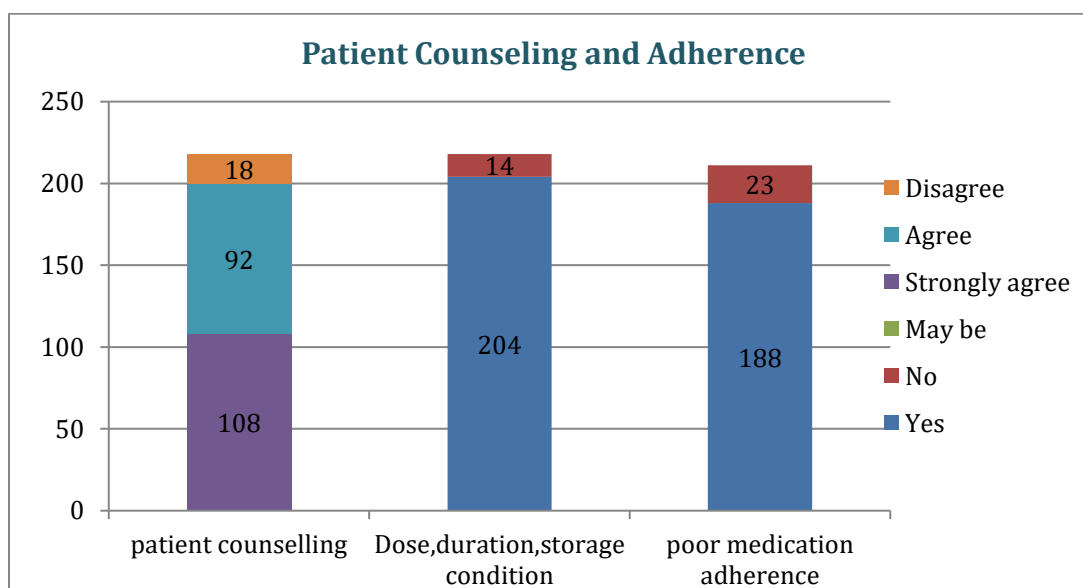


Figure 4: Graph for patient counseling and adherence

E. Drug Interaction and Pharmacist Intervention

94% of participants said they were aware of drug-drug interactions. The majority of respondents (88.9%) agreed that clinical pharmacists can avoid these kinds of interactions by combining patient education, therapy monitoring, and prescription review. Furthermore, a sizable percentage (90.3%) strongly agreed that pharmacist intervention greatly improves patient safety, underscoring the clinical pharmacists' perceived significance in reducing medication-related risks.

Table 5: Drug Interaction and Pharmacist Intervention

Drug Interaction and Pharmacist Intervention	Responses	Participant	Percentage
Are you aware of Drug - Drug interaction	Yes	205	94%
	No	13	6%
Clinical pharmacy can prevent drug interaction	Strongly agree	194	89%
	Agree	24	11.01%
Pharmacist intervention can improve patient safety	Strongly agree	197	90.4%
	Agree	21	9.6%

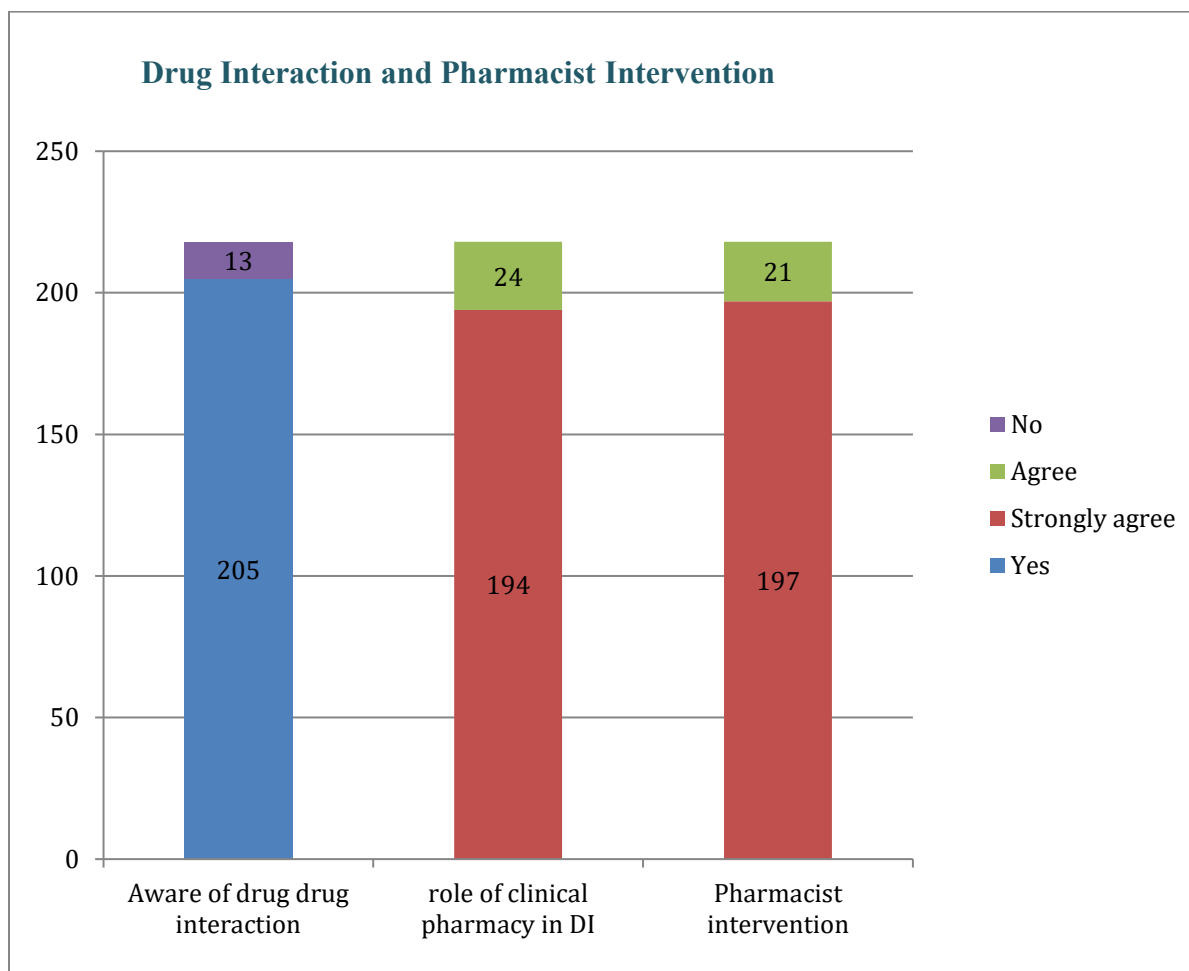


Figure 5: Graphs for Drug interaction and pharmacist intervention

F. Medication Errors and Drug Distribution

The majority of participants (93.5%) recognized a number of potential causes of medication errors, such as incorrect medication, incorrect dosage, and inadequate communication. Furthermore, 81.1% of respondents concurred that Medication errors are actively prevented by clinical pharmacists. The majority of participants also stated that effective drug distribution systems are essential to lowering these kinds of mistakes, demonstrating a thorough comprehension of healthcare system procedures.

Table 6: Medication Errors and Drug Distribution

Medication Error and Drug Distribution	Responses	Participants	Percentage
Medication error may occur due to wrong dose wrong drug, poor communication	Agree	204	93.6%
	May be	14	6.4%
Are clinical pharmacy involved in medication error	Strongly agree	177	81.2%
	May be	19	16.1%
Proper drug distribution in reducing medication error	Agree	100	45.9%
	May be	118	54.13%

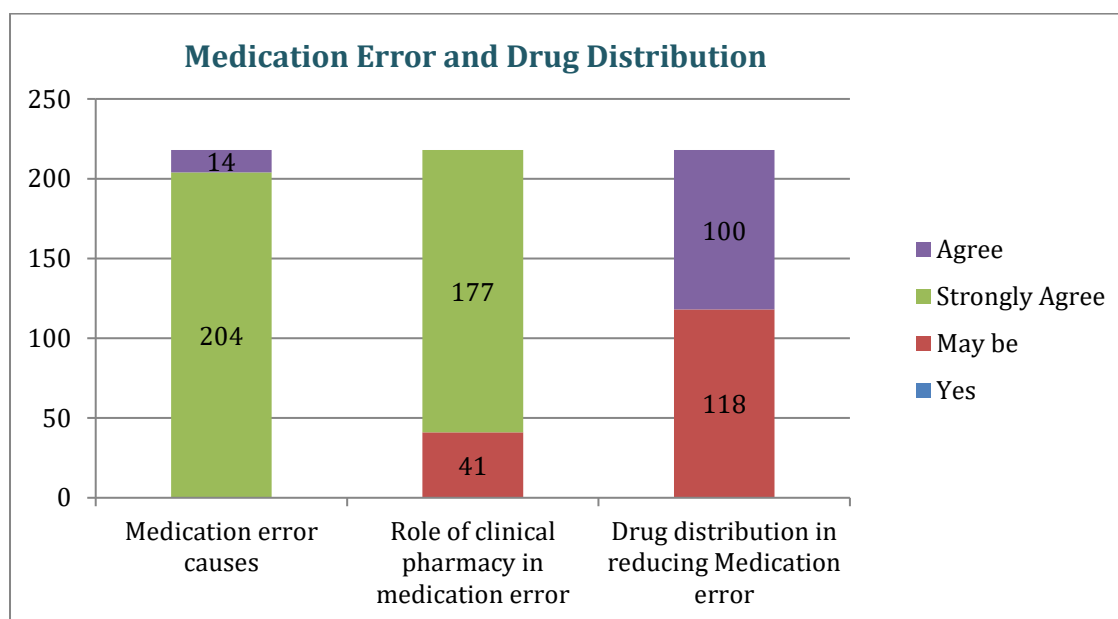


Figure 6: Medication error and drug distribution

G. ADR and Pharmacovigilance

95.4% of participants reported being familiar with the concept of adverse drug reactions (ADRs), indicating a notably high level of awareness.

Table 7: ADR and Pharmacovigilance

ADR and Pharmacovigilance	Responses	Participants	Percentage
Are you aware of ADR	Yes	208	95.4%
	No	10	4.6%
ADR reporting is important to pharmacy student	Strongly agree	131	60.1%
	Agree	87	39.9%
Pharmacist should actively participate in ADR reporting	Strongly agree	120	55%
	Agree	98	45%
Career perception as clinical pharmacist	Yes	128	58.7%
	No	66	30.3%
	May be	24	11%
Do you voluntarily agree to participate in this study	Yes	149	68.3%
	No	55	25.2%
	May be	14	6.4%

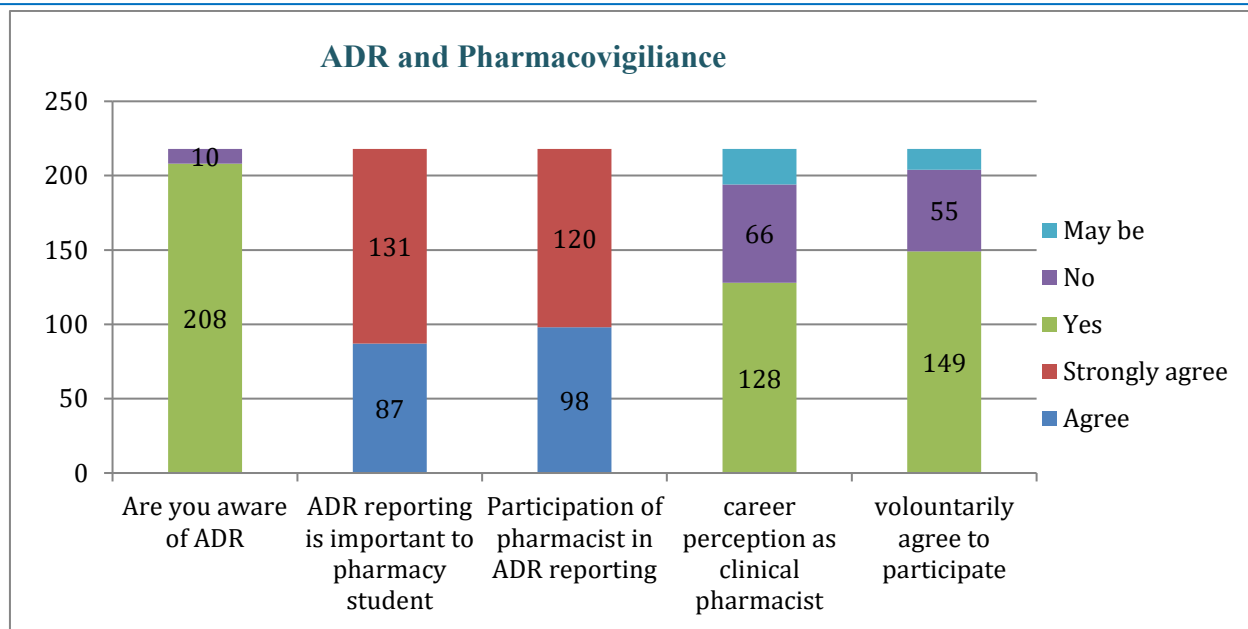


Figure 7: A Graph for ADR and Pharmacovigilance

The majority of respondents concurred that pharmacists should actively engage in pharmacovigilance activities and that reporting adverse drug reactions are crucial for enhancing patient safety. These results show that the study population has a high level of awareness regarding drug safety monitoring. In terms of career preferences, 58.5% of participants said they would like to pursue a career in clinical pharmacy, compared to 30.4% who were unsure and 11.1% who were not interested. Additionally, a sizable percentage concurred that clinical pharmacy education boosts professional confidence, indicating a generally favorable opinion of the field.

Discussion

The present study demonstrated a high level of awareness regarding clinical pharmacy, OTC medicine use, patient counselling, drug interactions, medication errors, and pharmacovigilance among respondents. However, consistent with previously published literature, a clear discrepancy exists between theoretical awareness and its translation into clinical practice.

The finding that 87–92% of respondents recognized clinical pharmacy as a patient-oriented field aligns with studies by Magdalena Janczura et al. (2021) and Pallavi Ramesh et al., which also reported high awareness among pharmacy students and professionals. These studies highlight the expanding role of pharmacists in patient care but also emphasize variability in practical involvement depending on healthcare infrastructure. Similarly, the present study shows comparable awareness levels without proportional growth in clinical responsibilities, particularly in developing healthcare settings [5,15].

In the domain of OTC medicine use, 87% of respondents were aware of potential adverse effects, which is higher than earlier reports (60–80%) such as those by Sarah A. Alghadeer et al. Despite this improvement, nearly half of the respondents perceived OTC medicines as unsafe without guidance, indicating a contradiction between knowledge and confidence. This aligns with World Health Organization reports suggesting that inappropriate self-medication persists despite increased awareness [9].

Patient counselling awareness was notably high (>90%), exceeding earlier findings (75–85%) reported by David P. West et al. This may reflect improved academic emphasis in recent curricula [11]. However, literature consistently shows that actual counselling practices remain lower due to barriers such as time constraints, workload, and lack of structured systems. Awareness of drug interactions (94%) and the pharmacist’s role in preventing them (89%) was also high, comparable to findings by Mohamed Izham Mohamed Ibrahim et al. And slightly higher than earlier studies (70–85%). While this indicates improved recognition of medication safety, the study does not confirm equivalent practical involvement, highlighting a gap between perceived and actual roles [12].

Similarly, awareness of medication errors (>90%) aligns with global patient safety data. However, WHO reports indicate that despite high knowledge, reporting systems and preventive strategies remain underutilized, suggesting the need for system-level support^[8].

The study also revealed very high awareness of adverse drug reactions and pharmacovigilance (~95%), exceeding earlier findings such as those by Neha Gupta et al.^[13]. Despite this, ADR reporting rates remain low, as supported by recent studies (2022–2024), due to lack of training and institutional support^[16].

In terms of career perception, only 58% of respondents expressed interest in clinical pharmacy, consistent with findings by Ramesh Adepu et al., where uncertainty about job opportunities and unclear professional pathways influenced career choices^[14].

Overall, the study confirms that awareness of clinical pharmacy concepts has improved significantly. However, a consistent gap between knowledge and practice persists. Unlike earlier studies, this study emphasizes the need to shift from theoretical education to practical training and system-level integration^[10].

Conclusion

This study indicates that pharmacy and allied health science students possess a strong understanding of clinical pharmacy concepts, particularly in areas related to medication safety, drug interactions, and prevention of medication errors. The findings also reflect a generally positive attitude toward the role of clinical pharmacists in improving patient care and health outcomes. However, certain concerns especially regarding the safe use of over-the-counter medications without professional guidance highlight the need for continued education and practical training. Although a fair proportion of students showed interest in pursuing clinical pharmacy as a career, there remains scope to further motivate and prepare them for this field. Overall, strengthening educational strategies and providing more clinical exposure could help bridge existing gaps and enhance the effective integration of clinical pharmacy into healthcare practice.

Acknowledgment

I want to sincerely thank all of the faculty members and my guide for their valuable advice and assistance during the writing of this research article. I am particularly grateful to Syeda Zuleqa unnisa Begum for her unwavering inspiration, encouragement, and support throughout this work. I also want to express my sincere gratitude to my family and friends for their unwavering encouragement and support.

References

1. Y. Xu et al., “Enhancing patient care through clinical pharmacy: A comprehensive approach,” *International Research Journal of Pharmacy and Pharmacology*, 2023.
2. “Clinical pharmacy services in Germany: A national survey,” *European Journal of Hospital Pharmacy*, 2021.
3. O. O. Ogbuagu et al., “Artificial intelligence in clinical pharmacy: enhancing drug safety, adherence, and patient-centered care,” *International Journal of Multidisciplinary Research and Growth Evaluation*, 2023.
4. T. Dreischulte, “Current perceptions of the term clinical pharmacy and its relationship to pharmaceutical care,” *International Journal of Clinical Pharmacy* (, 2016)
5. M. Janczura, M. Kobus-Moryson, S. Sip, M. Zarowski, A. Wareńczak, and J. Cielecka-Piontek, “Fixed-dose combination of NSAIDs and spasmolytic agents in the treatment of different types of pain: A practical review,” *Journal of Clinical Medicine*, vol. 10, no. 14, p. 3118, 2021.
6. P. Ramesh and G. Parthasarathi, “Awareness and perception of clinical pharmacy services among pharmacy students in India,” *Indian Journal of Pharmacology*, vol. 51, no. 3, pp. 145–150, 2019.
7. World Health Organization, *The role of the pharmacist in self-care and self-medication*. Geneva, Switzerland: WHO, 1998.
8. World Health Organization, *Patient safety report 2022: Global progress and challenges*. Geneva, Switzerland: WHO, 2022.

9. S. A. Alghadeer, K. Aljuaydi, S. D. Babelghaith, A. M. Alhammad, and M. N. Alarifi, "Self-medication with over-the-counter drugs: A global perspective," *International Journal of Clinical Pharmacy*, vol. 40, no. 4, pp. 873–881, 2018.
10. S. A. Alghadeer, A. A. Almutairi, T. A. Althunian, and N. S. Alhabib, "Evaluation of self-medication practices and public awareness toward OTC medicines," *International Journal of Clinical Pharmacy*, vol. 45, no. 2, pp. 456–463, 2023.
11. D. P. West, M. Perri, and L. A. Shimp, "Clinical pharmacy and patient counseling practices in healthcare settings," *Journal of Pharmaceutical Sciences*, vol. 106, no. 9, pp. 2455–2462, 2017.
12. M. I. M. Ibrahim, S. Palaian, and P. Mishra, "The role of pharmacists in identifying and preventing drug interactions and adverse drug events," *International Journal of Clinical Pharmacy*, vol. 34, no. 1, pp. 1–5, 2012.
13. N. Gupta, S. Vashisht, and A. Kumar, "Assessment of knowledge, attitude, and practice of pharmacovigilance among healthcare professionals in India," *International Journal of Basic & Clinical Pharmacology*, vol. 4, no. 3, pp. 474–479, 2015.
14. R. Adepun and A. Shariff, "Development and evaluation of patient counseling services in community pharmacies," *Indian Journal of Pharmaceutical Sciences*, vol. 69, no. 2, pp. 276–279, 2007.
15. A. M. Alshehri, T. M. Alshammari, F. F. Alharbi, and K. A. Alenzi, "Role of clinical pharmacists in improving patient safety: A systematic review," *Saudi Pharmaceutical Journal*, vol. 30, no. 6, pp. 789–796, 2022.
16. S. Kumar, A. Singh, and P. Sharma, "Knowledge and practice of Pharmacovigilance among healthcare professionals: A recent update," *Journal of Clinical and Diagnostic Research*, vol. 17, no. 4, pp. FC01–FC05, 2023.
17. Begum SZ, Ali SA, Tazneem B, et al. *Pharmacovigilance*. *International Journal of Pharmaceutical Sciences Review and Research*. 2021;70(1):39-54. doi:10.47583/ijpsrr. 2021.v70i01.006.

How to cite this article: Syeda Zuleqa Unnisa Begum, K. Begum, A. . Tahoora, A. Muneeb Syed, and M. . Ibrahim Uddin. "Evaluation of Clinical Pharmacy Knowledge and Perception of Patient Care Roles Among Students : A Research". *Tropical Journal of Pharmaceutical and Life Sciences*, vol. 13, no. 2, Apr. 2026, doi:10.61280/tjpls.v13i2.267.

Published by:
Informative Journals
Jadoun Science Publishing Group India

