The Bioscan
AN INTERNATIONAL QUARTERLY JOURNAL OF LIFE SCIENCES
20(3): 22-26, 2025 www.thebioscan.com

VALIDATION OF A CUSTOMIZED QUESTIONNAIRE TO ASSESS COMMUNITY PHARMACISTS' KNOWLEDGE, PERCEPTIONS AND BARRIERS IN PROVIDING PHARMACEUTICAL CARE: A PILOT STUDY

Shalini Rawat[1], Yogesh Joshi[2]

[1] Research Scholar, Department of Pharmacy Practice, School of Pharmaceutical Sciences, Shri Guru Ram Rai University, Dehradun-248001, Uttarakhand, INDIA.

[2] Professor, Department of Pharmacy Practice, School of Pharmaceutical Sciences, Shri Guru Ram Rai University, Dehradun-248001, Uttarakhand, INDIA.

Author for correspondence: Dr. Yogesh Joshi,

E-mail: yogeshjoshi1583@rediffmail.com

DOI: 10.63001/tbs.2025.v20.i03.pp22-26

KEYWORDS
Community Pharmacist, Knowledge, Perception, Pharmaceutical Care, Questionnaire, Validation
Received on:

10-05-2025

Accepted on:

12-06-2025

Published on:

03-07-2025

ABSTRACT

A community pharmacist plays an important role between physicians and patients. In the healthcare system by serving as the most accessible healthcare professional to the public they are responsible for ensuring that patients receive optimal pharmaceutical care. A pilot study involving current community pharmacist services in various districts of Uttarakhand was conducted to validate a customized questionnaire. The questionnaire encloses a total number of 29 questions designed to determine community pharmacist attitudes and perceptions of barriers to providing pharmaceutical care. The questionnaire focused – on demographic data, essential pharmaceutical care skills of a community pharmacist working in a community pharmacy, and other factors related to patient treatment. The researcher visited randomly selected 50 community pharmacists working in community pharmacy setups in the Uttarakhand state. The reliability of the questionnaire was measured using Cronbach's alpha, which produced a value of 0.82, indicating good reliability and consistency. Pharmacy practitioners working in community pharmacies in Uttarakhand are actively engaged in the delivery of pharmaceutical care to patients. We suggest improving and implementing communication and interaction between the pharmacist, other healthcare professionals, and patients. We improve to drive change because community pharmacists showed a strong interest amongst them to learn more and providing adequate and beneficial pharmaceutical care for patients. Our study will help us understand the challenges faced by community pharmacists in the various districts.

INTRODUCTION

Pharmaceutical care is a buzzword in pharmacy. The concept of pharmaceutical care is that pharmacists are well educated and experts on medicines and it seems logical to deliver pharmaceutical care to the patients (Granados et al., 1998). Pharmacists can apply their knowledge and pharmaceutical skills resources to fulfil their objectives with the help of defining, monitoring, and addressing the real health needs of the population (van Mil & Schulz, 2006; Usman & Ilyas, 2014; Saini *et al.*, 2022). Standardization and validation are critical processes in the development of a questionnaire to ensure that it is reliable, valid, and consistent across different populations and settings (Junyong, 2017).

Standardization

Standardization refers to the process of ensuring that the questionnaire is administered consistently to all respondents. This involves establishing uniform procedures for administering the questionnaire, such as using clear and concise language, providing standardized instructions, and ensuring consistency in questions and response options. It includes face-to-face interactions, employing a standardized scoring system to quantify and interpret responses, and ensuring that the questionnaire follows the established procedures throughout the process (Saini *et al.*, 2022; Junyong, 2017).

Validation

Validation is the process of evaluating a questionnaire to ensure it accurately measures its intended purpose. This involves assessing various aspects of validity, including content validity and construct validity, as well as conducting a pilot study with a small, representative sample to test the questionnaire and implement necessary adjustments before full-scale administration (Junyong, 2017; Arnold *et al.*, 2009).

Community Pharmacy

Community pharmacy is a unique combination of professionalism and business. It is an essential branch of the pharmacy profession that requires the involvement of a qualified pharmacist. Community pharmacists should have the required education, skills, and competence to deliver professional services. The community pharmacist should give details about prescriptions and advice about health care supplies (Anderson & Blenkinsopp, 2003).

Therefore, community pharmacy involves direct interaction with the public. Community pharmacies play a vital role in promoting public health and ensuring safe medication use in the community (Sam *et al.*, 2015; Rusu *et al.*, 2022).

Community Pharmacist

Community pharmacy is related to community-based pharmacy. To provide effective pharmaceutical care, community pharmacies require qualified community pharmacists. The main responsibilities of a community pharmacy include appropriate procurement, storage, dispensing, and documentation of medicines (Deepalakshmi *et al.*, 2016; Khalid *et al.*, 2023). A community pharmacist plays a crucial role in healthcare by serving as the most accessible healthcare professional to the public. Their responsibilities extend beyond simply dispensing medications. Here's an overview of their roles and responsibilities:

- Dispensing Medications
- Patient Counselling
- Health Promotion and Disease Prevention
- Medication Management
- Collaboration with Healthcare Providers
- Managing Minor Ailments
- Continuing Professional Development (CPD)
- Ethical and Professional Responsibilities (Jairoun *et al.*, 2023; Sohn *et al.*, 2015; Agomo, 2012).

MATERIALS AND METHODS

A cross-sectional pilot study was conducted on 50 community pharmacists from the Uttarakhand region. These pharmacists held registered licenses and were actively providing services in community pharmacies. Participation was secured through signed consent forms. Data collection utilized a self-modified questionnaire designed to gather comprehensive information. The reliability of the questionnaire was assessed by calculating Cronbach's alpha value (Jugessur, 2022).

Data Collection Form

The structured questionnaire was adapted from previous studies. The questionnaire content of 4 domains: demographic details, knowledge, and attitudes toward pharmaceutical care, and perception of barriers related to pharmaceutical care. The first section of the questionnaire collected demographic information about the participants, including age, gender, education level, and area of residence. The second and third assessed pharmacists' perceptions regarding or barrier to pharmaceutical care. The questioner asked by five points Likert scale: (1) strongly disagree; (2) disagree; (3) neither agree nor disagree (4) agree; and (5) strongly agree. In the final section of the questionnaire, pharmacists were asked to select a response (never, rarely, sometimes, often, or always) related to their practices in community pharmacies. The pilot study does not serve as definitive proof of final results, and the Cronbach's alpha value obtained reflects only the preliminary reliability of the questionnaire (Khdour *et al.*, 2016; Alkharfy, 2010; Alhazzani *et al.*, 2016).

RESULTS

A total of 50 pharmacists from different parts of the region participated in the study. Demographic characteristics of participants was shown in Table 1. Male participants made up 44 (88.00) of the respondents, while females represented 06 (12.00) of the workforce in community pharmacies. The majority of participants 36 (72.00) were aged between 26 and 30 years. In terms of educational qualifications, 41 (82.00) held a diploma, 09 (18.00) had a Bachelor's degree in pharmacy, and no one had a Master's degree. Most pharmacists 26 (52.00) had 3 to 6 years of work experience in the field.

Table 1: Demographic Characteristics of Participants

Characteristics	No. of Participants (%) (n=50)
Gender	
Male	44 (88.00)
Female	06 (12.00)
Age (in years)	
>25	03 (6.00)
26-30	36 (72.00)
31-35	01 (2.00)
36-40	05 (10.00)
41-45	03 (6.00)
<45	02 (4.00)
Education Level	
Diploma	41 (82.00)
Degree	09 (18.00)
Post-Graduation	00 (0.00)
Experience (in years)	
>3	06 (12.00)
3-6	26 (52.00)
7-9	11 (22.00)
10-12	07 (14.00)
13-15	00 (0.00)
<15	00 (0.00)

The pharmacists' perception regarding providing pharmaceutical care and their perception on barriers in providing pharmaceutical care was shown in Table 2. A total of 31 (62.00%) pharmacist respondents agreed that pharmacists are professionally skilled healthcare providers responsible for delivering pharmaceutical care. More than 24 (48.00) of community pharmacists agree that reviewing patients' medications is crucial in preventing medication-related errors and ensuring the appropriate use of treatments. Furthermore, 21 (42.00%) recognized the crucial role pharmacists play in identifying, preventing, and resolving medication-related issues. Overall, 29 (58.00%) of surveyed pharmacists demonstrated a correct understanding of pharmaceutical care. A total of 23 (46.00%) pharmacists agreed that coordination between pharmacists, doctors, and other healthcare professionals is poor. Additionally, 18 (36.00%) reported lacking support from other health professionals, while 31 (62.00%) highlighted insufficient support for pharmaceutical care. Moreover, 33 (66.00%) of respondents believed that pharmacists receive inadequate training in pharmaceutical care. Time barriers were also identified, with 27 (54.00%) pharmacists stating that they do not have sufficient time to provide pharmaceutical care. Lastly, 18 (36.00%) indicated that the current pharmacy curriculum does not adequately equip pharmacists to deliver pharmaceutical care.

Table 2: Pharmacists' perception regarding providing pharmaceutical care and barriers in providing pharmaceutical care

.

S.No.	Questions	Strongly disagree %	Disagree %	Neither agree nor disagree %	Agree %	Strongly agree %
1.	Patient's medications should be reviewed to prevent medicine-related errors and promote appropriate use of medications	00 (0.00)	02 (4.00)	10 (20.00)	24 (48.00)	14 (28.00)
2.	All patients receiving medicines require pharmaceutical care services	00 (0.00)	00 (0.00)	00 (0.00)	21(42.00)	29 (58.00)
3.	Pharmaceutical care can improve patient's treatment or health outcome	00 (0.00)	00 (0.00)	09 (18.00)	23 (46.00)	18 (36.00)
4.	Pharmacists are professionally skilled health personnel in providing pharmaceutical care	00 (0.00)	00 (0.00)	00 (0.00)	19 (38.00)	31(62.00)
5.	Pharmacists are responsible for identification, prevention and resolution of medicine-related problems	03 (6.00)	04 (8.00)	06 (12.00)	21 (42.00)	16 (32.00)
6.	Continuing pharmacy education is essential to equip pharmacists to provide pharmaceutical care	00 (0.00)	06 (12.00)	16 (32.00)	19 (38.00)	09 (18.00)
7.	There is a lack of support from other health professionals toward pharmaceutical care	00 (0.00)	16 (32.00)	09 (18.00)	07 (14.00)	18 (36.00)
8.	The co-ordination between pharmacists, doctors and other health professionals is poor	00 (0.00)	04 (08.00)	11(22.00)	23(46.00)	12(24.00)
9.	Patient is unable to understand pharmaceutical care instructions	07 (14.00)	00 (0.00)	06 (12.00)	18 (36.00)	19 (38.00)
10.	There is a lack of supportive pharmaceutical care practice guideline	00 (0.00)	00 (0.00)	00 (0.00)	31 (62.00)	19 (38.00)
11.	There is insufficient opportunity for pharmacists to interact closely with patients	00 (0.00)	00 (0.00)	00 (0.00)	23 (46.00)	27 (54.00)
12.	Medicine practice and policy are more oriented toward medicine dispensing	14 (28.00)	09 (18.00)	13 (26.00)	14 (28.00)	00 (0.00)
13.	Inadequate training is provided to pharmacist in providing pharmaceutical care	00 (0.00)	00 (0.00)	02 (04.00)	15(30.00)	33 (66.00)
14.	The education in the current pharmacy curriculum is inadequate to equip pharmacists to provide pharmaceutical care	00 (0.00)	08 (16.00)	16 (32.00)	18 (36.00)	08 (16.00)
15.	There is lack of compensation or reimbursement to pharmacists for providing pharmaceutical care	00 (0.00)	00 (0.00)	00 (0.00)	32 (64.00)	18 (36.00)
16.	There is insufficient time to provide pharmaceutical care	00 (0.00)	11 (22.00)	07 (14.00)	27 (54.00)	05(10.00)

The pharmacists' responses to assess their practice in community pharmacies are shown in Table 3. Among the respondents, 21 (42.00%) stated that they never discuss complementary medications taken by patients. Additionally, 28 (56.00%) reported that they always provide written information about medications when needed. A total of 23 (46.00%) mentioned that they sometimes follow up with patients about their health, while 20 (40.00%) indicated that they sometimes address medication-related problems as required. Moreover, 17 (34.00%) noted that they very rarely ask about patients' comorbid diseases, and another 17 (34.00%) stated that they sometimes inquire about patients' current medications.

Table 3: Pharmacists' responses to assess their practice in community pharmacies

S.No.	Questions	Never %	Rarely %	Sometimes %	Often %	Always %
1.	Ask about current medications of the patient	00 (0.00)	08(16.00)	17(34.00)	10(20.00)	15(30.00)
2.	Ask about comorbid diseases the patient may have	04(8.00)	17(34.00)	14(28.00)	11(22.00)	00(0.00)
3.	Explain dosage regimen (dose and frequency) to the patient	00(0.00)	00(0.00)	11(22.00)	18(36.00)	21(42.00)

4.	Explain dosage regimen (administration) to the patient	05(11.00)	16 (32.00)	07(14.00)	11(22.00)	00 (0.00)
5.	Ensure understanding of dosage regimen by the patient	00 (0.00)	19 (38.00)	21 (42.00)	10(20.00)	00 (0.00)
6.	Discuss complementary medications the patient may be taking	21(42.00)	17 (34.00)	06 (12.00)	04 (8.00)	04 (8.00)
7.	Discuss general health issues of the patient	27(54.00)	00 (0.00)	21(42.00)	02(4.00)	00 (0.00)
8.	Discuss the patient's concerns about medications	06 (12.00)	18 (36.00)	17(34.00)	09(18.00)	00 (0.00)
9.	Ensure patient compliance with the medications	00 (0.00)	00 (0.00)	10 (20.00)	19 (38.00)	21(42.00)
10.	Provide the patient written information about medications whenever needed	00 (0.00)	00 (0.00)	00 (0.00)	22 (44.00)	28(56.00)
11.	Follow up with the patients about their health	05 (10.00)	14 (28.00)	23(46.00)	08 (16.00)	00(0.00)
12.	Solve medication-related problems whenever needed	00 (0.00)	05 (10.00)	20 (40.00)	09 (18.00)	16 (32.00)
13.	Promote health awareness	00 (0.00)	00 (0.00)	00 (0.00)	14 (28.00)	36 (72.00)

Cronbach's alpha value was found to be 0.82, indicating good reliability, suggesting that the questionnaire items are consistent, and effectively measure and assess the study (Table 4).

Table 4: Calculation for Reliability Testing

Description	EXCEL Functions Applied	Values
Number of Test Items K	-	5
Variance of Total Score S^2x	=SUM(:) =VAR(:)	12.14
The sum of the Item Variance $\Sigma\ S^2y$	=SUM(:) =VAR(:)	4.11
Alpha α	K/K-1(Total variance-sum of item variance/Total variance)	= 5/5-1(12.14 - 4.11/12.14) 0.82

DISCUSSION

The study found that the community pharmacy environment in Uttarakhand had a high level of understanding of the pharmaceutical care process but identified some significant barriers (Sohn *et al.*, 2015). Participants are fewer graduates and the lack of therapeutic knowledge, education or inadequate training are major obstacles to pharmacists facing numerous challenges (70%) of all respondents. More than 50% of the pharmacists surveyed demonstrated a correct understanding of pharmaceutical care (Agomo, 2012). Insufficient time, and lack of communication as a barrier to implementation, were identified by 70% of respondents and an absence of a reimbursement system by 98% of all respondents. Our study shows that the majority of 76% of community pharmacists agreed on not discussing ongoing complementary medicine by patients. 96% of pharmacist respondents provided inadequate training and lack of support from other healthcare professionals towards pharmaceutical care (Abdulrhman *et al.*, 2018; Culverhouse & Wohlmuth, 2012; Yasmeen *et al.*, 2019).

CONCLUSION

By conducting a pilot study, researchers can identify potential problems, this helps to improve the reliability and validity of the research results. This pilot study tested through Cronbach's alpha value which concludes a composite score's reliability, or internal consistency. The composite score of 0.82 indicates questionnaire's good internal consistency or reliability. The study concluded the pinpointing factor affecting how to improve community pharmacist knowledge and awareness toward pharmaceutical

care. Communication is essential for the pharmacist to fulfill his primary ethical duty since one of the key roles of the pharmacist in the community pharmacy is focused on patient counselling. They have a lot of work experience but they do not have enough knowledge and they are unable to contribute to pharmaceutical care, therefore they only focus on dispensing medication to patients. The researchers further identified the need for continuing education programs to help pharmacists stay updated on the latest clinical practices while empowering patients with the knowledge needed to understand and manage their medications effectively. Community pharmacists agreed that other healthcare professionals like doctors, and nurses do not support or appreciate the community pharmacist's work.

AUTHOR CONTRIBUTIONS

Conceptualization, S.R. and Y.J.; methodology, S.R. and Y.J.; formal analysis, S.R. and Y.J.; investigation, S.R.; resources, S.R.; data curation, S.R. and S.R.; writing-original draft preparation, S.R.; writing-review and editing, Y.J.; supervision, Y.J.

ABBREVIATIONS

CPD: Continuing Professional Development.

FUNDING

This research received no external funding.

ETHICAL APPROVAL

Ethical approval is not applicable as the study is based on observational survey-based data and it does not involve any kind of interventional or experimental protocol as procedure. Further, Declaration of Helsinki has been followed for involving human participants in the study.

INFORMED CONSENT STATEMENT

Informed consent was obtained from all subjects involved in the study.

ACKNOWLEDGEMENT

We acknowledge the support and participation of the pharmacists within the state.

CONFLICT OF INTEREST

The authors declare no conflicts of interest regarding the publication of this paper. Authors also confirm that they have no affiliations with or involvement in any organization with financial interests, including the large chain pharmacy from where the data was collected.

REFERENCES

- Abdulrhman A, Dalia A, Arwa K, Sivakumar A Mona Ali A, Hagar AA, Boshra AA, Rawabi MA, Abeer MA. Community Pharmacists' Knowledge, Attitudes, and Practice of Herbal Medicines in Asir Region, Kingdom of Saudi Arabia. Evid Based Complement Alternat Med 2018: 2018:1568139. https://doi.org/10.1155/2018/1568139.
- Agomo CO. The role of community pharmacists in public health: a scoping review of the literature. Journal of Pharmaceutical Health Services Research 2012; 3: 25-33. https://doi.org/10.1111/j.1759-8893.2011.00074.x
- Alhazzani AA, Alqahtani AM, Abouelyazid A, Alqahtani AM, Alqahtani NA, Asiri KM, Muhaya AA, Alamri HA. Public awareness, knowledge, and attitudes toward epilepsy in the Aseer region, Saudi Arabia - A community-based cross-sectional study. Epilepsy Behav 2016; 63:63-66. https://doi.org/10.1016/j.yebeh.2016.07.041
- Alkharfy KM. Community pharmacists' knowledge, attitudes and practices towards herbal remedies in Riyadh, Saudi Arabia. East Mediterr Health J 2010; 16(9): 988-993.
- Anderson C, Blenkinsopp A. Community pharmacy's contribution to improving public health: learning from local initiatives. Pharm J 2003; 271: 623-625.
- Arnold DM, Burns KEA, Adhikari NKJ, Kho ME, Meade MO, Cook DJ, McMaster Critical Care Interest Group. The design and interpretation of pilot trials in clinical research in critical care. Crit Care Med 2009; 37(1 Suppl): S69-S74. https://doi.org/10.1097/CCM.0b013e3181920e33
- Culverhouse SE, Wohlmuth H. Factor's affecting pharmacists' recommendation of complementary medicines - a qualitative pilot study of Australian pharmacists. BMC Complementary and Alternative Medicine 2012; 12:183.
- Deepalakshmi M, Devipriya T, Arun KP, Ponnusankar S. Community pharmacists' Knowledge, attitude and practice towards cognitive pharmaceutical care services in Tamil Nadu, India. Indian Journal of Pharmaceutical Sciences 2016; 8(6): 844-849.
- Granados Tejero C, Cobo Garcia M, Martinez Lopez M, Arrazola Saniger M. Adverse reactions in patients monitored at a community pharmacy. Farm Clin 1998; 15(6): 359-367.
- Jairoun AA, Himyari SS, Shahwan M, Mina Al, Habeb M, Jairoun M. Community pharmacist perspectives on cardiovascular disease pharmaceutical care in the United Arab Emirates: a questionnaire survey-based analysis. Frontiers in Pharmacology 2023: 1-12
- Jugessur YSMF. Reliability and internal consistency of data: Significance of calculating Cronbach's alpha coefficient in Educational Research. International Journal of Humanities and Social Science Invention 2022; 11(4): 9-14. https://doi.org/10.35629/7722-1104030914
- Junyong In. Introduction of a pilot study. Korean J Anesthesiol 2017; 70(6): 601-605. https://doi.org/10.4097/kjae.2017.70.6.601.
- Khalid S, Alghamdi AB, Petzold MA, Mahdi H. Alsugoor C, Hafiz A, Makeen D, Kudaisi H. Community pharmacists' perspectives towards automated pharmacy systems and extended community pharmacy services: An online cross-sectional study. Exploratory Research in Clinical and Social Pharmacy 2023; 12: 1-9.
- Khdour M, Kurdi M, Hallak H, Jarab A, Dweib M, Al-Shahed Q. Pharmacists Knowledge, Attitudes and Practices Towards Herbal Remedies in West Bank, in Proceedings of the Pharmacists Knowledge, Attitudes and Practices Towards Herbal Remedies in West Bank 2016; 9: 1-3.
- Rusu A, Marius B, Popa C, Botezatu R, Moldovan OL. Community pharmacist's perspective regarding patient-centered communication in conjunction with pharmaceutical practice: A cross-sectional survey. Saudi Pharmaceutical Journal 2022; 30(9): 1327-1344.
- Saini S, Kaur H, Pant M, Joshi Y. Role of Clinical Pharmacy Services in Healthcare System. Asian Journal of Pharmaceutical and Health Sciences 2022; 12(4): 2757-2760. http://doi.org/10.5530/ajphs.2022.12.28
- Sam AT, Jothy TH, Parasuraman S. Assessment of pharmaceutical care services provided by a community pharmacy in Kedah, Malaysia. Journal of Pharmacological and Toxicology 2015; 1(2): 73-78.
- Sohn HS, Kim SO, Joo KM, Park H, Han E, Ahn HT. Pharmacist's perceptions of barriers to providing appropriate pharmaceutical services in community pharmacies. Korean Journal of Clinical Pharmacy 2015; 25(2): 94-101
- Usman MH, Ilyas OS. Assessment of knowledge, attitude, and practice of community pharmacists towards pharmaceutical care in Kaduna state, Nigeria. International Journal of Pharmacy Teaching and Practices 2014; 5(2): 972-976.
- van Mil JWF. Schulz M. A review of pharmaceutical care in community pharmacy in Europe. Harvard Health Policy Review 2006; 7: 155-168.
- Yasmeen T, Julia B, Anisa M. Community pharmacists' knowledge, attitude and practices towards the use of complementary and alternative medicines in Durban, South Africa. Open Acess Scholarly Journal Publishing 2019:1-6.