Assessment of Community Pharmacists' Knowledge and Perception of Pharmaceutical Care in South Africa: A Cross-sectional Survey

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Abstract

Background: Medicines are intended to cure, prevent, or diagnose diseases, alleviate signs, or symptoms, but improper use can cause patient morbidity and even mortality. Pharmacists assume direct responsibility for all the patient's drug-related needs. Hence, pharmacists' knowledge and attitudes regarding pharmaceutical care (PC) and their perceived barriers to PC provision are imperative to treatment success. The aim of the study was to explore community pharmacists' knowledge and perception towards pharmaceutical care and identifying perceived barriers towards its implementation in South Africa.

Methods: A quantitative study was undertaken, using a descriptive cross-sectional design. The data were collected by means of an online questionnaire completed by community pharmacists across South Africa. The data were analyzed using descriptive statistics, through Microsoft Excel and the Statistical Package for the Social Sciences (SPSS).

Results: Out of 250 online questionnaires sent, a total of 181 responded, which delivered an 72.4% response rate. The vast majority (n=166; 91.7%) of the respondents were knowledgeable about PC though a few (n=15; 8.3%) of the respondents had a poor understanding of PC. A high number of respondents (n=173;95.5%) agreed that providing PC would increase the patients' confidence in the pharmacy profession (n=173; 95.5%); and about 87.2% responded that all pharmacists should provide PC services. Lack of compensation for PC provision was perceived as the main barrier (83.9%).

Conclusion: South African community pharmacists have good knowledge of PC, but a lack of remuneration and time were perceived as the main barriers to PC provision. Relevant stake holders like policymakers in pharmaceutical service, health care financial managers, and pharmacy managers should intervene to overcome these barriers.

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Keywords: Knowledge; Attitude; Perception; Pharmaceutical care; South Africa

Introduction

Medicines can contribute to the quality of life by curing or relieving the symptoms of illness and preventing complications in existing health conditions or delaying the onset of disease as well (1). However, these can cause problems too. A drug-related problem (DRP) is defined by the Pharmaceutical Care Network Europe (PCNE) as an event or circumstance involving drug therapy that actually or potentially interferes with desired health outcomes, which mainly includes unnecessary drug treatment, inadequate drug treatment, ineffective drug treatment, adverse drug event, inappropriate dosage, and poor adherence (2). The seven categories of problems as given by Shargel (3) are unnecessary drug therapy, wrong drug, dose too low, dose too high, adverse drug reaction, inappropriate adherence, and needs additional drug therapy.

DRPs cause preventable negative health outcomes, and

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PC is one of the means to manage them. PC was defined by Hepler and Strand as the responsible provision of drug therapy to achieve definite outcomes that improves the patient's quality of life (4). The principle of PC focuses on the responsibility of the pharmacist to meet all of the patient's drug-related needs and assist the patients in achieving their goals through collaboration with other health professionals (5). A study conducted in Nigeria (2022) highlighted community pharmacists' ability to detect and resolve DRPs (7).

Knowledge and attitudes of community pharmacists towards PC is important to understand in order to develop interventions to maximize on this model. A Jamaican study (1998) revealed that pharmacists in Jamaica have good knowledge and a positive attitude towards PC, but there is a need for improved practice (7). In contrast, a survey [2014] (8) in India demonstrated a deficit in knowledge and practice of PC among community pharmacists, and a lack of competence to practice PC was also reported. As per a survey [2011] conducted in Ogun state, South-Western Nigeria, the attitude of the pharmacists towards the implementation of PC is good but the ability to implement it is weak (9).

Different forms and levels of PC development and adoption have been observed across countries, depending on the legal, political, and healthcare systems (7). To ensure continuous advancement in PC services, in several countries, research efforts have been made to identify possible barriers hindering the development of this professional service. Despite increasing concerns over DRPs, the extent of PC provision and possible barriers in South Africa has been researched to a limited extent. This study aimed to assess the South African community pharmacists' knowledge and perception of PC and their perceived barriers to its implementation in their practice setting. Concerted efforts among policymakers and other stakeholders to address the weaknesses will go a long way to improve the outcome of therapy for numerous patients who eagerly await full PC implementation.

This study looked at exploring community pharmacists knowledge and perception towards PC and identifying perceived barriers towards its implementation in South Africa with the following objectives: (1) to determine the knowledge, attitudes, and perceptions of PC among community pharmacists; (2) to determine if differences in age, sex, race, qualification, experience, and practice setting exist in terms of knowledge, attitude, and perception of pharmacists towards PC, and (3) to identify barriers to the provision of PC in community pharmacies

in South Africa so as to make recommendations to policymakers for improved PC practice.

Methods

The study area or geographic location of the project is in South Africa. It is a country on the southernmost tip of the African continent with a population of around 58.8 million as 2019 mid-year population estimates (MYPE) released by Stats SA (10). According to data from the South African Pharmacy Council (SAPC), (11) there are about 3,505 registered community pharmacies and 16,791 pharmacists across the country. Informed consent, voluntary participation, confidentiality, and anonymity were important ethics considerations for this study. ethics clearance was obtained from the Biomedical Research Ethics Committee (BREC) of the University of KwaZulu Natal (UKZN) with the reference number being BREC/00002690/2021. All the participants were asked for their consent in the prescribed manner as per the UKZN's guidelines. There were no incentives involved and the anonymity of the study participants was maintained.

The study participants were South African Pharmacy Council (SAPC) registered community pharmacists practicing in a chain or independent pharmacies across South Africa.

The sample size was determined using the Raosoft® software and found to be 187 with an 80% confidence interval. This was a quantitative descriptive cross-sectional designed study.

A self-administered questionnaire formatted for an internet-based online survey method was used to collect the data from the study participants. It was the only means of collecting the survey data due to its ease of implementation, cost, and existing COVID-19 pandemic restrictions. The email contact for the community pharmacists was obtained from the South African Pharmacy Council. The study participants received an email with a link to the survey and were requested for their consent to participate in the survey.

The collected data were coded, entered, and analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were employed to summarize the data and organize them into socio-demographic characteristics, knowledge, and attitudes of the participants according to the sections of the questionnaire. Then, the findings were presented by frequencies and percentages, and summary measures were displayed using tables. The Phi and Cramer's V test were determined in this study.

Results

A total of 181 responses were obtained out of 187 samples required with a confidence interval of 80%. Table 1 provides information on the demographic characteristics of respondents.

Table 1. Sociodemographic characteristics of respondents (n = 181).

Characteristics	Category	n (%)
Gender	Male	57 (31.50)
	Female	124 (68.50)
Age	<30	44 (24.30)
	31-40	71 (39.20)
	41-50	26 (17.70)
	51-60	21 (8.30)
	>61	19 (10.50)
Race	Black	97 (53.00)
	White	57 (31.50)
	Colored	1 (0.60)
	Indian	25 (13.80)
	Other	1 (1.10)
Marital status	Single	71 (39.20)
	Married	101 (55.20)
	Other	9 (5.60)
Qualification	B. Pharm	137 (70.70)
	MSc/MPharm	37 (19.30)
	PhD	6 (2.80)
	Other (B. Pharm+)	1 (7.20)
Experience	<5	51 (28.20)
	5-10	35 (18.80)
	>10	95 (53.00)
Practice Type	Chain	102 (55.20)
	Independent	74 (39.80)
	Other (locums, etc.)	5 (4.50)

Where, n= frequency (number of respondents) and % = percentage

The majority of the study respondents (n = 124; 68.5%) were females; with 71 (39.20%) of the respondents aged between 31 and 40 years. Most of the respondents (n = 137; 70.70%) completed a Bachelor of Pharmacy degree as the highest educational qualification. Majority of (n=102; 55.20%) the respondents were working in chain pharmacies and more than half (n=95;55.0%) of the respondents had more than 10 years of experience as a pharmacist.

Pharmacists knowledge about PC was evaluated by using 10 questions. As the result shown in Table 2 indicates vast majority (n=166;91.7%) of the respondents had a good understanding of PC and quite a few (n=15;8.3%) of the respondents have a poor understanding of PC.

Table 2. Analysis of Respondents' Knowledge of PC.

Statements	Yes n (%)	No n (%)	I don't know n (%)
PC is defined as a patient-centered way to deliver medication management services	171 (94.50)	9 (5.0)	1 (0.5)
PC is a philosophy of practice where pharmacists work with and for the patient to optimize the outcomes of medication therapy	178 (98.3)	1 (0.55)	2 (1.1)
PC emphasizes a pharmacists responsibility for a patient's drug-related needs and being held accountable for the commitment	168 (92.8)	9 (4.9)	4 (2.2)
All patients taking medicines require PC	158 (87.2)	22 (12.1)	1 (0.55)
The primary focus of PC in the healthcare system is identifying and meeting patient's drug-related needs	169 (93.3)	11 (6.0)	2 (1.1)
The primary responsibility of PC in the drug use process is the identification, prevention, and resolution of drug therapy problems	171 (94.4)	7 (3.8)	3 (1.6)
PC practitioner assesses the patient, his/her medical problems, and drug therapies leading to drug therapy problem identification	173 (95.5)	5 (2.7)	3 (1.6)
PC practitioner develops a plan that establishes the desired goals of therapy for each of the patient's medical conditions	166 (91.70)	9 (4.9)	6 (3.3)
PC practitioner schedules follow-up with the patient to evaluate the results of pharmacotherapy, recommendations, and other interventions	158 (87.2)	15 (8.2)	8 (4.4)
Documentation of the PC provided is among the vital elements of the pharmaceutical practice process	172 (95.0)	2 (1.1)	7 (3.8)

As can be seen in Table 3, the majority of the respondents agree on the following statements: all pharmacists should provide PC services (n=158;87.2%); pharmacists have the knowledge and skills necessary to provide PC (n=145;80.1%); providing PC requires a special area to interview patients and advise (n=154;85.0%); providing PC will increase the patients' confidence in the pharmacy profession (n=173;95.5%); PC is the pharmacists duty, but it is difficult to implement on-a-regular-basis (n=120;66.2%), and pharmacists opinion must be taken into consideration when establishing standards of PC in modification of related laws (n=166;91.7%).

Table3. Analysis of Respondents perception of PC.

Statements	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
All pharmacists should provide PC services	3 (1.7)	5(2.8)	16(8.8)	39(21.50)	118(65.20)
Pharmacists have the knowledge and skills necessary to provide PC	6(3.3)	9(5)	21(11.6)	37(20.40)	108(59.7)
Providing PC requires a special area to interview patients and advise	4(2.2)	2(1.1)	21(11.6)	52(28.7)	102(56.4)
Providing PC will negatively affect the relationship between the pharmacist and the physician	100(55.2)	34(18.8)	27(14.9)	7(3.9)	13(7.2)
Providing PC will increase the patients' confidence in the pharmacy profession	4(2.2)	1(0.6)	3(1.7)	23(12.7)	150(82.9)
PC is not the pharmacists duty; hence, there is no need for pharmacists involvement	150(82.9)	17(9.4)	4(2.2)	0(0)	10(5.5)
PC is the pharmacists duty, but it is difficult to implement on-a-regular-basis	16(8.8)	17(9.4)	28(15.5)	59(32.6)	61(33.7)
Pharmacists opinions must be taken into consideration when establishing standards of PC in the modification of related laws	3(1.7)	1(0.6)	11(6.1)	53(29.3)	113(62.4)
Providing PC is the duty of hospital pharmacists only	132(72.9)	36(19.9)	5(2.8)	0(0)	8(4.4)
The provision of PC is the sole responsibility of Clinical pharmacists	108(59.7)	39(21.5)	14(7.7)	9(5)	11(6.1)

Where, n= frequency (number of respondents) and % = percentage

On the other hand, most of the respondents disagree with the following statement: providing PC will negatively affect the relationship between the pharmacist and the physician (n=134;74%); PC is not the pharmacists duty; hence, there is no need for pharmacists' involvement (n=167;92.2%); Providing PC is the duty of hospital pharmacists only (n=168;92.8), and provision of PC is the sole responsibility of clinical pharmacists (n=147;81.2). Many (n=128;70.7%) respondents perceive that the following factors could be barriers to PC provision: physical space, training on PC, patient acceptance of PC, time, communication skills by pharmacists, knowledge concerning drug use, compensation/remuneration for PC provision, physicians' acceptance of PC, and management support. On the other hand, about (n=24;13.2%) of the respondents perceive the above factors as barriers to PC provision, and around (n=29;16%) remained neutral (Table 4).

Table 4. Analysis of respondent's perceived barriers to PC provision.

Statements	Strongly Disagree n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
Physical space for PC provision	9(5)	6(3.3)	33(18.2)	72(39.80)	61(33.7)
Training on PC	7(3.9)	6(3.3)	27(14.9)	56(30.9)	85(47)
Patient acceptance of PC	8(4.4)	17(9.4)	36(19.9)	58(32.0)	62(34.3)
Time to provide PC	8(4.4)	8(4.4)	17(9.4)	57(31.5)	91(50.3)
Lack of face-to-face communication with the patient	13(7.2)	29(16.0)	49(27.1)	41(22.7)	49(27.1)
Effective communication skills by pharmacists	12(6.6)	16(8.8)	37(20.4)	49(27.1)	67(37.0)
Knowledge concerning drug use	9(5.0)	27(14.9)	33(18.2)	48(26.5)	64(35.4)
Compensation/remuneration for PC provision	4(2.2)	5(2.8)	20(11.0)	66(36.5)	86(47.5)
Physicians' acceptance of PC	13(7.2)	13(7.2)	27(14.9)	57(31.50)	71(39.32)
Management support for PC provision	10(5.50)	20(11.0)	17(9.4)	45(24.9)	89(49.20)

To assess whether the socio-demographic factors have an impact on knowledge and perception about PC, and perceived barriers for PC provision, Pearson's Chi-square test of independence was performed to identify the association between two variables: age, sex, race, qualification, experience, and practice setting. The Phi and Cramer's V depicts the test of the association level between the variables. Overall, based on Pearson's chi-square test results, all socio-demographic variables are not associated with knowledge and perception regarding PC and perceived barriers for PC provision as the p-values were more than 0.05 (Table 5).

Table 5. Summary of P value and Pearson correlation coefficient test results.

	Knowledge		Perception		Perceived Barriers	
	Pearson's r	P Value	Pearson's r	P Value	Pearson's r	P Value
Gender	0.043	0.565	-0.065	0.384	0.028	0.708
Age	0.032	0.668	-0.040	0.592	-0.033	0.659
Qualification	-0.025	0.738	0.078	0.293	0.113	0.129
Experience	-0.079	0 .290	-0.038	0.611	0.064	0.389
Practice type	-0.072	0.335	0.009	0.894	0.083	0.266

Discussion

This study was conducted to assess community pharmacist's knowledge, attitudes regarding PC, and perceived barriers to its provision. PC is a new trend in the pharmacy practice environment which is more involved with patients besides mere dispensing of medicines, where pharmacists can use their knowledge and skills to minimize DRPs.

Pharmacists knowledge about PC was evaluated by using ten questions regarding providing a range of high-standard pharmacy services to patients. The crucial finding of this study was that the vast majority of community pharmacists in South Africa were knowledgeable about PC. A vast majority (98.3%) of the respondents believe that PC is a philosophy of practice where pharmacists work with and for the patient to optimize the outcomes of medication therapy, and 94.5% of the respondents defined PC as a patient-centered way to deliver medication management services. This finding is similar to a study(5)conducted in Poland [2021] where most of the pharmacists were familiar with the definition of PC. Pharmacists in Macao (12) [2016] also showed a satisfactory understanding of the overall concept of PC; however, the result of the current study is in sharp contrast to the situation in China where community pharmacists had an unsatisfactory understanding towards the role of the pharmacist and the emphasis of PC [2010] (13).   Another contrasting study result was observed in Nigeria1(14)[2014] where the community pharmacists had a deficit of knowledge of PC concepts, and a study (15) [2013] carried out in metro Manila identified that hospital pharmacists had a low perceived level of understanding the concept of PC. Studies conducted in Saudi Arabia (16) [2022], Qatar (17) [2016], and Ethiopia (18) [2020] showed similar results to the current study in terms of community pharmacists' knowledge regarding PC.

The present study showed that community pharmacists in South Africa have a positive attitude towards PC, more than 85% of the respondents agreed that all pharmacists should provide PC services and its provision will increase the patients' confidence in the pharmacy profession, and 80% believe that pharmacists have the knowledge and skills necessary to provide PC. This is similar to a study (19) carried out in community pharmacies in Jamaica [2018], where the pharmacists showed a positive perception towards PC. These attitudes are similar to those reported in other countries such as Poland(5), Thailand (20), and New Zealand (21). On the other hand, a study (22) carried out in Nigeria [2013] among hospital pharmacists showed a negative attitude toward PC.

Despite its positive impact on ensuring pharmacotherapy safety for patients, PC provision encounters several barriers. In South Africa, lack of compensation/ remuneration for PC provision is the main barrier, as declared by as many as 83.9% of pharmacists who responded to the survey as part of this study. In contrast, based on opinions of Argentinian pharmacists from different places and professional practice settings, ''lack of time'' was the main barrier to overcome for implementing PC [2008] (23). Another perceived barrier by study participants for PC provision was a lack of time to provide PC (81.7%). This is consistent with the results of other studies. For example, lack of time was the main barrier to non-provision of PC in Australia, Argentina, China, New Zealand, Portugal, and Thailand (1).

In South Africa, this study is the first of its kind on survey of knowledge, attitudes, and perceived barriers of community pharmacists in South Africa towards PC. Overall, pharmacists in this study had good understanding of PC and favorable attitudes towards it. A study (24) conducted in 2021 with aim to investigate the perceptions of pharmacists practicing clinical pharmacy in South Africa found out that most pharmacist in the private and public sector agreed that they have the necessary training to perform PC, and the majority of respondents felt that interventions made by the pharmacist improved the rational use of medicine.

Although South African pharmacists are positively

inclined towards PC, few of them are well prepared to carry out this type of task as lack of remuneration, lack of training on PC, and lack of time were reported as main obstacles for provision PC in their practice setting. Pharmaceutical service policy makers, pharmacy managers, and other relevant stakeholders should address the obstacles for better PC provision in South Africa.

The limitations of the study are including the possibility that self-reported responses may be exaggerated, and that usage of fixed-choice questions lacked flexibility; hence respondents answer within the options provided, and this has the potential to affect external validity.

Pharmacists can directly influence disease management by providing community-based PC services. An economically viable method of PC practice within the South African practice setting should be sought which includes compensation for pharmacists. A further recommendation is that training be acquired through incorporating PC into pharmacy education curricula. Empowerment of pharmacists by training and continual support in terms of continuing professional development and life-long learning is essential for any kind of successful advance in PC. Universities and professional associations should address the need to overcome these issues.

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