Original Research Article

The Effect of Patient-Centeredness and Competence on the Provision of OTC Medication Information: The Role of Saudi Community Pharmacist

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Abstract: *Objectives*: This study aimed to discover the Saudi community pharmacist's contribution to the transmission of prescription information by analyzing the relationship between two variables: the pharmacist's patient-centeredness and competence. This cross-sectional study was conducted from September to November 2024. Using a 14-item self-report questionnaire that had been previously tested and validated Data were collected using an online questionnaire. Convenience sampling method of 400 respondents was targeted; 233 valid questionnaires were returned, representing an effective response rate of 58.2%. To test the study's hypotheses, path analysis with structural equation modeling (Amos 24) was applied. Regarding the 233 pharmacists in the study, the Chi-square test for the model fit hypothesis showed statistically significant results: $\chi (74) = 145.2$, $P < 0.001$). The model accurately represented the data, as evidenced in the root mean square error of approximation (RMSEA) value of 0.027, PCI. The latent variables involved in the model were immediately evident to be both positively and strongly correlated. The associations among the latent as well as observable variables were all statistically significant. The model fit will be substantially and adversely affected by the removal of any latent variable. In the SEM, PAT was the main independent variable. PAT applied a significant direct positive influence on INF. ($\beta = 0.88$, $P = 0.002$). PAT demonstrated a significant direct impact on COM. ($\beta = 0.93$, $P = 0.001$), PAT exerted a substantial indirect influence on COM through the mediation by INF. The study reveals that pharmacists with patient-centered attitudes are more effective in delivering essential pharmacological information, especially in terms of over-the-counter medications, highlighting the critical role of Saudi community pharmacists in providing this type of medication.

Keywords: Community Pharmacy, Competence, Over the Counter, Medication Information, Patient-Centeredness, Saudi Arabia.

1. INTRODUCTION

Effective communication between pharmacists and patients is fundamental to achieving successful therapeutic outcomes. Recognizing differences in perspectives on communication, pharmacists are increasingly adopting a patient-centered approach to pharmaceutical care. This shift from a "medication-centered" to a "patient-centered" model reflects the evolving role of pharmacists in reducing medication errors, promoting adherence, and supporting informed decision-making [1]. By focusing on strong communication skills, pharmacists can enhance patient care, prevent adverse drug effects, and ensure the appropriate use of medications. This approach is particularly critical for over-the-counter (OTC) medications, where collaborative decision-making empowers patients to actively participate in their health and make informed choices about self-medication [1, 2]. Providing patients with comprehensive information about the benefits and potential risks of OTC medications is essential for enabling them to make educated decisions [2-6]. Pharmacists play a vital role between physicians and patients by dispensing medications and providing health advice without appointments. Despite their contributions, they often go underrecognized in healthcare systems, frequently seen as "invisible." To improve their professional development and the patient-pharmacist relationship, many are seeking to expand their responsibilities in community pharmacies. By engaging more in decision-making, pharmacists aim to foster collaborative relationships with patients, enhancing overall patient care and healthcare delivery [3-5]. The essential skills of a dedicated pharmacist

include effective communication, stress resilience, patience, a strong sense of self-worth, a positive attitude, and counseling abilities. Empathy is vital for recognizing patients' issues and offering appropriate support. Currently, pharmacists may face challenges in engaging in patient-centered discussions due to individual or organizational factors. Issues such as lack of motivation, insufficient clinical education, or inappropriate behavior can hinder effective communication with patients [7].

Unlike pharmaceuticals, which require a doctor's prescription, Over the Counter (OTC) medications are directly accessible to consumers without a prescription from a healthcare professional. The availability of OTC drugs allows patients to manage a wide range of illnesses, often under medical supervision [1]. These medications are considered relatively safe and appropriate for use without professional guidance, enabling their purchase without a prescription [5]. According to the World Health Organization's Anatomical Therapeutic Chemical (ATC) classification system, OTC medications are categorized into ten groups: painkillers, laxatives, antithrombotic agents, antacids, cough and cold preparations, antihistamines, dermatological treatments, throat preparations, nasal preparations, and antidiarrheals [6]. While OTC medications facilitate self-medication, they also present significant risks, including potential overdosing, misdiagnosis, and harmful drug interactions [1]. Research highlights that pharmacist counseling can mitigate these risks, improving patients' quality of life, reducing the need for medical services, and enhancing understanding of medications, diseases, and clinical outcomes [2]. Pharmacists play a pivotal role in the regulation and responsible use of OTC medications. They provide essential guidance and counseling to consumers, ensuring appropriate use [1]. Furthermore, legal regulations mandate that all medications dispensed from community pharmacies include original packaging with information package inserts. These inserts must detail critical information, such as the medication's name, active ingredients, pharmaceutical form, strength, storage conditions, cost, and manufacturer [2]. Pharmacists must possess the necessary skills and knowledge to effectively educate and counsel patients. This includes understanding patients' cultural beliefs, attitudes, and behaviors regarding health and illness, as well as their perceptions of the healthcare system and their role in decision-making and care monitoring. Employing open-ended questions and active listening are essential for effective communication and data collection [8]. Additionally, pharmacists should observe nonverbal cues, such as eye contact, facial expressions, body language, and vocal characteristics, during counseling sessions. Tailoring information and instructional strategies to a patient's cognitive abilities, learning preferences, and physical or sensory conditions further enhances the effectiveness of patient education [9].

In the Qassim region, Saudi Arabia, 75% of over-the-counter (OTC) medication purchases from community pharmacies were motivated by renewing previous prescriptions (30%). With over 30% of Saudi Arabia's population being children, parents often rely on prior experiences or recommendations from relatives to purchase OTC medications without consulting a doctor [10].

Families in Saudi Arabia and the Gulf nations spend approximately $150 million annually on unused medications, highlighting the need for solutions to reduce prescription waste and its impact on medical costs. National evaluations of drug usage and promotion of generic drug use are essential steps forward [11].

Although Saudi Arabia's healthcare system has improved significantly over the past three decades, areas such as person-centeredness, clinical efficacy, and patient safety require further enhancement [12]. A pharmacist in Saudi Arabia can impact a patient's selection and utilization of over-the-counter medications. This study evaluates self-medication and aims to investigate the relationship between specific constructs, particularly the competency and patient-centeredness of pharmacists, which could influence how they provide pharmaceutical information. The research was conducted from the perspective of a community pharmacist.

2. MATERIALS AND METHODS
2.1 Study Design
An observational cross-sectional study was conducted in Saudi Arabia between September and November 2024. The study targeted actively practicing community pharmacists during the study period. A non-probability convenience sampling method was employed to distribute an online, pre-structured questionnaire to eligible community pharmacists. Based on an estimated population of 11,000 community pharmacists in Saudi Arabia, a sample size of 367 pharmacists was determined using a 95% confidence interval and a 5% margin of error.

2.2 Questionnaire Development and Validation
The study questionnaire was divided into three sections. The first section assessed the relationship between pharmacists and physicians, the second section focused on the relationship between pharmacists and patients, and the third section collected socio-demographic information. To ensure participant anonymity and protect data privacy, the questionnaire was designed to be anonymous. The development of the questionnaire followed a comprehensive literature review and expert consultation. The initial draft of the questionnaire was reviewed for validity by a panel of three experts to assess clarity, relevance, and applicability. Following expert feedback, modifications were applied, and the final version

of the questionnaire was prepared. The questionnaire was then administered online via WhatsApp and Facebook Messenger, and participants were recruited through professional communication networks and social media groups for pharmacists. No incentives were offered, and measures were implemented to prevent duplicate responses by allowing each participant to complete the survey only once.

2.3 Questionnaire Structure and Scoring
The questionnaire consisted of 14 items measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). It assessed three constructs:
1. Patient-Centeredness (PAT): This construct was evaluated based on the pharmacist's ability to meet patient needs while demonstrating a positive attitude and acting in the patient's best interest.
2. Competence (COM): This construct assessed the pharmacist's knowledge of over-the-counter medications and their willingness to engage in discussions regarding pharmacological concerns with patients.
3. Provision of Medication Information (PMI): This construct measured the pharmacist's ability to provide essential medication information to ensure the safety and effectiveness of self-medication, including administration methods, storage, potential adverse reactions, interactions, and contraindications.

The items in each construct were adapted from previous studies (Piecuch *et al*., 2017). The PAT construct included four items (one reverse-coded), the COM construct included four items, and the PMI construct included six items (with one reverse-coded). To ensure robust data analysis, respondents were required to answer at least 80% of the items. For respondents with missing data on one to three items, the mean score of their valid responses was used as a substitute for missing values.

2.4 Analysis
Once the data was gathered and investigated, version 26 of the Statistical Package for the Social Sciences was used (Released 2019. Armonk, NY: IBM Corp). The statistical methods used a two-tailed design with an alpha level of 0.05 and P value less than or equal to 0.05 was considered statistically significant. We used percentages and frequencies to describe the categorical data, while numerical data were represented as mean with standard deviations. Pharmacists' bio-demographic data and their answers for different constructs were tabulated. The different constructs items median score with interquartile range (Q1 and Q3) were also displayed. The graphs show the pharmacist's self-perception of the relationship with the patient as well as the primary abilities that a community pharmacy pharmacist should have. The structural equation model (SEM) was used to assess direct and indirect interactions between the different study constructs and also its confirmatory nature was used to ass the standardized loading of each item on its construct. Model fit was assessed using the root mean square of approximation which if near zero indicated a better fit. SEM was initiated using JMP software.

3. RESULTS
A total of 233 qualified community pharmacists participated in the study survey. Pharmacists' ages ranged from 22 to more than 50 years with a mean age of 31.6 ± 11.9 years old. Most of the study pharmacists were males (73.8%; 172). As for their qualification, 119 (51.1%) had a bachelor's in pharmacy, 74 (31.8%) had a Doctor of Pharmacy, 33 (14.2%) had a PhD in pharmacy, and 7 (3%) had a master's degree in pharmacy. The total years of experience was less than 1 year for 45 (19.3%), 1-5 years for 99 (42.5%), and more than 5 years for 38.2%. Also, the number of years of experience in the community pharmacy of Saudi Arabia was less than 1 year for 62 (26.6%), 1-5 years for 99 (42.5%), and more for 30.9% of pharmacists. A total of 157 (67.4) respondents worked at a chain pharmacy group (more than 4 pharmacies), 64 (27.5%) worked at individual pharmacies (less than 4 pharmacies) and 12 (5.2%) worked at a hospital pharmacy. Most of the pharmacists (127; 54.5%) were staff Pharmacists, 87 (37.3%) were pharmacy managers and 19 (8.2%) were trainee pharmacists (Table 1).

Table 1: Socio-demographic characteristics of study pharmacists, Saudi Arabia (n=233)

Socio-demographics	No	%
Age in years		
22-29	114	48.9%
30-39	100	42.9%
40-49	15	6.4%
50+	4	1.7%
Gender		
Male	172	73.8%
Female	61	26.2%
Educational Qualification		
Bachelor's in pharmacy	119	51.1%

Socio-demographics	No	%
Master of Pharmacy	7	3.0%
Doctor of Pharmacy	74	31.8%
PhD in Pharmacy	33	14.2%
Total years of experience		
Less than 1 year	45	19.3%
1-5 years	99	42.5%
6-10 years	42	18.0%
More than 10 years	47	20.2%
Years of experience in the community pharmacy of Saudi Arabia		
Less than 1 year	62	26.6%
1-5 years	99	42.5%
6-10 years	39	16.7%
More than 10 years	33	14.2%
Pharmacy affiliation		
Chain pharmacy group (more than 4 pharmacies)	157	67.4%
Individual pharmacies (less than 4 pharmacies)	64	27.5%
Hospital pharmacy	12	5.2%
Current position in pharmacy		
Pharmacy Manager	87	37.3%
Staff Pharmacist	127	54.5%
Trainee Pharmacist	19	8.2%

Table 2 shows descriptive for study domains among study community pharmacists. As for patient-centeredness, 96.6% of the study pharmacists agreed they suggest a medication that is most suitable for the clinical requirements of the patient when consulted, 93.6% agreed they regard patient well-being as my primary concern and 90.1% agreed they would never suggest a medication that would not be effective for the patient. Only 67.8% agreed they attempt to market pharmaceuticals that allow them to maximize their profit margin. Considering competence, 91.8% of pharmacists agreed that patients can always consult them for guidance when they are uncertain about the mechanism of action or appropriate usage of medicine, 89.3% agreed they are typically capable of providing detailed responses to patients' inquiries regarding medicinal matters, 85.8% agreed for before purchasing an over-the-counter medicine; patients should consult with them, and 84.1% think they have extensive experience in pharmaceutical compounds. Regarding the Provision of OTC medication information, 93.1% of the pharmacists routinely educate patients on the proper usage of the medication they offer for sale, 87.6% caution patients about possible hazardous medication effects, 86.3% usually provide patients with instructions on the proper storage of the medications they recommend, and 83.3% caution patients about potential drug interactions, and 82.4% consistently verify the absence of any contraindications for the patient to use the medicine. Only 55.4% agreed their usual practice is to avoid asking additional questions while dispensing drugs.

For self-perceived pharmacist-patient relationships as reported by the study community pharmacists (Figure 1), most of the pharmacists (64.8%; 151) reported it is a very good relationship, 64 (27.5%) said it was a good relationship while only 4 (1.7%) told it is bad / very bad relation.

Table 2: Descriptive for study domains among study community pharmacists, Saudi Arabia (n=233)

Domain/ items	Medina (IQR)	Total	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
			No	%	No	%	N	%	No	%	No	%
Patient-centeredness												
I regard patient well-being as my primary concern.	5 (4-5)	233	1	.4%	1	.4%	13	5.6%	57	24.5%	161	69.1%
When consulted; I suggest a medication that is most suitable for the clinical requirements of the patient.	5 (4-5)	233	1	.4%	0	0.0%	7	3.0%	67	28.8%	158	67.8%
I would never suggest a medication that would not be effective for the patient.	5 (4-5)	233	5	2.1%	4	1.7%	14	6.0%	48	20.6%	162	69.5%
I attempt to market pharmaceuticals that allow me to maximize my profit margin.	4 (3-5)	233	12	5.2%	18	7.7%	45	19.3%	54	23.2%	104	44.6%

| Domain/ items	Medina (IQR)	Total	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
			No	%	No	%	N	%	No	%	No	%
Competence												
When patients are uncertain about the mechanism of action or appropriate usage of a medicine; they can always consult me for guidance.	5 (4-5)	233	2	.9%	2	.9%	15	6.4%	74	31.8%	140	60.1%
Before purchasing an over-the-counter medicine; patients should consult with me.	5 (4-5)	233	2	.9%	4	1.7%	27	11.6%	74	31.8%	126	54.1%
I have extensive experience in pharmaceutical compounds.	4 (4-5)	233	3	1.3%	2	.9%	32	13.7%	82	35.2%	114	48.9%
I am typically capable of providing detailed responses to patients' inquiries regarding medicinal matters	5 (4-5)	233	1	.4%	4	1.7%	20	8.6%	76	32.6%	132	56.7%
Provision of OTC medication information												
I routinely educate patients on the proper usage of the medication I offer for sale.	5 (4-5)	233	1	.4%	2	.9%	13	5.6%	65	27.9%	152	65.2%
I caution patients about possible hazardous medication effects.	5 (4-5)	233	3	1.3%	7	3.0%	19	8.2%	69	29.6%	135	57.9%
My usual practice is to avoid asking additional questions while dispensing drugs.	4 (2-5)	233	18	7.7%	47	20.2%	39	16.7%	37	15.9%	92	39.5%
When dispensing drugs; I caution patients about potential drug interactions.	5 (4-5)	233	3	1.3%	6	2.6%	30	12.9%	64	27.5%	130	55.8%
I consistently verify the absence of any contraindications for the patient to use the medicine.	5 (4-5)	233	3	1.3%	11	4.7%	27	11.6%	66	28.3%	126	54.1%
Usually; I provide patients with instructions on properly storing the medications I recommend.	5 (4-5)	233	4	1.7%	9	3.9%	19	8.2%	65	27.9%	136	58.4%
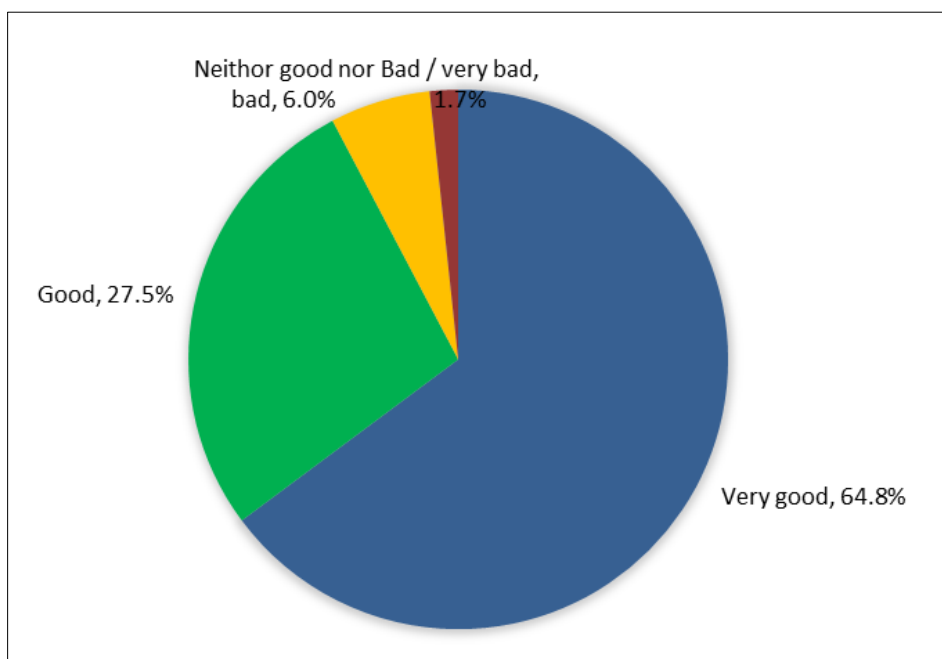
Figure 1: Self-perceived pharmacist-patient relationships as reported by the study community pharmacists, Saudi Arabia

Figure 2. Primary skills should be in pharmacists working in a community pharmacy as reported by the study pharmacists. The most reported skills pharmacists reported were the ability to adapt the message to the patient's understanding (73%), Communication ability (47.6%), Management of the pharmaceutical activity (46.8%), Capacity to

adapt to difficult circumstances (45.9%), and Quick thinking (42.1%). The least reported skills were Empathy (40.3%), and self-control (39.9%).
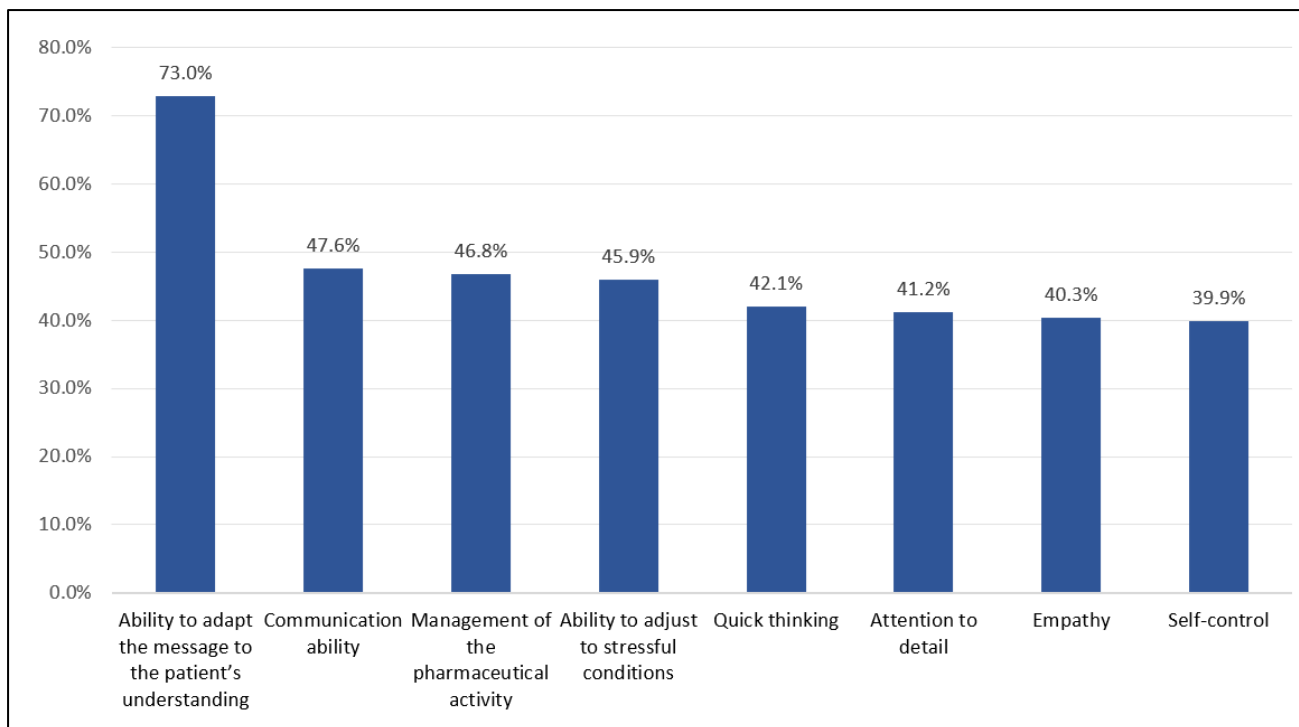

Figure 2: Primary skills that should be in pharmacists working in a community pharmacy as reported by the study pharmacists

Figure 3 shows the results of the SEM model for direct and indirect relations between the study constructs. The model Chi-square test for the model fit hypothesis was statistically significant: $\chi (74) = 145.2$, $P < 0.001$). The model fitted the data very well, as evidenced in the root mean square error of approximation (RMSEA) value of 0.027, PCI. It was evident that the latent variables provided in the model were positively and strongly correlated. All the relationships between the observable and latent variables were statistically significant. Removal of any latent variable will negatively and significantly affect the model fit. In the SEM, PAT was the main independent variable. PAT had a strong direct positive impact on INF ($\beta = 0.88$, $P = 0.002$). PAT was also shown to have a strong direct effect on COM ($\beta = 0.93$, $P = 0.001$), which means that PAT had an indirect significant effect on COM mediated by INF.
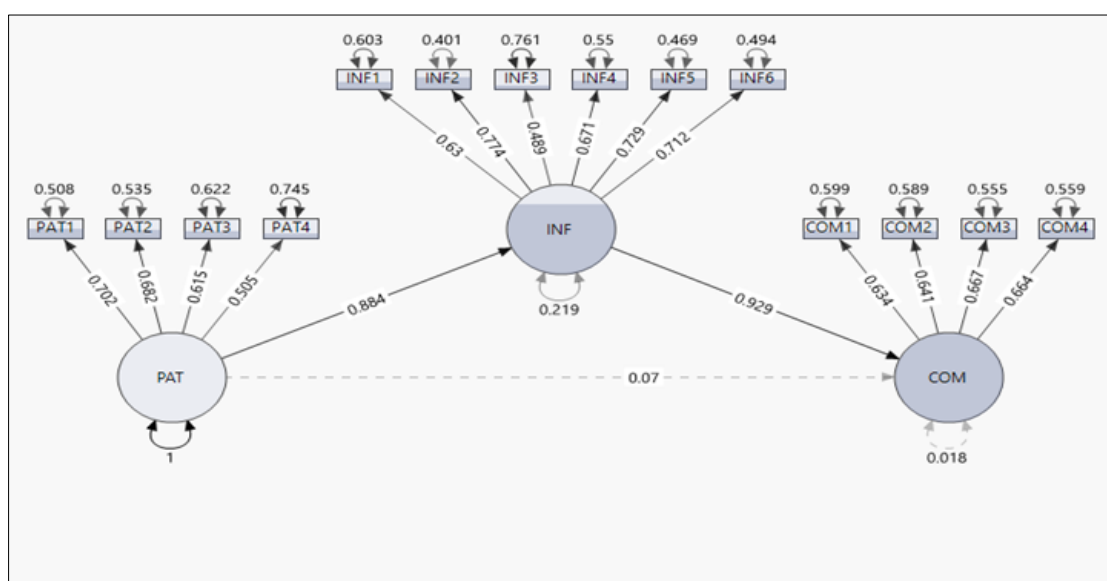

Figure 3: The structural equation model visualization of the relationships between the constructs of the study patient-centeredness, competence, and provision of OTC medication information.

$\chi2 = 145.2$, *df* = 74, *P* < 0.001, root mean square of approximation = 0.027; COM—competence, INF—provision of OTC medication information, PAT—patient-centerednes.

4. DISCUSSION

This study investigates the relationship between pharmacist patient-centeredness and competence, and how these constructs may affect the delivery of medication information by Saudi community pharmacists. Healthcare professionals have traditionally believed they know what is best for their patients, making decisions on their behalf [13, 14]. However, in recent years, a new perspective has emerged: patients are also experts when it comes to their bodies, symptoms, and circumstances. This recognition is crucial for effective treatment [15, 16]. Therefore, patients should be viewed as partners in their healthcare, with both rights and responsibilities [17]. Additionally, healthcare policymakers and governments may hope that encouraging active patient involvement in self-care will help reduce financial burdens on the healthcare system [18].

The present study indicated that the majority of pharmacists were male, had a bachelor's degree, and had five years or fewer of experience. Also, about two-thirds worked at the chain pharmacy group as a pharmacy staff but about one-third were pharmacy managers. Piecuch A *et al.*, [19], reported that the majority of respondents were female, different from the current study; however, most pharmacists had 5 or fewer years of experience and held master's degrees, which aligns with the findings of the current study.

Regarding patients' centeredness, the current study revealed a high level of the construct among pharmacists where most of them recommend appropriate medication for patients' clinical needs, prioritize patient well-being, and never suggest ineffective medications. Also, about two-thirds of pharmaceuticals maximize profit margins, indicating a preference for patient-centered care. These all were consistent with Piecuch A *et al.*, [19], findings and conclusions. de Oliveira DR and Shoemaker SJ [20], in their study revealed that patients want to be recognized as individuals with unique experiences and varied responses to medications. For pharmacists to effectively address medication-related needs, they must understand the concept of patient-centered care. Additionally, the six strategies for fostering openness should be incorporated into their daily practice. Another study conducted by Olson AW [21], revealed that patient-centered care (PC) in pharmacist practice is broader, specific, and connected to other healthcare disciplines. It suggests that PC is achievable in outpatient care contexts, with careful patient preferences. Future research could explore best practices, training, and care barriers.

Considering pharmacists' competence, the pharmacist shows expertise in over-the-counter medications and shows a willingness to address medication needs and patient questions, the current study showed that the vast majority of pharmacists provide guidance to patients, and also provide detailed responses, advising patients to consult them before purchasing over-the-counter medicines. Also, most of the pharmacists have extensive experience in pharmaceutical compounds. The experiences and perspectives of Saudi community pharmacists concerning the inappropriate use of prescription and OTC drugs remain under-researched [22]. A study by Azher *et al.*, [23], has observed that a majority of pharmacists have training in recognizing drug abuse and are equipped to provide counsel to prospective customers. Numerous studies conducted globally have reported comparable findings, offering valuable insights into the experiences and perspectives of Community Pharmacists regarding the management of suspicious requests and the potential misuse of certain common prescription and OTC medications [24, 25].

As for interrelations, the current study assessed a strong positive for patient-centeredness on their competence indirectly through the provision of medication information. These interrelations were also proved by Piecuch *et al.*, [19], in their study. The findings align with prior literature indicating that patient-centeredness at the pharmacy counter is a crucial element for effective counseling, therefore enhancing therapeutic outcomes [26, 27]. Unfortunately, studies indicate that even though pharmacists are advised to provide patient-centered counseling [28, 29], they often fail to actively involve patients' perspectives in their practice. Also, published studies indicate that pharmacists are worried about their patients' understanding of medications [30-32]. They also feel there is a general lack of interest among patients in receiving pharmacy counseling [33]. Consequently, pharmacists believe they need to tailor their counseling approach to match the patient's interest in receiving guidance.

Study Limitations

Our study's cross-sectional methodology hinders the ability to infer causality. In addition, the sample was collected online survey and may not adequately represent the entire population of Saudi pharmacists which causes a decrease in the generalizability of the findings, and recall bias arises if participants don't accurately remember past behaviors. Self-reported surveys permit potential biases, as replies sometimes indicate socially desired answers rather than real behaviors.

In future research, we could use longitudinal studies and a more representative sample to enhance these findings and make more generalizable insights. The study looks to determine the management of OTC medications in the Kingdom

of Saudi Arabia, evaluate the benefits of further research on these medicines, and gather pharmacists' perspectives across various regions regarding their long-term risks and adverse effects. Additionally, the study aims to explore the possibility of classifying these medications as non-prescription drugs, subject to strict physician supervision before being dispensed to patients.

5. CONCLUSION
The study's findings highlight the value of Saudi community pharmacists in patient-centered treatment, especially in over-the-counter medications. The findings indicate that pharmacists with greater skills in a patient-centered community are more effectively communicating important drug information. Patient-focused attitudes support pharmacists' abilities and skills in their information-dissemination function. This demonstrates how crucial it is that pharmacists receive in-depth, targeted training in the field of medications. Additionally, learn how to communicate with the patient and instruct them on how to take their medications. Structural equation modeling clarifies that patient-centered practice positively impacts pharmacists' competence, as mediated by their role in providing information.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: A Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author..

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