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COMMUNITY PHARMACISTS RECOMMENDATIONS ON SELF-MEDICATION FOR GASTROINTESTINAL PROBLEMS: A VIGNETTE CASE STUDY IN EAST SURABAYA

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ABSTRACT

Background: Self-medication is a common approach to managing uncomplicated health issues, including gastrointestinal disorders. Community pharmacists are essential in facilitating successful self-medication by thoroughly evaluating patient information, offering rational suggestions, and delivering clear instructions regarding medication administration. **Objective:** This study aims to characterize pharmacists' abilities in gathering information on patient symptoms and providing appropriate treatment recommendations for self-medication cases of diarrhea and constipation. **Methods:** This study employed a cross-sectional methodology accompanied by descriptive analysis. Data was collected using two validated vignette case studies: one for measuring information-gathering competencies and another for assessing the correctness of therapy recommendations. **Results:** 35 pharmacists participated, most of whom had finished professional pharmacist education (88.6%) and had been practicing in pharmacies for 1 to 7 years (40%). The results showed that 66.0% of pharmacists demonstrated moderate information-gathering skills for diarrhea cases and a lower proportion for constipation cases (45.7%). Only 51.4% of pharmacists could provide correct recommendations for diarrhea and constipation cases. **Conclusion:** These findings highlight the importance of interventions to enhance pharmacists' roles in providing patients with appropriate, safe self-medication services.

Keywords: self-medication; community pharmacists; diarrhea; constipation

INTRODUCTION

Self-medication is an independent effort to treat mild illnesses without a doctor's prescription. In Indonesia, the practice increased from 72.19% in 2020 to 84.34% in 2022, driven by perceptions of mild symptoms, easier access to medication, lower cost, and fast-paced lifestyles[1,2]. Diarrhea and constipation are common health issues addressed through self-medication[3]. Research by Rusmariani et al. (2019) showed that 53% of homemakers in Indonesia preferred self-medication for their families' diarrhea and constipation before consulting a doctor[4].

Pharmacists play a vital role as the first point of healthcare access in ensuring appropriate therapy recommendations[5]. However, studies revealed gaps in practice, with only 30.95% of pharmacists in Surabaya recommending accurate diarrhea treatments[6]. Some even advised antibiotics (16.25%), indicating a lack of comprehensive patient assessments[7].

A pharmacist's ability to gather comprehensive information is crucial for

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identifying medical complaints and determining the right therapy. Yet, research by Roseno and Widyastiwi (2023) showed that only 42.82% of pharmacists in Bandung adequately gathered patient information during self-medication consultations. This gap in skill and knowledge highlights the need to improve pharmacists' competencies in patient assessment and disease management[8].

This study aims to characterize pharmacists' abilities in gathering information on patient symptoms and providing appropriate treatment recommendations for self-medication cases of diarrhea and constipation. We hypothesize that pharmacists exhibit varying levels of ability in gathering patient symptom information and providing appropriate treatment recommendations for self-medication cases of diarrhea and constipation. Findings from this research are expected to help address gaps and improve self-medication services in pharmacy.

METHODS

1. Study Design

This quantitative, cross-sectional observational study utilized case-based questionnaires to assess pharmacists' information-gathering skills and accuracy in recommendations for self-medication of gastrointestinal disorders in East Surabaya pharmacies. Ethical approval was granted by the Ethics Committee of the Faculty of Medicine, Widya Mandala Catholic University Surabaya (No. 0105/WM12/KEPK/MHS/T/2023).

2. Setting

This study was conducted from December 2023 to February 2024 across various districts in East Surabaya, Indonesia, to ensure a representative sample of regional practices.

3. Participants

The study population included pharmacists working in 212 pharmacies in East Surabaya, as listed in the Surabaya City Health Department database, assuming one pharmacist is in charge per pharmacy. The sample was selected using an accidental sampling technique, with a minimum sample size of 24 respondents calculated using the Cleveland Clinic sample size calculator.

Pharmacists were eligible to participate if they met the following inclusion criteria : (1) currently working in pharmacies listed in the database, (2) having prior experience in handling self-medication for diarrhea and constipation, (3) willing to participate as respondents, and (4) agree to complete the questionnaire under the direct supervision of the researcher. Pharmacists who were unavailable despite two visits were excluded from the study.

4. Variables

The study focuses on two key variables: (1) pharmacists' information-gathering skills and (2) the accuracy of therapy recommendations. Both variables for diarrhea and constipation were assessed using a case-based questionnaire.

5. Data Sources

The study utilized a validated questionnaire as the primary data source, consisting of three main sections: respondent characteristics (Section 1), information-gathering skills questionnaire (Section 2), and therapy recommendation accuracy questionnaire (Section 3). The questionnaire underwent face validity testing to ensure narrative clarity. Section 2 features open-ended questions assessed using a scoring rubric, validated for content by 14 pharmacists. Questions were considered essential if CVR $\geq$ 0.51 and relevant if I-CVI > 0.79 and S-CVI/Ave > 0.90[9].

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6. Data Analysis

Respondent characteristics were analyzed descriptively and presented as frequencies and percentages. Open-ended responses were coded and categorized as follows: low (score 1-4), moderate (score 5-7), and high (score 8-11) for information-gathering skills in diarrhea cases; and low (score 1-3), moderate (score 4-6), high (score 7-9) for information-gathering skills in constipation cases. Detailed results were presented, such as the number and percentage of respondents who addressed or omitted each question item. Therapy recommendation accuracy was analyzed by calculating the number and percentage of correct and incorrect responses. The accuracy results were further correlated with respondent characteristics, such as frequencies and percentages.

RESULTS

1. Instrument validation

The case studies included in this study have passed face validity tests conducted by practitioners and academic specialists. The evaluation of pharmacists' information-gathering competencies was performed with a rubric that has passed expert validation. For the diarrhea case study rubric (Table 1) and constipation (Table 2), expert validation testing considered the CVR, I-CVI, and S-CVI/Ave factors.

Table 1. Results of the content validity for rubric assessment in diarrhea case study

Item	CVR	I-CVI	S-CVI/ Ave	Conclusion
Patient identity	1.00	0.93		Passed
Special condition	1.00	1.00		Passed
Medical history	0.71	0.93		Passed
Changes in diet or traveling history before diarrhea.	1.00	0.93	0.96	Passed
History of allergies	1.00	1.00		Passed
Dehydration sign	1.00	1.00		Passed
Nausea and vomiting sign	0.71	0.93		Passed
Frequency and duration of symptoms	1.00	1.00		Passed
Medications that have been used for similar symptoms	0.86	0.93		Passed
Taking medicine for other health problems	0.71	0.93		Passed
Stool with mucus and blood	1.00	1.00		Passed

Table 2. Results of the content validity for rubric assessment in constipation case study

Item	CVR	I-CVI	S-CVI / Ave	Conclusion
Patient identity	0.86	0.93		Passed
Special condition	1.00	1.00		Passed
Medical history	1.00	1.00		Passed
Changes in diet/lifestyles	0.86	0.93		Passed
History of allergies	1.00	1.00		Passed
Stool with mucus or blood	1.00	1.00	0.98	Passed
Duration of symptoms	1.00	1.00		Passed
Medications that have been used for similar symptoms	1.00	1.00		Passed
Taking medicine for other health problems	1.00	1.00		Passed
Pain during defecation	0.29	0.64		*Eliminated*

2. Respondent Characteristic

The study successfully involved 35 pharmacists in Surabaya. The limited sample size in this study was due to pharmacists being unavailable in the pharmacy and refusing participation. The primary reason

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for refusal was time constraints, and participants declined to accompany the researcher during the case study completion (Figure 1).

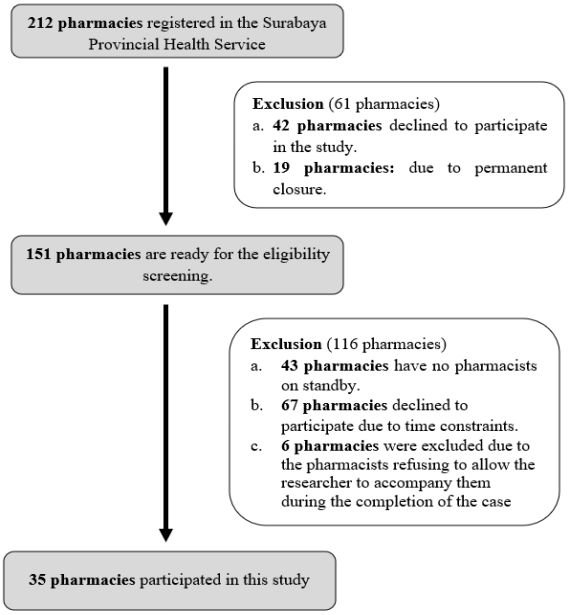

Figure 1. The flow chart of included respondents

Among the 35 respondents in this study, 88.6% were pharmacist graduates, while 11.4% held postgraduate degrees. Most respondents (40.0%) reported practicing in pharmacies for 1-7 years, and 57.1% indicated they had no experience as preceptors (Table 3).

Table 3. Participant's characteristic (N = 35)

Characteristics	N (%)
Highest level education.	
Pharmacist education	31 (88.6)
Postgraduate	4 (11.4)
Length of practice as a community pharmacist.	
≤ 11 months	2 (5.7)
1 – 7 years	14 (40.0)
8 – 12 years	7 (20.0)
≥ 13 years	12 (34.3)
The experience becomes a clinical preceptor.	
Yes	15 (42.9)
No	20 (57.1)

3. Diarrhea case study

Approximately 66% of respondents exhibit moderate information-gathering ability. Figure 2 shows the results of community pharmacist information-gathering abilities in self-medication for cases of diarrhea.

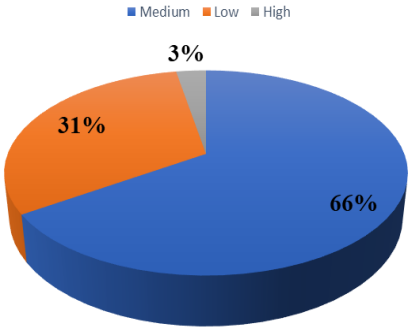

Figure 2. Community pharmacist information-gathering ability in diarrhea case

Pharmacists with low information-gathering skills asked only 1 to 3 relevant questions. The lack of patient-specific symptom assessment in self-medication services may lead to medication errors. The most frequent information gathered in the diarrhea case study included the duration of symptoms (97.1%), patient age (85.7%), administered therapies to alleviate symptoms (77.1%), and changes in the patient's diet or lifestyle (71.4%). The patient's history of concomitant medication was the least frequently requested information (5.7%).

Community pharmacists' limitations in patient assessments affect the accuracy of the treatment recommendations. The survey results indicated that only 51.4% of pharmacists answered correctly in the diarrhea case study. About three respondents (8.6%) recommend prescription medications like loperamide. This finding shows that not all community pharmacists obey the rules that say they are prohibited from selling prescription drugs in self-medication services. Respondents were least likely to recommend some first-line antidiarrheal medications, including pectin, attapulgite, and oral rehydration solution (ORS). The characteristic profile of respondents who

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provided correct answers can be seen in Table 4.

Table 4. Respondent characteristics based on the accuracy of suggestions in the diarrhea case study

Characteristic	Answer correctly, n (%)
Highest level education	
Pharmacist education	17 (54.8)
Postgraduate	1 (25.0)
Length of practice as a community pharmacist.	
≤ 11 months	2 (100)
1 – 7 years	7 (50.0)
8 – 12 years	5 (71.4)
≥ 13 years	4 (33.3)
The experience becomes a clinical preceptor.	
Yes	7 (46.6)
No	11 (55.0)

4. Constipation case study

The results presented in Figure 3 show that most pharmacists (54.3%) exhibited a low ability to gather information on patient symptoms for constipation case studies.

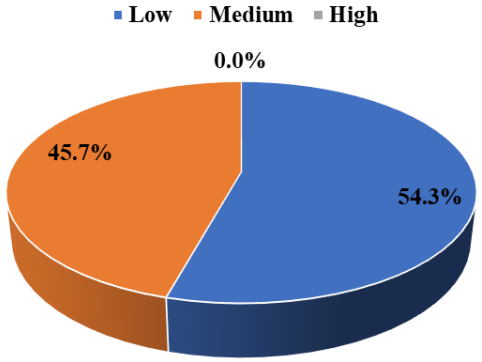

Figure 3. Community pharmacist information-gathering ability in constipation case

The most frequently asked relevant questions are similar to those in cases of diarrhea. The duration of symptoms (88.7%), dietary changes (71.4%), and medication given to treat symptoms (57.1%) are the most frequently asked questions. Bloody stools (2.8%) and special conditions (8.6%) are the least often relevant information being asked. The proportion and characteristics of respondents providing accurate recommendations were identical to those observed in the case of diarrhea, precisely 51.4% (Table 5).

Table 5. Respondent characteristics based on the accuracy of suggestions in constipation case study

Characteristic	Answer correctly, n (%)
Highest level education	
Pharmacist education	17 (54.8)
Postgraduate	1 (25.0)
Length of practice as a community pharmacist.	
≤ 11 months	2 (100)
1 – 7 years	9 (64.2)
8 – 12 years	2 (28.5)
≥ 13 years	5 (41.6)
The experience becomes a clinical preceptor.	
Yes	8 (53.3)
No	10 (50.0)

DISCUSSION

The findings regarding the ability to gather patient symptom information in diarrhea and constipation cases in this study align with those of Ibrahim et al. (2018) in Baghdad, Iraq, which indicated that most pharmacists acquired only 50% of patient information [10]. The duration of diarrhea symptoms is an essential consideration in cases of self-medication. Patients experiencing diarrhea for over 3 days are at significant risk for dehydration. In pediatric and geriatric, it becomes a warning sign requiring immediate referral to a doctor [11,12].

In cases of constipation, the low level of pharmacists' ability to obtain information on constipation cases was consistent with Armalifia's (2011) research in Surabaya, which found that most pharmacists who participated in the study (65.5%) did not collect relevant information from patients. The duration of constipation symptoms is vital information that needs to be asked to distinguish acute and chronic constipation. In

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chronic constipation cases, self-medication can only facilitate bowel movements during the use of laxatives but will be recurrent when the drug is stopped [11,12]. The identification of blood in the stool is frequently ignored despite being a hallmark of chronic constipation requiring a physician referral. In patients with constipation leading to hemorrhoids, the presence of fresh red blood in the stool is typically observed. Additionally, because some constipation drugs, such as stimulant laxatives like bisacodyl, can cause uterine contractions, it is vital to inquire about particular situations like pregnancy when gathering information [13]. Similar findings were found in a study by Roseno and Widyastiwi (2023), which revealed that only 42.8% of 298 pharmacists performed patient assessments according to complaints in cases of constipation involving self-medication services [15].

Only 51.4% of pharmacists could provide correct recommendations for diarrhea and constipation cases. In the case study on constipation, the patient asked for a medication that is taken orally and acts quickly—within one day. The correct recommendation is the stimulant laxative category, including senna capsules and/or bisacodyl tablets. Stimulant laxatives exhibit a rapid onset of action, typically ranging from 6 to 12 hours. The osmotic laxative group, including lactulose syrup and macrogol 3350, is a less-suited option due to its extended drug action time of 1-2 days [12].

Only a few pharmacists can provide appropriate treatment recommendations for both cases. This is because pharmacists' assumption that constipation and diarrhea are non-life-threatening symptoms leads them to ignore a more thorough investigation of patients' symptoms [14]. We found that the results of our study regarding the proportion of pharmacists who provided appropriate treatment recommendations were slightly higher than the prior study. Similar research in East Surabaya revealed that only 42 pharmacists (26.2%) gave appropriate recommendations[16]. These findings may be due to the different difficulty levels of the case studies.

Our research findings suggest that pharmacists with postgraduate education and more extended practice experience do not consistently demonstrate high competence in providing appropriate treatment recommendations. In addition to the pharmacist's characteristics, many factors determine the quality of self-medication services. The professionalism of pharmacy staff and patient responses to consultations directly impact their practice when dealing with self-medication consultations. These factors are, in turn, affected by the organizational context of the pharmacy and the external pharmacy environment. The organizational context of the pharmacy includes staffing, staff affordability, and the availability of time and facilities to provide consultations. Complex and interrelated factors influence pharmacists' practice when providing self-medication consultations in community pharmacies [17].

This study used an accidental sampling method, potentially leading to selection bias because more accessible pharmacists may not represent the community. We used all available pharmacists to overcome this potential bias, which is more than the minimum sample size required. Additionally, this study acknowledges the potential for response bias, as the pharmacists may report idealized practices, which could lead to an overrepresentation of their actual abilities. To minimize these biases, this study implements additional steps, such as direct researcher supervision and assurances of the confidentiality of participants. These steps aim to enhance the accuracy of the results and encourage honest responses, thereby reducing potential biases.

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CONCLUSION

Community pharmacists in East Surabaya exhibit varying levels of ability in gathering patient symptom information and providing appropriate treatment recommendations for self-medication cases of diarrhea and constipation. Most community pharmacists exhibit low to moderate ability to gather patient symptom information for both cases. The proportion of pharmacists who can provide appropriate recommendations for self-medication for diarrhea and constipation is low. These findings highlight the need for focused intervention to enhance pharmacists' roles in providing patients with proper, safe self-medication services.

CONFLICT OF INTEREST

All authors have none to declare.

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REFERENCES

1. Badan Pusat Statistik. www.bps.go.id. [Online].; 2023. Available from: https://www.bps.go.id/indicator/30/1974/1/persentase-penduduk-yang-mengobati-sendiri-selama-sebulan-terakhir.html.
2. Garg N, Shaima KA, Singh TG, Arora S, Arora G. A Study of Self-Medication Practices and Its Determinants. Plant Archives. 2019; 2304-2306.
3. Riskesdas. www.bps.go.id. [Online].; 2023. Available from: https://www.bps.go.id/indicator/30/1974/1/persentase-penduduk-yang-mengobati-sendiri-selama-sebulan-terakhir.
4. Rusmariani A, Yuswar A, Untari EK. Pengetahuan dan Pola Swamedikasi Diare Akut pada Anak oleh Ibu-Ibu PKK di Kecamatan Pontianak Timur. Jurnal Mahasiswa Farmasi Fakultas Kedokteran. 2019; 4(1) : 1-13.
5. Perrot S, Cittee J, Louis P'QB, Robert C, Milon JY, Bismut H, et al. Self-Medication in Pain Management : The State of the Art of Pharmacist Role for Optimal Over-The-Counter Analgesic Use. European Journal of Pain. 2019; 23 : 1747-1762.
6. Putri NP, Candradewi SF, Ana H. Tingkat Pengetahuan Persepsi dan Sikap Apoteker di Apotek Mengenai Covid-19 di Kota Yogyakarta. Jurnal Farmasi Udayana. 2023; 11(2) : 43-48.
7. Lestari MAP, Amarullah A, Wahyuni KI. Pelayanan Swamedikasi Asam mefenamat di Beberapa Apotek Kabupaten Lamongan (Studi dengan Metode Simulasi Pasien). Farmasis : Jurnal Sains Farmasi. 2021; 2(2) : 7-15.
8. Brata C, Marjadi B, Schneider CR, Murray K, Clifford RM. Information-Gathering for Self-Medication via Eastern Indonesian Community Pharmacies : A Cross-Sectional Study. BMC Health Services Research. 2015; 15(1) : 1-11.
9. Kusuma IY, Triwibowo DN, Pratiwi ADE, Pitaloka DAE. Rasch Modelling to Assess Psychometric Validation of the Knowledge about Tuberculosis Questionnaire (KATUB-Q) for the General Population in Indonesia. International Journal of Environmental Research and Public Health. 2022; 19(24) : 1-12.

DOI : https://doi.org/10.24843/JPSA.2024.v06.i02.p01

10. Ibrahim RI, Palaian S, Ibrahim I, Mohamed. Assessment of Diarrhea Treatment and Counseling in Community Pharmacies in Baghdad, Iraq : A Stimulated Patient Study. Pharmacy Practice. 2018; 16(4) : 1313.
11. Blenkinsopp A, Duerden M, Blenkinsopp J. Symptoms in the Pharmacy : A Guide to the Management of Common Illness 8th ed. USA: Blackwell Publishing Ltd.; 2018.
12. Rutter P. Community Pharmacy Symptoms, Diagnosis and Treatment 5th Ed. UK: Elsevier; 2021.
13. Katzung BG. Basic & Clinical Pharmacology Fourteenth Edition USA: McGraw-Hill Education; 2018.
14. Roseno M, Widyastiwi. Assessing Quality of Self Medication Services in Pharmacies in Indonesia : A Pilot Study using Mystery Customer in Bandung, West Java, Indonesia. Indonesian Journal of Pharmacy. 2023; 34(2) : 312-323.
15. Armalifia A. Profil Pelayanan Kefarmasian Tanpa Resep di Apotek Wilayah Surabaya dengan Kasus Konstipasi pada Anak-Anak. Departemen Farmasi Komunitas Fakultas Farmasi Universitas Airlangga. 2011.
16. Setiadi AP, Istiqomah RA, Octafelia Y, Wibowo YI, Brata C, Setiawan E, et al. Rekomendasi Apoteker Komunitas saat Menghadapi Permintaan Swamedikasi Diare yang Disertai Alarm Symptoms. Jurnal Kesehatan. 2022; 13(1):156-166.
17. Brata C, Fisher C, Marjadi B, Schneider CR, Clifford RM. Factors Influencing The Current Practice of Self-Medication Consultations in Eastern Indonesian Community Pharmacies: a Qualitative Study. BMC Health Services Research. 2016; 16(179): 1-10.

DOI : https://doi.org/10.24843/JPSA.2024.v06.i02.p01