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RESEARCH ARTICLE

Evaluation of drug information services in self-medication services with the patient simulation method at community pharmacies

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Abstract

Background: Globally the number of medicinal products that can be obtained through pharmacies without a prescription continues to increase. Community pharmacists are the health professionals most accessible to patients seeking advice on the use of drugs in self-medication practice. Patient counselling is one of the most important services that pharmacists can provide to patients. Studies have shown that counselling provided by pharmacists can prevent drug-related problems and improve adherence to drug therapy. **Objective:** To explore the practice of drug information services at community pharmacies and assess the quality of drug information services in self-medication services according to applicable procedures. **Methods:** The patient simulation method was carried out at 51 community pharmacies in the City of Lamongan, involving scenarios related to self-medication services by purchasing drugs without a prescription, with 90 simulation visits in total. Assessment forms were filled out immediately after the visits by the simulated patients. The assessment of drug information services was based on the completeness of pharmacists in providing drug information, comprised of drug names, doses, quantities, indications, times of use, interactions, and storage methods. **Results:** For the suitability of community pharmacists in drug information services, 90.0% of pharmacists mentioned drug names, 65.5% explained drug doses, 64.5% stated the amount of obtained drugs, 65.6% explained drug indications, 70.0% explained the times of drug use, 22.2% explained drug interactions, and 25.5% explained drug storage. **Conclusion:** The practice of drug information services by community pharmacists for self-medication services is very important to help patients avoid the dangers of irrational self-medication practices.

Introduction

Globally, the number of medicinal products that can be purchased in pharmacies without a prescription is increasing (Langer *et al.*, 2018). Irresponsible self-medication can be very risky (Octavia *et al.*, 2019). The potential risk of self-medication practices poses a burden to the patient and can create health problems such as drug resistance, side effects, drug interactions, and even death (Rashid *et al.*, 2019). In self-medication services, to provide quality assurance, it is necessary to carry out certain steps. These steps involve the

assessment of patients, determination of recommendations, delivery of drugs, and provision of information (Lestari, Amarullah & Wahyuni, 2021).

People generally do not possess complete information on the drugs they consume. In carrying out self-medication, the public has the right to obtain accurate, correct, complete, objective, and non-misleading information for the community to be able to carry out self-medication safely and effectively. Therefore, pharmacists have an important role in providing this information for safe self-medication (Muharni *et al.*, 2015). Community pharmacists often are the primary

healthcare professional contacts for patients seeking advice, especially for self-medication (Moritz *et al.*, 2021). Community pharmacists are the most accessible healthcare professionals for patients seeking advice on minor ailments and over-the-counter drug supply (Hammad *et al.*, 2018). However, community pharmacies have been underutilised as healthcare settings in which pharmacists are available to provide professional pharmacy services. Generally, patients will go to pharmacies when they receive prescriptions, yet they may not always interact with pharmacists, as it is common that pharmacies operate without the physical presence of pharmacists (Hermansyah *et al.*, 2018). Changes in healthcare and pharmacy practices provide good opportunities for pharmacists to indicate their function and show their important role in the healthcare sector (Andayani & Satibi, 2016).

Pharmacists are responsible for self-medication services and have an obligation to deliver information related to the drugs used by their patients (Candradewi & Kristina, 2017). A pharmacist must be more proactive, without waiting for the patient to ask for information first, because the patient will feel very satisfied if the pharmacist is able to provide counselling or information to patients (Irmin *et al.*, 2020). Information exchange in pharmacies needs to be better integrated into daily practice. Strategies to encourage information exchange should also include the perception of pharmaceutical staff members of their own counselling technique (Seiberth *et al.*, 2022). Nisa, Amarullah and Wahyuni (2021) reported that only 22.2% of pharmacists performed drug information services. Similarly, Mirawati and Rusmana (2022) reported that in research conducted on 40 patients who performed self-medication, most of them had not received effective communication, information, and education services. However, another study conducted by Setia and colleagues (2019) showed that, with the research results based on cumulative data, more than 50% of the provided drug information services were in the fairly good category.

Pharmacists should pay more attention to providing information because providing information to patients can minimise the occurrence of medication errors (Laili *et al.*, 2021). Therefore, it becomes important to consider the standards of pharmaceutical services in pharmacies based on Ministry of Health Regulation No. 73 (Minister of Health, 2016), including drug information services. Patient drug use behaviour is strongly influenced by the information they received on their medication. Therefore, the quality of information that accompanies the use of a drug is as important as the quality of the drug itself (Rahmatullah, Nurrahma & Syahrizal, 2020).

The objective of this study is to explore the practice of drug information services at community pharmacies and to assess the quality of drug information services in self-medication services according to applicable procedures, with the patient simulation method.

Methods

Design

This research is an observational descriptive study. The study used patient simulation, which involved a person visiting a pharmacy and acting out the research scenario. The patient simulation method was carried out at 51 community pharmacies in the City of Lamongan. This research was conducted from September 2021 to March 2022. The scenarios were related to self-medication services by purchasing drugs without a prescription, with 90 simulated visits in total. The simulation was carried out by respondents based on the self-mediation scenario that had been prepared, including submitting complaints about their illness, medical history, previous medical history, and history of drug allergies. The instrument used in this study was the Checklist Sheet which was adopted based on the Minister of Health No. 73 of 2016 concerning pharmaceutical service standards at pharmacies. An assessment form was filled out immediately after the visit by the simulated patient.

Assessment

Assessment forms were filled out immediately after the visits by the simulated patients. Assessment of drug information services was based on the completeness of pharmacists in providing drug information, comprised of drug names, drug doses, drug quantities, drug indications, times of drug use, drug interactions, and drug storage methods. The collected data was then processed and analysed descriptively through data processing with Microsoft Excel and data presentation in tables (214/EC/KEPK-S2/06/2022).

Results

The results of the research on the suitability of the stages of implementing drug information services at community pharmacies in the Lamongan area (Table I) showed that almost all pharmacists (82.2%) received and recorded questions by telephone, written messages, or face-to-face communication. A total of 17.8% of pharmacists did not record the results of extracting self-medication information submitted by

respondents, and only a small proportion of pharmacists (16.6%) determined the urgency of questions from patients. The simulation was carried out by respondents based on the self-mediation scenario that had been prepared, including submitting

complaints about their illness, medical history, previous medical history, and history of drug allergies. Based on the information gathered, the response assessment of the pharmacist's actions will be recorded in accordance with Permenkes 73 of 2016.

Table I: Stages of Implementation of Conformity of the drug information services with Ministry of Health Regulation 73 of 2016

Characteristic	Number	Percentage (%)
Reception and recording of questions through telephone, written messages, or face-to-face communication	74	82.2
Identification of subject: name, status (healthcare worker, patient or family of patient, or the public)	22	24.4
Detailed query of data or information regarding the questions asked by patients	34	37.7
Determination of question urgency	15	16.6

The results of the study on the content of drug information services at pharmacies in Lamongan (Table II) showed that almost all pharmacists (90.0%) serving self-medicating patients mentioned the names of drugs given to the patient. Most (65.5%) explained the doses

of drugs, the amount of obtained drugs, the drug indications, and the times of use of drugs. Very few (24.4%) pharmacists explained drug interactions and storage.

Table II: Content of Drug Information Services according to Ministry of Health Regulation No. 73 of 2016

Characteristic	Number	Percentage (%)
Mention of drug name	81	90.0
Drug dosage	59	65.5
Amount of obtained drugs	58	64.4
Drug indications	59	65.5
Time of drug use	63	70.0
Drug interactions	20	22.2
Drug storage	23	25.5

Discussion

Self-medication with over-the-counter (OTC) medicines is becoming an increasingly popular practice around the world. The global prevalence rate of self-medication ranges from 11.2% to 93.7%, depending on the target population and country (Chautrakarn, Khumros & Phutrakool, 2021). When taking a drug, a person must keep in mind certain risks and benefits based on the safety and efficacy information (Sekino, 2021). Effective counselling will enable patients to understand their disease and the treatment they undergo, as well as improve their medication adherence (Octavia *et al.*, 2022). A study conducted by Octavia and Utami (2022), showed that there was a significant difference between a group that was given drug information and counselling services compared to another group without drug information and counselling services (Rahmatullah, Nurrahma &

Syahrizal, 2020). Observation results showed that most pharmacists had provided drug information services through different methods, whether by written notes, telephone calls, or direct communication. The findings in this study are similar to those described by Santos and colleagues (2022), where pharmacists used different strategies for patient counselling during drug dispensing, and most of them were reported to have used more than one strategy.

The results of the study indicated that for the implementation of drug information services at pharmacies, there are still three activities that are rarely carried out by pharmacists in providing drug information services. The findings indicated that only 24.4% of pharmacists identified patients before providing drug information services. The accuracy of patient identification is important and has implications for patient safety. Complications due to errors regarding patient identity can be fatal (Simamora,

2019). Umaternate, Kumaat and Mulyadi (2015) similarly conveyed that the safety of patient care starts from the accuracy of patient identification. Patient identification errors at the beginning of service will have an impact of service errors later on. By confirming the identity of the patient who is being served, pharmacists can provide the right information regarding the use of drugs purchased by patients. The results of this study are in line with research conducted by Alaqeel and Abanmy (2015) who reported that when dispensing drugs, the majority of pharmacists did not inquire about the previous use of the requested medications, concomitant drugs, or history of drug allergies.

The findings in this study showed that in relation to the aspect of 'detailed query of data or information regarding the questions asked by patients', this applied to just 37.7% of pharmacists, and only 16.6% of pharmacists determined the urgency of questions for patients. Exploring and understanding patient history before the provision of drug information services is an important aspect of these services. Asking detailed questions to explore patient history before providing drug information services can help pharmacists to provide those services according to patient needs. Drug dispensing, when performed properly, promotes the rational use of medicines, provides effective and safe treatments, and improves the quality of life for patients (Santos *et al.*, 2022).

Ministry of Health Regulation No. 73 (Ministry of Health, 2016) has set standards for drug information services, which need to be applied as the patients obtain drugs from pharmacies. Some information related to the names of drugs, the dose levels, the amounts of obtained drugs, the drug indications, the times of use, the drug interactions, and the method of storing them needs to be conveyed to patients to allow them to obtain optimal therapy. The results of the study using the patient simulation method showed that the provided content of drug information services, regarding drug name, dose, amount, indication, and time of use, was mostly delivered by pharmacists. Provision of correct information regarding the use of drugs is necessary to be implemented by the community to avoid the adverse effects of personal and environmental health (Octavia *et al.*, 2020).

Research findings showed that the provision of information regarding drug interactions was still low. Only a small proportion (22.2%) of pharmacists conveyed the potential for the drug interactions that may occur when a patient takes medication. The potential for drug-drug interactions is important to identify in pharmaceutical services (Geografi & Simbolon, 2020). Interactions between pharma-

cological agents can trigger unexpected adverse events. Capturing richer and more comprehensive information about drug-drug interactions (DDIs) is one of the key tasks in public health and drug development (Dai *et al.*, 2021). Benet and colleagues (2019) reported that there was a presence of pharmacokinetic changes for metabolised drugs when drug-drug interactions and pharmacogenomic variance are observed. Therefore, information related to potential drug interactions that may occur is an important aspect that needs to be conveyed to patients to allow them to obtain optimal therapeutic outcomes.

Drugs and food can also interact: drugs may affect the nutritional status of the body, acting on senses, appetite, resting energy expenditure, and food intake; conversely, food or one of its components may affect bioavailability and half-life, circulating plasma concentrations of drugs resulting in an increased risk of toxicity and its adverse effects, or therapeutic failure (D'alessandro *et al.*, 2022). Cold medicines can interact with drinks that contain caffeine, including coffee, tea and energy drinks. Some cold medicines circulating in Indonesia contain decongestants (nasal congestion relievers), such as phenylpropanolamine (PPA) and/or ephedrine. PPA can cause an increase in blood pressure. In some cases, the occurrence of an increase in blood pressure is higher if the drug is taken simultaneously or adjacent to caffeine. In addition to the possible increase in blood pressure, an increase in heart rate has also been reported. In addition, if taken together, ephedrine and caffeine can cause vasoconstriction or narrowing of blood vessels (Pulungan *et al.*, 2019).

Research findings also showed that only 25.5% of pharmacists conveyed information on drug storage methods to patients, which was still low. Proper storage of drugs requires control of temperature, light, humidity, and oxygen presence in the storage area. All drug preparations must be stored at appropriate temperatures to avoid accelerating drug damage (Octavia *et al.*, 2020). Conveying information regarding how to store leftover drugs at home is also important as people tend to keep leftover drugs and think that they will use them again if the symptoms re-appear (Savira *et al.*, 2020). The drugs will provide the appropriate therapeutic effect if stored according to the instructions. There are drugs that must be stored at room temperature and there are those that must be stored in the refrigerator (Yati, Hariyanti, & Lestari, 2018). Drugs should also not be stored in the refrigerator mixed with food ingredients because there is a fear that cross-contamination will occur between the chemicals in the drug and the food contained in the refrigerator which will result in adverse effects from the food or from the drug (Octavia *et al.*, 2020).

Community pharmacies serve as public access points to healthcare and medical supplies, providing services beyond drug administration and drug counselling (Liao et al., 2020). The information provided by community pharmacists in responding to information requests about medications was found to be suboptimal (Hammad et al., 2022). Assessment of aspects of drug information services delivered by pharmacists refers to all aspects in Permenkes no.73 of 2016. However, the results of data processing show that not all of these aspects are conveyed in drug information services. Only a small number of pharmacists (20.0%) conveyed aspects of drug interactions and drug storage. Therefore, it is very important for pharmacists who work in the community sector to provide two-way education for patients. This can become a reference for community pharmacists to pay greater attention to providing drug information to patients to achieve therapeutic goals.

Conclusion

The practice of drug information services by community pharmacists for self-medication services is very important to help patients avoid the dangers of irrational self-medication practices.

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