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Drug Information and Counselling Services in Self-Medication at Apotek X Sleman

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ABSTRACT
Self-medication is a common practice for people to treat minor complaints without a doctor's prescription. However, without adequate drug information and counselling, self-medication can pose a risk of inappropriate drug use. This study aims to evaluate the drug information and counselling services provided to self-medication patients at the Apotek X, Sleman, with a focus on patient willingness to receive counselling, patient profile, counselling materials, and duration of counselling. This study used a descriptive observational method with a quantitative approach, conducted during February 2025. The sample consisted of 343 patients who met the inclusion criteria, with data collected through direct observation sheets of interactions between pharmacists and patients. The results showed that 61.52% of patients were willing to receive counselling services, while 38.48% refused. The patient profile was dominated by paediatrics (52.77%) and geriatrics (39.36%). The most frequently delivered counselling material was drug efficacy (56.85%), followed by how to use (37.61%) and dosage (25.07%). Other important information such as side effects, storage, and actions when forgetting to take medication were hardly provided. The duration of counselling mostly lasted less than five minutes (56.27%), indicating limited time in delivering information. The conclusion of this study is that although most patients are willing to receive counselling, the quality and scope of information provided still needs to be improved, especially in terms of drug safety. There is a need for improvements in counselling protocols and pharmacist training to improve the quality of self-medication services in community pharmacies.

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INTRODUCTION

The evolution of pharmacy services has undergone a significant transformation in recent decades, moving from a product-dispensing model to one that increasingly focuses on patient-centered care, where pharmacists play an active role in guiding therapeutic decisions. This transition is supported by research emphasizing the need for personalized, evidence-based medication counselling to improve patient outcomes and medication adherence.(Octavia et al., 2023). Patient-centered services are now systematically integrated into daily pharmacy practice by incorporating structured counselling and tailored information delivery as key strategies. Integration of patient-specific factors into pharmaceutical care has

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resulted in more accurate medication recommendations and prevention strategies that actively engage patients in their own care.(Andy et al., 2024). The shift towards individualized health care has necessitated the need to adapt services to diverse patient populations, thereby improving the overall quality of health care provided by pharmacies. As a result, pharmacists have assumed a broader range of responsibilities, including direct patient counselling and the development of innovative drug information systems. This evolution not only meets the expectations of modern health care systems but also aligns with the international trend towards more holistic medication therapy management. Ultimately, the movement towards patient-cantered pharmacy services has set a new standard for quality care that emphasizes safety and efficacy in the use of medications.(Andy et al., 2024; Tadesse et al., 2023).

Pharmacies have emerged as an important health care setting where pharmacists interact directly with patients, ensuring appropriate medication use and minimizing potential risks associated with inappropriate medication use. In this setting, pharmacists are no longer confined to the role of dispensers but are increasingly involved in assessing patient needs and providing expert advice during each interaction. Direct interaction between pharmacists and patients has enabled a more dynamic engagement, allowing for the identification of potential drug interactions and adverse events before they occur. Observational studies have confirmed that effective communication in this setting is key to maintaining patient health and optimizing therapeutic outcomes.(Brata et al., 2016; Yande et al., 2020). As pharmacies continue to serve as accessible health care centres, they have assumed significant responsibilities in educating patients about medications and promoting safe self-care practices. This enhanced role of pharmacists is especially important in community settings where patients often rely on pharmacists for direct advice and support regarding medication use.(Tan et al., 2018). The evolution of this service model reflects a continued commitment to public health and a strong framework for patient safety. As a result, pharmacy has become a critical pillar in the health care system, bridging the gap between clinical recommendations and everyday medication use.(Khalid et al., 2024).

Self-medication is increasingly becoming a preferred choice for many patients due to the efficiency and cost-effectiveness it offers compared to traditional healthcare consultations. Driven by factors such as shorter wait times and lower costs, patients are turning to community pharmacies as a convenient source for healthcare advice without the need for a formal doctor visit. This trend is supported by empirical evidence showing that the majority of patients prefer face-to-face consultations and value the quick accessibility of pharmacy services.(George et al., 2020; Putra et al., 2024). The financial and temporal benefits of self-medication have led to an environment in which patients are more likely to seek direct guidance from pharmacists when managing minor ailments. While self-medication can provide benefits, it also raises concerns about the potential for medication errors if appropriate counselling and accurate drug information are not provided. Self-medication services therefore require strong patient education and vigilant pharmacist oversight to reduce the risks associated with unsupervised medication use. The increasing reliance on community pharmacies for self-medication reflects a broader health care trend

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that prioritizes efficiency and patient autonomy. Given the proliferation of evidence-based medicine information, it is critical that pharmacists continually update their skills and knowledge to deliver an ever-evolving pharmacy service that addresses the complexities inherent in self-managed health care.(Naseef et al., 2022; Porzak et al., 2024; Putra et al., 2024).

Counselling plays a very important role in self-medication by ensuring that patients choose the right type of medication in the right strength, thus maintaining high standards of safety and therapeutic efficacy. Detailed counselling sessions allow pharmacists to carefully examine the patient's symptoms, assess potential contraindications, and determine the most appropriate treatment regimen. In addition to verbal guidance, structured guidelines and educational materials further reinforce the important aspects of determining dosage, timing, and potential side effects, all of which contribute to a more informed self-medication process.(Babcinetchi et al., 2025). Studies have shown that when pharmacists provide comprehensive counselling, medication error rates are reduced, and patient satisfaction rates increase significantly. This proactive approach to patient education ensures that even self-directed medication strategies are supported by sound clinical judgment and careful consideration of each patient's needs. By tailoring advice to each patient's unique clinical scenario, pharmacists ensure that the medication chosen is both effective and safe. Furthermore, the implementation of standardized counselling protocols has been shown to streamline the decision-making process, reducing ambiguity and improving overall outcomes. Effective counselling remains the cornerstone of safe self-medication practice, bridging the gap between patient autonomy and professional medical oversight.(Tadesse et al., 2023; Yande et al., 2020).

Ensuring that patients are adequately informed about their medications is fundamental to the success of self-medication practices, and drug information services serve as an important safeguard in this process. Pharmacists are uniquely positioned to provide comprehensive drug information that includes details on drug type, dosage, proper administration, and potential interactions, reducing the likelihood of errors. The use of traditional counselling methods and modern information technology further enhances the accuracy and accessibility of drug data provided to patients. Empirical studies have documented that when patients receive clear and concise drug information, they are better equipped to make informed decisions, leading to increased adherence and reduced incidence of adverse drug events. This dual emphasis on accurate drug information and counselling supports the effectiveness of self-medication regimens by ensuring that each patient is supported with the knowledge necessary for safe practice. Additionally, the integration of digital tools—such as informational brochures, online platforms, and real-time consultation services—has expanded pharmacists' capacity to serve as a reliable source of pharmacy education. In an era marked by rapid advances in health information technology, a commitment to high-quality drug information remains essential to maintaining public health. Collectively, these steps underscore the important role of drug information services in reducing risks and promoting rational and effective self-medication practices.(Anaba et al., 2021; Octavia et al., 2023).

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Self-medication services in pharmacies have attracted increasing research attention in recent years due to their implications for public health, patient safety, and pharmacy practice. Despite this growing interest, there is still a significant research gap regarding the specific mechanisms of drug information dissemination and counselling services in the context of self-medication. Existing studies have shown that while self-medication can provide a quick solution for patients, it also carries significant risks such as misdiagnosis and inappropriate medication use, which can lead to adverse health outcomes.(Khalid et al., 2024; Naseef et al., 2022; Porzak et al., 2024). The prevalence of self-medication behavior is particularly prominent among certain demographics, especially the elderly, who often lack proper guidance and may consequently abuse medications such as analgesics without professional supervision.(George et al., 2020; Putra et al., 2024). While health care providers play an important role in reducing the risks associated with self-medication through effective communication and counselling, the extent to which pharmacies provide adequate drug information and patient education remains underexplored in the literature.(Babcinetchi et al., 2025; Ouédraogo et al., 2015). Previous studies have demonstrated a relationship between patient characteristics (education level, socioeconomic status, and health literacy) and self-medication practices. This suggests that targeted counselling interventions can significantly improve patient health outcomes by promoting better self-management and adherence to medication regimens.(Thu, 2013; Wang et al., 2021). The increasing availability of non-prescription drug services in pharmacies may exacerbate health problems, necessitating the urgency of structured education directed at patients and pharmacy personnel to improve the safety and efficacy of self-medication in community pharmacies.(Anaba et al., 2021; Mahmoud et al., 2023). The interplay between self-medication, antibiotic misuse, and the subsequent development of antimicrobial resistance presents a pressing public health challenge for community pharmacists.(Moise et al., 2017; Naseef et al., 2022). The World Health Organization (WHO) highlights the urgent need for education on responsible antibiotic use and stewardship, the role of pharmacists as primary educators for patients about the risks of self-medication cannot be overlooked. Current research lacks comprehensive data on how pharmacies implement drug information services and counselling strategies, particularly those related to antibiotics and other high-risk medications.(Butt et al., 2022; Neafsey et al., 2009; Wang et al., 2021). To bridge this research gap, research is needed on effective educational programs that target pharmacists and patients, exploring optimal methods for delivering drug information in a manner that meets patient needs while emphasizing patient safety practices.(Ouédraogo et al., 2015; Tokdemir & Kav, 2017).

The main objective of the study was to evaluate the effectiveness, reach, and quality of pharmaceutical services provided to patients who self-medicate, with a focus on drug information and counselling services offered in pharmacies. The study aimed to identify how well these services are implemented and accepted, with the ultimate goal of improving patient safety, treatment outcomes, and rational drug use. One of the main issues addressed was the number of patients willing to accept drug information and counselling services, which reflects the community's awareness, trust, and perceived value of these pharmaceutical services. Low acceptance may indicate gaps in patient education, accessibility, or pharmacist involvement.

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Another important issue is understanding the profile of patients who receive these services, including characteristics prioritized as counselling targets, namely paediatrics, geriatric, pregnant, and lactating patients. This analysis may reveal disparities in service access or utilization patterns among different patient segments requiring counselling. In addition, the study investigated the types of counselling and information materials provided to patients, evaluating their relevance, accuracy, and adequacy in supporting informed self-medication. The comprehensiveness and clarity of these materials are important in preventing misuse and promoting safe medication practices. This study also examined the length of time spent on medication counselling and information services, as time investment is a key indicator of service quality and pharmacist-patient interactions. Inadequate duration of counselling may compromise the depth and usefulness of the information provided, while excessive time may reflect inefficiency or resource constraints. These issues aim to provide a holistic understanding of the current state and challenges of medication counselling in pharmacy self-medication practices, forming the basis for policy recommendations and practice improvements.

METHODS

This study used a descriptive observational method with a quantitative approach to examine drug information and counselling services in self-medication at Apotek X, Sleman. The study was conducted directly at the pharmacy, targeting patients who were self-medicating and interacting with pharmacists during the visit. Data collection involved the use of observation sheets to document patient willingness to receive drug counselling, as well as the content and duration of the counselling session. This method allows for direct and systematic assessment of pharmaceutical services that occur directly, including patient behavior and pharmacist practices.

The study was conducted during February 2025 by taking real-time data directly every day during pharmacy opening hours and there were practicing pharmacists. Data collection was carried out by listening to conversations between pharmacists and patients, then based on the results of the conversation, it was filled in on the observation sheet.

Table 1. Sampling design

Inclusion	Exclusion
1. Criteria for paediatrics, geriatric, polypharmacy, pregnant and lactating patients	4. Drug information in counselling for self-medication is carried out by non-pharmacists
2. Administration of analgesic-antipyretic drugs, cough, cold, antacid, antidiarrheal	5. Patients who buy prescription drugs without a doctor's prescription
3. All shifts have practicing pharmacists	6. Patients with special conditions of impaired liver and/or kidney function
	7. Patients with long-term therapy/chronic diseases (eg TB, DM, AIDS, epilepsy)
	8. Patients who use drugs with special instructions

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The sampling technique used was population sampling, where all patients who purchased over-the-counter or over-the-counter drugs and were offered counselling by pharmacists during the study period were sampled. This study aims to measure the number of patients willing to receive drug counselling and information services, which will help assess community interest and participation in these services. In addition, this study collected profile data on these patients to build patient profiles according to pharmaceutical service standards in pharmacies, namely paediatric, geriatric, pregnant, and lactating patients. This profile creation is important to identify trends and potential gaps in service outreach.

This study explored the materials and information provided by pharmacists during counselling sessions, such as drug efficacy, side effects, how to use, dosage, and duration of use. These aspects help evaluate whether the information provided is in accordance with best practice and regulatory standards. The duration of the counselling session was also recorded to assess the depth and thoroughness of the interaction between the pharmacist and the patient. By analysing these four problem areas, this study seeks to identify strengths and weaknesses in current counselling services, with the aim of supporting improvements in self-medication practices and the role of community pharmacists in patient education and safety.

RESULTS AND DISCUSSION

Based on the results of the preliminary research conducted previously, it was found that pharmacists practicing at Apotek X, Sleman were generally in 1 or 2 different shifts. Based on these data, a data collection time design was carried out according to the work schedule of the pharmacists on duty on that shift during February 2025..

Table 2. Number of self-medication services at Apotek X, Sleman

	Number of Patients	Percentage
Patients who are unwilling to accept drug counselling and information	132	38.48%
Patients who are willing to receive drug counselling and information	211	61.52%
Amount	343	

The data presented in Table 2 illustrates the distribution of patients who utilize self-medication services at Apotek X, by separating the willingness of patients to receive drug information and counselling. Of the total 343 patients observed, 211 patients (61.52%) were willing to receive counselling and information on drug use, while 132 patients (38.48%) refused the service. This distribution shows that the majority of the population who receive self-medication recognize the importance of professional guidance during the process of obtaining drugs without a prescription. This finding is important because it underlines the potential for pharmacists to play an active role in public health through education and counselling, especially in the context of self-medication. The relatively high percentage of patients who are open to receiving counselling reflects a positive trend in patient awareness and willingness

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to engage with health professionals, where most people have realized the importance of obtaining drug counselling and information to prevent errors in drug use.(Muharni et al., 2020; Octavia & Susanti, 2022). It also highlights opportunities for pharmacies to optimize their service delivery by prioritizing and integrating drug information services into their standard operating procedures.

This study also showed that there were still 38.48% of patients who refused counselling, a large proportion who may be at risk of inappropriate drug use due to lack of understanding of dosage, side effects, interactions, or contraindications. This refusal can come from various factors such as lack of need, time constraints, previous knowledge or experience, or even limited trust in pharmacy staff. Overcoming these barriers is essential to improving the effectiveness of pharmaceutical care in self-medication practices. The challenge of pharmacists in making the public aware of the importance of drug information and counselling is still a big responsibility for pharmacists. To improve the quality of self-medication practices, pharmacies need to implement strategies that encourage greater participation in counselling services. These strategies can include educational campaigns, improving communication skills among pharmacists, and developing a more patient-friendly consultation environment. Empowering patients with knowledge will ultimately contribute to safer and more effective drug use in the community.

Table 3. Profile of patients who self-medicate at Apotek X

Patient Profile	Number of Patients	Percentage
Pediatrics	181	52.77%
Geriatrics	135	39.36%
Breastfeeding mothers	11	3.21%
Pregnant mother	16	4.66%
Amount	343	

The patient profile table categorizes patients into four main groups according to the categories of patients who are required to receive counselling in the pharmaceutical service standards at the pharmacy: paediatric patients, geriatric patients, lactating mothers, and pregnant mothers, with a total sample size of 343 people. Paediatric patients dominate the distribution, comprising 181 people or 52.77% of the total. This significant proportion suggests that self-medication for children is highly prevalent, perhaps driven by parents' tendency to manage minor illnesses without immediate medical consultation or as long as they can still be treated by themselves. The second largest group consists of geriatric patients, comprising 135 people or 39.36%, which is also important considering the age-related vulnerability and prevalence of chronic diseases in this demographic. In contrast, lactating mothers and pregnant mothers represent a much smaller proportion, 3.21% and 4.66% respectively, indicating a more cautious approach to self-medication among these groups, possibly due to the increased health risks to both mother and child.

The high rate of self-medication in children reflects certain behavioural and cultural patterns in the community around pharmacies. Parents may perceive pharmacies as a more accessible and efficient alternative to clinics or hospitals, especially for common symptoms

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such as fever, cough, or minor digestive problems. This behaviour may also be driven by past experiences where similar symptoms resolved with over-the-counter medications, thus reinforcing the perception of self-medication efficacy. Similar research results have also been found previously where paediatric patients dominate self-medication (Paul et al., 2024; Zyoud et al., 2020)Pharmacies that serve a large number of paediatric self-medication patients are at high risk, including incorrect dosing, inappropriate medication selection, or potential drug interactions. Therefore, pharmacists practicing in these pharmacies must have a deeper knowledge of paediatric medications. Meanwhile, a large percentage of geriatric patients who self-medicate indicate a dependence on self-care practices and may have limited access to routine medical consultations due to financial or mobility constraints. Geriatric individuals often face multiple health conditions that require ongoing treatment, and without proper guidance, self-medication in this group can lead to polypharmacy or adverse drug reactions.(Blebil et al., 2022; Karłowicz-Bodalska et al., 2023). Therefore, the prominent role of pharmacies in providing drug information and counselling becomes very important, especially in ensuring that elderly patients receive accurate advice and avoid potential health hazards.

The relatively low representation of lactating and pregnant women in self-medication practices reflects a more cautious attitude, likely due to increased awareness of potential risks to the health of the foetus or infant. The involvement of groups of pregnant and lactating women is crucial to highlight the need for highly tailored pharmaceutical counselling for this group. The presence of these vulnerable patients in pharmacies underscores the importance of proactive pharmacist involvement, particularly when dispensing medications that may affect lactation or pregnancy. This profile of self-medicating patients underscores the important role of pharmacies not only as outlets for medicines but also as frontline health care facilities. Pharmacists must be equipped with the knowledge and communication skills to offer appropriate, patient-cantered counselling to different demographic groups. Strengthening the quality and consistency of drug information services will not only improve therapeutic outcomes but also increase public trust in pharmacies as a reliable source of health care advice.

Table 4. Counseling materials and drug information at Apotek X

Patient Profile	Number of Patients	Percentage
Medicinal Properties	195	56.85%
Side effects and how to overcome them	8	2.33%
How to use	129	37.61%
Dose	86	25.07%
Usage time	35	10.20%
Duration of use	0	
Things to watch out for when taking medication	0	
Things to do if you forget to take your medicine	0	
How to store medicine properly	0	
How to do the remaining medicine	0	
Distinguish between good and damaged drugs	0	

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Patient Profile	Number of Patients	Percentage
Amount	343	

Of the 343 patients enrolled, the majority (56.85%) received information related to the efficacy or benefits of the drug. This suggests that pharmacists primarily focused on explaining the therapeutic effects of the drug to ensure that patients understood the purpose of their treatment. However, it is important to note that such a narrow emphasis may not be sufficient to support safe and effective medication use, especially in the context of self-medication where patients often lack professional supervision. The second most common topic discussed was how to use the drug, which was received by 129 patients (37.61%), followed by dosage information shared with 86 patients (25.07%). These figures suggest that while basic information is often communicated, more in-depth educational efforts are limited. Furthermore, only 10.20% of patients received counselling on the timing of administration, a critical element in maximizing drug efficacy and minimizing side effects. This imbalance in information delivery may result in suboptimal therapeutic outcomes or unwanted side effects due to misuse.

A striking observation from the table is the near absence of counselling on important aspects of safe medication use, such as side effects and how to manage them, proper storage of medications, what to do when a dose is missed, and the difference between a usable and spoiled medication. Only 8 patients (2.33%) were informed about side effects and how to manage them, despite this knowledge being essential in empowering patients to identify and manage adverse reactions. Meanwhile, topics such as duration of use, precautions during treatment, missed doses, and identification of spoiled medications were not discussed at all (0 patients). This lack of comprehensive medication counselling reflects a gap in pharmaceutical care practices, potentially putting patients at risk, especially those who self-medicate without prior consultation. This situation may stem from a variety of constraints, including time pressures on pharmacists from other patients, lack of training, or limited patient demand for such detailed information. This underscores the urgent need to improve the quality and comprehensiveness of counselling services, especially for over-the-counter medications that are prone to misuse.

These findings suggest that while some progress has been made in providing basic medication-related information, the overall quality of counselling remains inadequate to support rational self-medication practices. Pharmacies, as accessible healthcare providers, are in a unique position to bridge the gap between medication access and patient education. The data suggest that counselling services are largely reactive or limited to answering direct questions, rather than proactive educational interventions. To improve this, it is important to implement standardized counselling protocols, ongoing training programs for pharmacists, and patient education campaigns that emphasize the importance of understanding medications beyond their purpose and dosage. The use of digital tools and visual aids can help pharmacists provide more comprehensive and engaging counselling, especially for low-literate populations. Improving these services is not simply a regulatory requirement but a moral and professional responsibility to ensure patient safety and therapeutic success.

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Ultimately, a shift toward a more holistic, patient-cantered approach to counselling could significantly reduce medication errors, improve adherence, and increase public trust in pharmacy-based healthcare services.

Table 5. Duration of counseling and drug information at Apotek X

	Number of Patients	Percentage
< 5 minutes	193	56.27%
5 - 10 minutes	99	28.86%
11-15 minutes	18	5.25%
> 15 minutes	33	9.62%
Amount	343	

The majority of patients (56.27%) received counseling sessions that lasted less than five minutes. These data suggest that pharmacist-patient interactions are often brief, likely due to high patient loads, limited staffing to accommodate other patients, or time constraints during service delivery. While brief counseling sessions can be efficient, they may not be sufficient to convey all the information needed for safe and effective medication use. The study also found that 28.86% of patients received counseling that lasted 5–10 minutes, a duration that allows for a more comprehensive discussion of drug indications, dosages, and potential side effects. Only 5.25% of patients reported counseling that lasted 11–15 minutes, and a slightly higher proportion (9.62%) received sessions that lasted longer than 15 minutes, suggesting that more comprehensive counseling is relatively uncommon.

This distribution of counseling duration raises important considerations for the quality and effectiveness of drug information services in pharmacies, particularly in the context of self-medication where patients rely heavily on pharmacist guidance. Short durations, while practical, may compromise patient understanding, particularly for complex medication regimens or for patients with low health literacy. The relatively low percentage of longer counseling sessions suggests the need to reassess staffing, workflow, and training within pharmacies to ensure that patients are given adequate time for consultation. The findings also suggest that efforts to standardize minimum counseling durations may benefit patient outcomes by ensuring that important information is delivered consistently. Pharmacists should balance efficiency with the need for patient understanding, perhaps by integrating visual aids or follow-up mechanisms to reinforce verbal counseling. These data can serve as a basis for future interventions aimed at improving pharmaceutical care in the self-medication setting. Improving counseling practices not only enhances patient safety but also builds trust in pharmacists as accessible and reliable health care providers.

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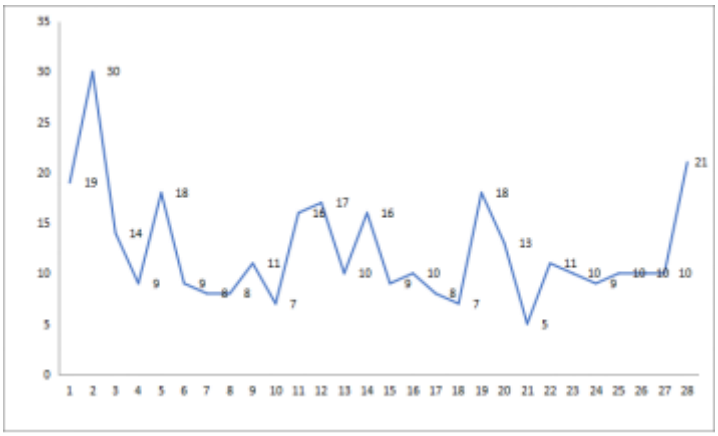

Figure 2. Graph of daily number of self-medication patients

The line graph depicts the daily number of patients seeking self-medication at the pharmacy over a 28-day period. The data reveal significant variability in the number of patients each day, indicating inconsistent patterns of service utilization. Early in the observation period, there is a clear spike, reaching 30 patients on day 2, followed by a sharp drop to only 9 patients on day 4. This initial fluctuation may reflect variations in patients' financial ability. Another peak is observed on day 6 with 18 patients, indicating a temporary increase, possibly due to weather-related special events. Thereafter, the number of patients stabilizes in the lower range, fluctuating between 7 and 17 from days 7 to 19, with small increases on days 11, 13, and 15. A significant drop occurs on day 21, when the number of patients drops to a low of 5 patients, possibly attributable to external factors such as holidays, reduced staff availability, or patients' financial constraints to access pharmacy services. Subsequently, patient numbers improved slightly, averaging around 10 patients per day until day 27, before rising again to 21 patients on the final day, which could indicate new outreach or increased community need.

CONCLUSION

Based on the results of the study at Apotek X Sleman, it was found that 61.52% of patients were willing to receive counselling and drug information services when performing self-medication, indicating a fairly high awareness of the importance of drug use education. Most patients came from the paediatrics (52.77%) and geriatric (39.36%) groups, two vulnerable groups that require special attention in drug use. The most frequently delivered counselling material was drug efficacy (56.85%), while other important aspects such as side effects, storage, and handling of missed doses were rarely provided or even not delivered at all. In addition, the duration of counselling mostly lasted less than five minutes (56.27%), which has the potential to limit the depth of information provided. These findings indicate that although patient participation in counselling is quite good, the quality and scope of counselling materials and their duration still need to be improved to support safe and effective self-medication practices.

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