Age, Work Experience, and Tenure as Determinants of Pharmacists' Provision of Self-Medication Information

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ABSTRACT
Self-medication refers to the practice by which individuals use medicines obtained without a physician's prescription to treat their symptoms or pain. However, errors in medication use remain common in self-medication practices; therefore, pharmacists play an important role in providing drug information. This study aimed to analyze the factors influencing the provision of drug information for self-medication by pharmacists. A cross-sectional study was conducted involving 100 pharmacists in Pekanbaru, Indonesia. Data were collected through participant observation and analyzed using t-tests and ANOVA. The analysis showed that the p-values for each candidate determinant were as follows: gender = 0.287, work experience = 0.014, secondary employment = 0.222, age = 0.022, education = 0.191, weekly working hours = 0.000, and daily working hours = 0.000. It can therefore be concluded that the determinants of pharmacists' provision of drug information in self-medication are age, work experience, and working hours.
Keywords: pharmacist; drug information provision; self-medication

INTRODUCTION
Self-medication is the most common strategy used by the public to manage symptoms or minor illnesses before deciding to seek care from health facilities or health professionals [1]. Self-medication refers to the practice widely undertaken by people in Indonesia of using medicines obtained without a physician's prescription to treat complaints or pain [2]. The prevalence of self-medication is also high in several countries, such as Pakistan (76%), Croatia (88%), and Malaysia (85%) [3]. Based on a survey conducted by the Indonesian Central Statistics Agency, 72.19% of Indonesians practiced self-medication. In Riau Province, the proportion of residents practicing self-medication in 2020 was 70.39%, while in Pekanbaru City it reached 64.72% [4].

However, errors in treatment are still frequently observed in self-medication practices. Medication errors often arise from limited public knowledge regarding medicines, their use, and drug-related information. In general, people do not possess complete information about the medicines they consume. When engaging in self-medication, individuals have the right to receive appropriate, accurate, complete, objective, and non-misleading information so that they can practice self-treatment safely and effectively. Therefore, pharmacists play an essential role in self-medication practices [5].

In response to this need, pharmaceutical personnel are also required to provide drug information services. Drug information services constitute professional activities carried out by pharmacists to provide accurate, clear, and up-to-date information to physicians, pharmacists, nurses, other health professionals, and patients. Such services are crucial in supporting the rational management and use of medicines [6]. Ideally, pharmaceutical personnel—whether requested or not—should proactively provide drug information so that patients feel confident about the medicines they purchase. This information includes the drug name, dosage, directions for use, storage, indications, contraindications, drug interactions, side effects, and drug stability [6].

International forums of the World Health Organization (WHO), including the Nairobi Conference, the International Conference on Drug Regulatory Authorities (ICDRA), and professional forums such as the World Conference on Clinical Pharmacology & Therapeutics, have acknowledged that the provision of drug information remains one of the critical unmet needs. According to these forums, the specific professional position of pharmacists has become increasingly unclear. Consequently, the public may begin to question the role and function of pharmacists in community pharmacies. Consumer satisfaction or dissatisfaction largely depends on the relationship between expectations and the quality of services received [7].

Research by Djamal and Safitri on drug information provision found that some pharmaceutical personnel—particularly pharmacists—did not provide adequate drug information. Specifically, 52.6% of patients received poor-quality medication information, while only 47.4% received good-quality information. This situation was attributed to insufficient knowledge about medicines, including their types, names, administration methods, benefits, and purposes, resulting in many patients not fully understanding how to use their medications [8].

Another study conducted among pharmacists in Surakarta showed that drug information services were indeed provided; however, critical consumers still reported dissatisfaction with the information delivered by pharmacists. Some pharmacists believed that fulfilling their duty simply meant dispensing medicines, while patients' informational needs were given less attention, even though such information is essential to support rational drug use [9].

Factors influencing the provision of drug information were also identified in a study conducted in Medan. The average score for drug information provision in community pharmacies in Medan in 2008 was 47.63%, categorized as inadequate. Based on pharmacy ownership status, 67.65% of pharmacies were owned by pharmacy capital owners (PMA), and among these, 52.94% of pharmacists were not present daily. The highest pharmacist attendance rate (78.57%) was observed in pharmacies owned by pharmacist managers (APA). When attendance was examined in relation to additional employment held by the APA, the highest attendance was found among APAs with other types of employment [10].

Similarly, the characteristics of pharmacist-manager attendance in community pharmacies in Denpasar in 2017 showed that many pharmacists' attendance did not meet established standards. Attendance considered compliant with pharmaceutical service standards requires pharmacists to be present during pharmacy operating hours and at specific times each day to provide services. The findings indicated that attendance throughout opening hours reached only 7.2%, daily attendance at specific hours was 15.9%, and attendance two to three times per week reached 49.3% [11].

Based on the above evidence, a knowledge gap still exists regarding pharmacists' provision of drug information in self-medication. Previous studies have mainly described patient satisfaction levels or the proportion of information delivered, but have not comprehensively analyzed the determinants influencing such practices. In fact, the quality of drug information provision strongly determines whether self-medication is conducted safely and rationally. Therefore, this study aims to identify and analyze the factors influencing pharmacists' provision of drug information in self-medication, in order to provide a more comprehensive picture of real-world conditions and to serve as a basis for improving pharmaceutical policy and practice.

METHODS
This study was conducted in community pharmacies located in Pekanbaru City, Indonesia, during the research period in which pharmacists were actively providing self-medication drug information services. The study employed a quantitative cross-sectional research design. The study population comprised 443 pharmacists working in community pharmacies across Pekanbaru who were involved in providing drug information for

self-medication at the time of the study. The sample consisted of 100 pharmacists, determined using the Slovin formula with a precision level of 10%. Participants were recruited using purposive sampling. The inclusion criterion was pharmacists who were present in the pharmacy during the data collection period, while the exclusion criterion was pharmacists who declined to participate as respondents.

The study variables included pharmacists' characteristics (gender, age, highest educational attainment, work experience, additional employment, and working hours in the pharmacy) as independent variables, and self-medication drug information provision as the dependent variable. Data were collected using a structured checklist instrument developed based on the Indonesian Ministry of Health Regulation No. 73 of 2016 concerning Standards for Pharmaceutical Services in Community Pharmacies. The instrument consisted of two sections. Section I recorded pharmacists' demographic and professional characteristics, including gender, age, educational attainment, work experience, additional employment, and working hours. Section II assessed self-medication drug information provision using a checklist covering drug name, indication, dosage, directions for use, side effects, drug interactions, contraindications, storage, stability, and warnings.

Data analysis was performed using both univariate and bivariate approaches. Univariate analysis described the level of self-medication drug information provision according to pharmacists' characteristics, including gender, age, educational attainment, additional employment, and work experience. Bivariate analysis was conducted using the independent-samples t-test to examine the effects of gender, additional employment, and work experience, and one-way ANOVA to assess the effects of age, educational attainment, and working duration on self-medication drug information provision.

RESULTS

Pharmacists are expected to provide adequate information to patients as part of *self-medication drug information provision*. In this study, the quality of drug information provision was evaluated using ten components: drug name, indication, dosage, directions for use, side effects, drug interactions, contraindications, storage, stability, and warnings [6].

The determinants examined included pharmacists' demographic characteristics (gender, age, educational attainment) and work-related characteristics (work experience, additional employment, weekly working days, and daily working hours). All variables were measured using the structured checklist instrument described in the Methods section.

Table 1. Self-medication drug information provision by pharmacists' demographic characteristics

Characteristic	Very Poor	Poor	Moderate	Good	Very Good	p-value
Gender						0.287[a]
Female	20 (28.6)	28 (40.0)	20 (28.6)	2 (2.9)	0 (0.0)	
Male	11 (36.7)	12 (40.0)	7 (23.3)	0 (0.0)	0 (0.0)	
Age (years)						0.022[b]
<30	6 (14.6)	20 (48.8)	15 (36.6)	0 (0.0)	0 (0.0)	
30–40	10 (31.3)	13 (40.6)	8 (25.0)	1 (3.1)	0 (0.0)	
>40	15 (55.6)	7 (25.9)	4 (14.8)	1 (3.7)	0 (0.0)	
Educational attainment						0.191[b]
Bachelor of pharmacy	14 (24.6)	24 (42.1)	18 (31.6)	1 (1.8)	0 (0.0)	
Master of pharmacy	14 (42.4)	12 (36.4)	7 (21.2)	0 (0.0)	0 (0.0)	
Doctoral degree	3 (30.0)	4 (40.0)	2 (20.0)	1 (10.0)	0 (0.0)	

Notes: Values are frequency (percentage).
Outcome variable: *self-medication drug information provision*.
[a] Independent-samples t-test
[b] One-way ANOVA

Table 2. Self-medication drug information provision by pharmacists' work related characteristics

Characteristic	Very Poor	Poor	Moderate	Good	Very Good	p-value
Work Experience (years)						0.014[a]
<5	15 (21.1)	33 (46.5)	22 (31.0)	1 (1.4)	0 (0.0)	
≥5	16 (55.2)	7 (24.1)	5 (17.2)	1 (3.4)	0 (0.0)	
Additional Employment						0.222[a]
Yes	18 (37.5)	18 (37.5)	11 (22.9)	1 (2.1)	0 (0.0)	
No	13 (25.0)	22 (42.3)	16 (30.8)	1 (1.9)	0 (0.0)	
Weekly Working Days						<0.001[b]
<3 days	17 (65.4)	7 (26.9)	2 (7.7)	0 (0.0)	0 (0.0)	
3–5 days	13 (35.1)	21 (56.8)	3 (8.1)	0 (0.0)	0 (0.0)	
6–7 days	1 (2.7)	12 (32.4)	22 (59.5)	2 (5.4)	0 (0.0)	
Daily Working Hours						<0.001[b]
<4 hours	11 (55.0)	7 (35.0)	2 (10.0)	0 (0.0)	0 (0.0)	
4–8 hours	18 (40.0)	23 (51.1)	4 (8.9)	0 (0.0)	0 (0.0)	
>8 hours	2 (5.7)	10 (28.6)	21 (60.0)	2 (5.7)	0 (0.0)	

Notes: Values are frequency (percentage).
Outcome variable: *self-medication drug information provision*.
[a] Independent-samples t-test
[b] One-way ANOVA

DISCUSSION

Self-medication drug information provision by gender

The number of female pharmacists in this study exceeded that of male pharmacists. The higher prevalence of women in pharmacy practice may be attributed to the fact that pharmacy education programs are often dominated by female students. Previous studies have similarly reported a higher proportion of female pharmacists, accounting for 56%, compared with 44% males [12]. Women are generally more likely to work in people-oriented professions, whereas men tend to be more involved in technical or machine-related fields [13].

Pharmaceutical services typically include prescription review, dispensing, drug information services, counseling, home pharmacy care, therapeutic monitoring, and adverse drug reaction monitoring. These tasks require high levels of accuracy, precision, and patience, which may contribute to the perception that pharmacy practice is more suited to women [14]. Women tend to demonstrate stronger teamwork, greater meticulousness, persistence, caution, honesty, and tolerance [15].

However, Table 1 shows that both female and male pharmacists were predominantly categorized as providing *poor self-medication drug information provision*. The t-test indicates no significant association between gender and the quality of drug information provision. Among the ten components assessed, only three were commonly delivered: drug name, dosage, and directions for use. This limited provision may reflect insufficient understanding of self-medication procedures, which require pharmacists to provide complete drug information. Incomplete information may contribute to medication errors and irrational drug use [7].

Although theoretical perspectives suggest behavioral differences between men and women, similar behaviors may emerge in professional settings due to shared workplace norms. Habitual practice is one factor that may influence pharmacists' behavior, as habits represent repeated actions performed automatically without conscious deliberation [16, 17]. Pharmacists in Pekanbaru may not routinely implement drug information provision according to established standards, which could explain the absence of gender differences.

Self-medication services are among the most frequent services delivered in community pharmacies, as reflected by the high prevalence of self-medication in Riau Province (72.19%) [4]. Repetitive work conditions may also contribute to reduced engagement. Work boredom, defined as

a condition of low job stimulation and limited opportunities for communication and self-development, is common in monotonous occupations and may reduce service quality [18].

Self-medication drug information provision by age

According to the Indonesian Ministry of Health, working age can be categorized into late adolescence (<30 years), early adulthood (30–40 years), and late adulthood (>40 years). Table 1 shows that pharmacists aged under 30 years were most prevalent, likely because many pharmacists in community pharmacies are recent graduates. Pharmacists aged 30–40 years typically demonstrate professional maturity and stability, while those over 40 years often possess substantial experience, knowledge, and technical competence. At this stage, pharmacists may already be in career consolidation or maintenance phases. However, interest in community pharmacy practice may decline among older pharmacists, who may move to more financially stable sectors such as the pharmaceutical industry or hospital pharmacy [19]. The higher proportion of younger pharmacists may also be linked to productivity considerations. Younger workers tend to be perceived as more physically capable and adaptable, making them more attractive to employers, especially in competitive labor markets [20].

The ANOVA result indicates a significant association between age and *self-medication drug information provision*. Age is known to influence individuals' evaluations and behaviors [21]. Adults in their productive years generally possess broader knowledge and remain more engaged with professional development compared with younger or older groups. This finding aligns with previous research showing that age influences pharmacists' performance in hospital pharmacy settings [22].

Self-medication drug information provision by educational attainment

Table 1 indicates that most pharmacists held a Bachelor-level professional pharmacy degree. This distribution likely reflects the large proportion of pharmacists aged under 30 years who had recently completed professional training. Similar findings were reported by Primulyanto et al., who found that 85.71% of pharmacists held a bachelor-level professional degree [23]. Higher educational attainment is generally associated with better knowledge levels [24]. In theory, individuals with higher education should more easily acquire, develop, and apply knowledge and technology, which should lead to improved professional behavior [25, 26]. Nevertheless, the present study found no significant association between educational attainment and *self-medication drug information provision* ($p = 0.191$). This finding is consistent with research showing that educational attainment does not necessarily influence pharmacists' performance in primary healthcare facilities [27]. This suggests that practical workplace factors may play a larger role than formal education in determining service quality.

Self-medication drug information provision by work experience

Work experience was categorized into <5 years and ≥5 years [28]. Most pharmacists had less than five years of experience, and a large proportion of them were classified as providing poor or moderate drug information. Surprisingly, pharmacists with ≥5 years of experience showed an even higher proportion of very poor provision. Work experience is commonly assumed to improve performance because repeated practice enhances skill development [29, 30], and experienced employees typically demonstrate better job performance [31]. However, the results of this study suggest that longer experience does not necessarily translate into better self-medication information provision. This may indicate the presence of routine-based practice patterns that are not aligned with current standards.

Self-medication drug information provision by additional employment

More than half of the pharmacists did not have additional employment. Indonesian regulations allow pharmacists to hold practice licenses in up to three pharmaceutical service facilities. Therefore, holding multiple positions is legally permitted. The results indicate that pharmacists with and without additional employment both showed similarly poor levels of drug information provision. This finding suggests that additional employment status alone does not explain variations in service quality.

Self-medication drug information provision by weekly working days and daily working hours

Most pharmacists worked 4–8 hours per day. Although regulations do not explicitly require pharmacists to be present throughout all pharmacy operating hours, implementation guidelines state that pharmaceutical services may only be provided when a pharmacist is physically present and directly serving patients. Thus, pharmacist attendance is a key determinant of service quality [32]. Both weekly working days and daily working hours showed statistically significant associations with self-medication drug information provision. Higher pharmacist presence is known to improve pharmaceutical service quality. Previous studies in Denpasar, Medan, and West Nusa Tenggara have reported similarly poor levels of drug information provision, often linked to low pharmacist attendance [10, 11]. In Medan, direct patient counseling was more frequently performed by pharmacy assistants than by pharmacists themselves, reflecting limited pharmacist availability. Research by Kwando also demonstrated a correlation between pharmacist attendance and pharmaceutical service performance [33].

Study limitation

One limitation of this study is the use of a checklist-based instrument derived from PMK No. 73/2016, which primarily captures measurable quantitative aspects of service provision. The instrument does not fully explore qualitative determinants such as pharmacists' attitudes, motivation, communication skills, or personal barriers in providing drug information.

CONCLUSION

This study demonstrates that age, work experience, and pharmacist working time (weekly working days and daily working hours) are significant determinants of *self-medication drug information provision* in community pharmacies in Pekanbaru. Older age groups and greater pharmacist presence in the pharmacy are associated with differences in the quality of drug information provision. These findings indicate that workforce experience structure and pharmacist availability are key factors influencing the implementation of appropriate self-medication services.

Ethical consideration, competing interest and source of funding

-The study adhered to research ethics principles. Participation was voluntary, respondents provided informed consent prior to data collection, and the confidentiality of pharmacists' identities and responses was ensured throughout the study.
-There is no conflict of interest related to this publication.
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