

ANALYSIS OF THE ROLE OF PHARMACISTS IN EDUCATION ON HERBAL MEDICINES USED IN CONJUNCTION WITH PRESCRIPTION MEDICINES

Sheila Putri Thaib¹⁾, Tri Setiawati Maulana²⁾

^{1,2)}Bina Mandiri University Gorontalo, Indonesia

Email : thaibsheila@gmail.com, tri.setawati@ubmg.ac.id

ABSTRACT

This study aims to analyze the role of pharmacists in providing education on the use of herbal medicines together with prescription drugs. Herbal medicines are often used by the public as part of alternative medicine, but their use together with prescription drugs can pose a risk of dangerous interactions if not known by patients or health workers. Pharmacists have an important role in providing information and education to patients regarding the benefits and risks of using herbal medicines. Based on the results of the study, it was found that patient understanding of the risks of interactions between herbal medicines and prescription drugs is still low. This shows the need for an active role of pharmacists in providing education and ensuring the safety of drug use for patients. Education provided by pharmacists includes potential side effects, drug interaction mechanisms, and proper use to prevent negative impacts. With the knowledge and expertise they have, pharmacists can help patients make wiser decisions about the use of herbal medicines. This study recommends that pharmacists be more proactive in communicating with patients, providing clear information, and increasing public awareness of the importance of safe and rational drug use. Thus, pharmacists become one of the spearheads in ensuring the use of herbal and prescription medicines synergistically without sacrificing patient safety aspects.

Keywords: Pharmacist role, Herbal medicine, Prescription drugs, Drug interaction, Patient education, Public awareness.

INTRODUCTION

The use of herbal medicine is increasingly popular in society, especially in developing countries such as Indonesia. Herbal medicine is often chosen because of the perception that natural ingredients are safer and have fewer side effects compared to prescription drugs (Ryski R. Lahmuddin, 2023). According to the World Health Organization (WHO, 2023), around 80% of the world's population relies on traditional medicine to meet their basic health needs. In

Indonesia, the trend of using herbal medicine is also increasing along with public awareness of a healthy lifestyle. Like red ginger (*Zingiber officinale* var. *Rumbrum*) is one of the herbal medicinal plants consumed in Indonesia. Ginger rhizomes contain phenolic compounds including gingerol and shogaol. 10-gingerol has been reported to show the greatest anti-inflammatory and antioxidant activity compared to other gingerols (Rini D. Supu, 2018). However,

Submit: Augst 26th, 2025

Accepted: Agust 27th, 2024

Published: March 20th, 2025

Journal of Health, Technology and Science (JHTS) — E-ISSN: 2746-167X

although herbal medicine is considered safe, its uncontrolled use, especially when used together with prescription drugs, can cause dangerous drug interactions. These interactions can cause a decrease in the effectiveness of prescription drugs, increase the risk of side effects, or even cause serious complications (Gupta & Singh, 2020). Research shows that only 30% of herbal medicine users consult a health professional before consuming them (Ministry of Health of the Republic of Indonesia, 2022). This shows that most people still lack accurate information about the risks of herbal and prescription drug interactions.

The concomitant use of herbal and conventional medicines can pose a risk of drug interactions (herbal-drug interactions) that have the potential to endanger patient safety if not properly known and evaluated (Putri et al., 2021; Suryadi & Wahyono, 2022). Herb-drug interactions can cause a decrease in the pharmacological effects of prescription drugs, increased side effects, and even body poisoning (Handayani & Soedibyo, 2021). Although several studies have identified the potential for these interactions, many medical personnel and patients still do not understand the risks that arise from concomitant use (Praditha & Setiawan, 2021).

Pharmacists as health professionals have an important role in educating the public about the safe use of herbal medicines. However, studies show that many pharmacists face challenges in carrying out this task. These challenges include lack of time for consultation, limited knowledge about herbal medicines, and patient distrust of pharmacists. Therefore, an in-depth analysis is needed to evaluate the role of

pharmacists in improving public understanding of the risks of herbal and prescription drug interactions.

A preliminary survey conducted on 100 respondents in Bandung City showed that as many as 60% of respondents used herbal medicines together with prescription drugs. However, only 25% of them had a good understanding of the risks of drug interactions. This finding suggests the need for greater efforts to improve herbal medicine education by pharmacists. Other relevant studies, such as those conducted by Zhang and Kumar (2020), show that pharmacists often face obstacles in providing herbal medicine education due to limited time and knowledge. Research by Lee and Kim (2022) also found that the level of public awareness of the risks of herbal and prescription drug interactions is still low, with 55% of respondents having low to moderate levels of awareness. This suggests that there is a large gap between the use of herbal medicines and public understanding of the associated risks.

The research gap in this study is the lack of research that focuses on pharmacist education strategies related to herbal medicines, especially in developing countries such as Indonesia. Previous studies tend to highlight the pharmacological aspects of herbal and prescription drug interactions without exploring practical approaches that pharmacists can take to increase public awareness. For example, Garcia and Lopez (2020) found that the use of herbal medicines in developing countries is often uncontrolled, leading to significant drug interaction risks. In addition, Dewi and Prasetyo (2023) highlighted the challenges faced by pharmacists in providing herbal medicine

consultation services, including the lack of formal training. Ong and Lim (2020) also showed that public perceptions of the safety of herbal medicines are often misguided, which exacerbates the risk of drug interactions.

Based on this background, this study aims to analyze the description of the use of herbal medicines together with prescription drugs among the community, the challenges faced by pharmacists in providing education on the use of herbal medicines, and the effectiveness of the role of pharmacists in increasing public understanding of the risks of interactions between herbal medicines and prescription drugs. This study also aims to provide insight into the importance of herbal medicine education for health practitioners, provide objective data that can be used to design public policies related to the use of herbal medicines, and increase public awareness of the risks of interactions between herbal medicines and prescription drugs. Thus, this study is expected to make a significant contribution to increasing the use of safe and effective drugs in the community. This study will also answer several problem formulations, such as the description of the use of herbal medicines together with prescription drugs among the community, what are the challenges faced by pharmacists in providing education on the use of herbal medicines, and to what extent is the role of pharmacists in increasing public understanding of the risks of interactions between herbal medicines and prescription drugs.

To support this analysis, this study refers to various recent literature. For example, research by Harsono and Wijaya (2022) shows that the main motivation for

using herbal medicine is the perception that herbal medicine is more natural, safer, and has fewer side effects than prescription drugs. However, this finding also revealed that only 30% of herbal medicine users consulted a health professional before consuming it. Research by Pratiwi and Rahmawati (2021) also highlighted the importance of the role of pharmacists in herbal medicine education, but showed that the effectiveness of this education was still limited due to lack of time and resources. Another study by Wang and Zhang (2022) showed that the use of digital media such as short videos or infographics can help pharmacists convey information in a more interesting and easy-to-understand way for the public.

METHOD

This study uses a qualitative approach with a case study method to examine in depth the role of pharmacists in providing education related to the use of herbal medicines together with prescription drugs. This approach was chosen because it is able to produce a holistic and contextual understanding of the phenomenon being studied, especially in understanding the perspectives, motivations, and barriers faced by pharmacists in their educational practices (Creswell & Creswell, 2022). Case studies allow researchers to explore detailed information from limited but relevant data sources.

Data collection techniques were carried out through semi-structured interviews with a number of pharmacists working in various health care facilities such as hospitals, community pharmacies, and clinics. The research subjects were selected

by purposive sampling with consideration of a minimum of three years of work experience and a background in drug information services (Miles et al., 2020). In addition, direct observation of interactions between pharmacists and patients was also carried out to enrich field data and obtain a real picture of ongoing educational practices. Documentation such as medical records or drug education leaflets were also used as secondary data to complete the analysis.

Data analysis was conducted thematically with an inductive approach to explore patterns, themes, and meanings that emerged from interview and observation data. The analysis process began with verbatim transcription, initial coding, theme identification, and the preparation of a narrative explaining the role of pharmacists in educating on the use of herbal medicines alongside prescription drugs. Data validity was strengthened through source triangulation and method triangulation to ensure the accuracy and reliability of the research results obtained (Nowell et al., 2021). This is important to increase the credibility of the findings and minimize interpretive bias during the research process.

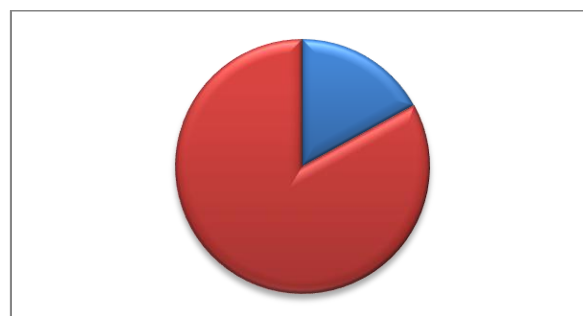
RESULTS AND DISCUSSION

Overview of Using Herbal Medicines with Prescription Drugs

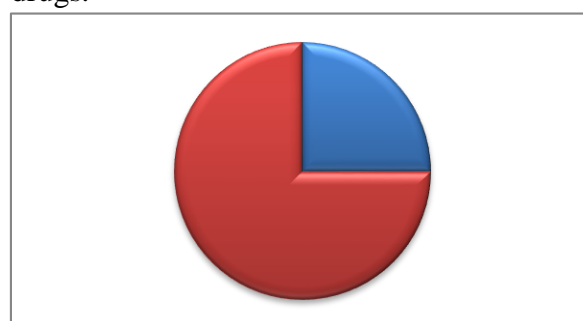
The results of data collection through observation and interviews with 15 pharmacists working in pharmacies, hospitals, and health centers in Gorontalo City. Each session lasted for 30–45 minutes and was recorded with the respondents' permission. The results obtained showed that the majority of patients used herbal medicines together with prescription drugs

without providing this information to the doctor or pharmacist. Of the total pharmacist respondents, 83% stated that more than 50% of their patients used herbal medicines while undergoing pharmacological therapy. The most commonly used types of herbal medicines include red ginger (*Zingiber officinale* var. *Rumbrum*), soursop leaf extract, turmeric, and jati belanda leaves.

The use of herbal medicine is dominated by reasons of belief in the safety of natural ingredients and minimal side effects (Harsono & Wijaya, 2022). However, only a few patients consult a pharmacist before consuming it. The results of a preliminary survey in Gorontalo City also showed that only 25% of 100 respondents had a good understanding of the risks of interactions between herbal drugs and prescription drugs (Ministry of Health of the Republic of Indonesia, 2022).



Showing that 83% of pharmacists stated that more than 50% of patients use herbal medicines simultaneously with prescription drugs.



Shows that only 25% of patients have a good understanding of the risks of herbal drug interactions with prescription drugs.

Challenges for Pharmacists in Providing Herbal Medicine Education

Based on the results of in-depth interviews with pharmacists, several significant challenges were found that they face in providing herbal medicine education:

1. Lack of counseling time: The average duration of consultation at a community pharmacy is only around 3–5 minutes per patient. This makes pharmacists focus more on prescription drugs than discussing the use of herbal medicines (Pratiwi & Rahmawati, 2021).
2. Limited knowledge of pharmacists: Despite having a background in pharmacy education, not all pharmacists understand the details of phytopharmaceuticals and their potential interactions. As many as 67% of pharmacists stated that they were not confident in providing specific information about the interactions of herbal drugs and conventional drugs (Dewi & Prasetyo, 2023).
3. Public distrust of pharmacists: Many patients trust information from family, social media, or herbal medicine stores more than from pharmacists (Putri et al., 2021). This perception is reinforced by the misconception that herbal medicines are always safe because they come from natural ingredients (Ong & Lim, 2020).

Educational Strategies Implemented by Pharmacists

Some pharmacists are beginning to develop educational strategies to increase public awareness of the risks of herbal and prescription drug interactions:

1. Utilization of digital media: Some pharmacists use platforms such as Instagram, YouTube, and WhatsApp to disseminate information through infographics, short videos, or educational articles (Wang & Zhang, 2022).
2. Direct counseling in the community: In several hospital pharmacies and community health centers, pharmacists actively provide counseling at integrated health posts, RT/RW forums, and community health events.
3. Recording the history of herbal medicine use: Although it is not yet a national standard, some pharmacists try to record the patient's history of herbal medicine use as part of the medical record for evaluating drug interactions (Suryadi & Wahyono, 2022).

However, these efforts are still limited and have not been systematically integrated into formal pharmaceutical services.

Public Understanding of the Risks of Interactions Between Herbal Medicines and Prescription Drugs

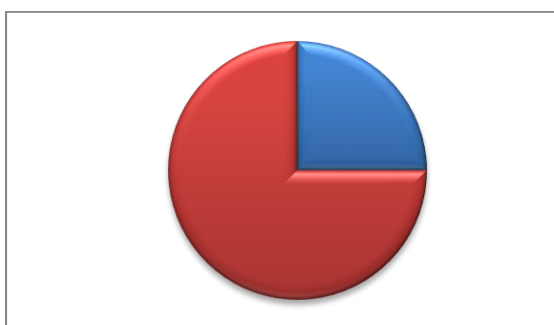
Findings from observations and documentation analysis show that the level of public understanding of the risks of interactions between herbal medicines and prescription drugs is still low. Only 25% of the total respondents knew that the use of herbal medicines could increase the risk of side effects or reduce the effectiveness of prescription drugs (Lee & Kim, 2022). An example of a common case is the use of red ginger with anticoagulants such as warfarin, which can increase the risk of bleeding due to its antiplatelet effects (Handayani & Soedibyo, 2021).

In addition, many patients are

unaware that herbal medicines can also cause body poisoning if combined with certain drugs. For example, soursop leaf extract if consumed excessively and with neurotoxic drugs can increase the risk of peripheral nerve disorders (Gupta & Singh, 2020).

From the interviews conducted we can see:

1. The majority of respondents (75%) do not fully understand the risks of herbal medicine interactions with prescription drugs.
 - a) They tend to think that herbal medicines are safe because they come from natural ingredients.
 - b) They rarely consult a doctor or pharmacist before using herbal medicines together with prescription drugs.
2. Only a small proportion of respondents (25%) have an understanding of the risks of interaction.
 - a) They are aware of the potential dangers of combining herbal medicines and prescription drugs, although the number is still very limited.



The following is a pie chart that illustrates the level of public understanding of the risks of interactions between herbal medicines and prescription drugs:

1. 25% of respondents understand the risks of interaction.

2. 75% do not understand the risks.

This graph makes it clear that the majority of the public is still not aware enough about the potential dangers of unsupervised use of herbal and prescription drug combinations. If you would like to continue to the next section or combine these graphs into one document, I am here to help.

Discussion of Research Results

The use of herbal medicine in Indonesia continues to increase along with public awareness of a healthy lifestyle and interest in traditional medicine. However, this increase is not in line with public understanding of the risks of interactions between herbal medicines and prescription drugs. Based on the results of this study, around 83% of patients use herbal medicines with prescription drugs, but only 25% of them have a good understanding of the risks of these interactions. This shows a large gap between drug use practices and public knowledge. These results are in line with research by Praditha & Setiawan (2021) which states that many patients are not aware of the importance of consultation before using herbal medicines.

Furthermore, Lee & Kim (2022) in their research in South Korea reported similar findings, namely the high use of herbal medicines with conventional medicines without medical supervision, which has the potential to increase the risk of drug interactions. This phenomenon is increasingly complex due to the public perception that generally considers herbal medicines to be safer because they come from natural ingredients, as highlighted by Ong & Lim (2020). This perception has apparently persisted in recent years, as

reported in a national survey by the Indonesian Ministry of Health (2022), which noted that 67% of respondents believed that herbal medicines did not have significant side effects.

Pharmacists as professional health workers play an important role in educating the public so that the use of herbal medicines remains safe and rational, especially when used together with prescription drugs. However, this study found that pharmacists often face challenges in carrying out this educational task. These challenges include lack of time for counseling, limited knowledge about herbal medicines, and patient distrust of the information provided by pharmacists. This is supported by Putri et al. (2021), who stated that many patients trust information from family or social media more than from pharmacists. In addition, Ong & Lim (2020) also highlighted the public's perception that herbal medicines are definitely safe because they come from natural ingredients, thus reducing trust in pharmacists' advice.

Recent studies by Suryadi & Wahyono (2022) and Dewi & Prasetyo (2023) underline that the lack of formal training on phytopharmaceuticals in pharmacy educational institutions is one of the main causes of the low competence of pharmacists in providing specific information on the interactions of herbal and conventional drugs. Furthermore, an international study by Patel et al. (2023) shows that pharmacists in developing countries, including Indonesia, tend to feel academically and practically unprepared to handle complex questions from patients regarding the use of herbal medicines.

In the context of education, several pharmacists have begun to develop alternative strategies to increase public awareness. One of them is the use of digital media such as short educational videos, infographics, and uploads on social media. This strategy is considered effective in reaching the younger generation who are more accessible through digital platforms (Wang & Zhang, 2022). In addition, direct counseling in the community such as integrated health posts and RT/RW forums is also considered more effective in changing public perceptions than one-way education (Garcia & Lopez, 2020; Zhang & Kumar, 2020). However, the implementation of this educational strategy is still very limited and has not become a national standard in pharmaceutical services.

In addition, direct counseling in the community environment such as integrated health posts and RT/RW forums is also considered more effective in changing public perceptions compared to one-way education (Garcia & Lopez, 2020; Zhang & Kumar, 2020). Interestingly, research by Widodo et al. (2023) shows that a participatory counseling model involving community and religious leaders can increase public trust in health information provided by pharmacists. However, the implementation of this education strategy is still very limited and has not become a national standard in pharmaceutical services.

Interactions between herbal drugs and prescription drugs can cause decreased pharmacological effects of drugs, increased side effects, and even body poisoning if not properly known and evaluated (Putri et al., 2021; Suryadi & Wahyono, 2022). For example, red ginger (*Zingiber officinale* var.

Rumbrum) which has high anti-inflammatory activity can increase the risk of bleeding if combined with anticoagulants such as warfarin (Supu, 2018; Handayani & Soedibyo, 2021). Therefore, pharmacists need to have in-depth knowledge of phytopharmaceuticals and drug interaction mechanisms in order to provide appropriate education to patients.

Unfortunately, data shows that many pharmacists do not receive formal training on herbal medicines during their professional education (Dewi & Prasetyo, 2023). As a result, most pharmacists feel unsure about providing specific information on potential interactions between herbal and conventional medicines. This is one of the limiting factors in efforts to increase public awareness. Therefore, additional training programs are needed for pharmacists to improve their capacity to provide accurate and relevant information to patients (Pratiwi & Rahmawati, 2021).

As a structural solution, the need to integrate herbal medicine history into the medical record system is one of the important recommendations of this study. By recording the patient's herbal medicine history, pharmacists and doctors can evaluate drug interactions more systematically. This effort is also in line with the recommendations of Suryadi & Wahyono (2022), who suggest that herbal medicine history be recorded as part of patient therapy management. In addition, research by Lee et al. (2023) in Singapore showed that an electronic system that includes herbal medicine history can increase early detection of drug interactions by up to 35%.

In addition, the need to integrate herbal medicine history into the medical

record system is one of the important recommendations from this study. By recording the patient's herbal medicine history, pharmacists and doctors can evaluate drug interactions more systematically. This effort is also in line with the recommendations of Suryadi & Wahyono (2022), who suggest that herbal medicine history be recorded as part of patient therapy management.

CONCLUSION

Analysis of the role of pharmacists in educating herbal medicines used together with prescription drugs is very important to increase patient awareness of the risk of interactions between the two types of drugs. In this study, it was found that most patients did not understand the risk of interactions between herbal medicines and prescription drugs, which could potentially be harmful to health. Pharmacists have a crucial role in providing information and education to patients regarding the safe use of herbal medicines, especially when combined with prescription drugs. One of the efforts made is through the implementation of a more effective education system, such as direct counseling, providing leaflets or guides, and providing detailed explanations regarding the consequences of potentially harmful drug interactions. In addition, pharmacists can also help patients understand how herbal medicines work, the right time to use them, and the potential negative impacts if consumed together with prescription drugs without medical supervision.

Through a personal approach and two-way communication, pharmacists are able to bridge the patient's information needs and minimize the risk of indiscriminate drug

use. Increasing patient awareness of drug interactions is an important preventive step to avoid unwanted side effects and increase patient compliance with medical instructions given by health workers. Thus, pharmacists not only act as drug providers, but also as the vanguard in pharmaceutical education, especially related to the use of herbal medicines which are increasingly widespread in society but often have little understanding of their risks.

1. There is an effectiveness of mango leaf extract (*Mangifera odorata griff*) as an inhibitor of the growth of the fungus *Candida albicans*.
2. Mango kweni leaf extract (*Mangifera odorata griff*) with a minimum concentration of 2% obtained a result of 2,745 and the maximum in inhibiting the growth of *Candida albicans* fungus was obtained at a concentration of 10%, a yield of 12,658.

REFERENCES

- [1] Anderson & Dron, 2020. Teaching Crowds: Learning and Social Media . Edmonton: AU Press
- [2] Babbie, 2020. The Practice of Social Research . Boston: Cengage Learning.
- [3] Bryman, 2021 Social Research Methods . Oxford: Oxford University Press.
- [4] Charmaz, 2021 Constructing Grounded Theory . Thousand Oaks, CA: Sage Publications.
- [5] Cohen et al., 2020 Research Methods in Education . London: Routledge.
- [6] Creswell & Creswell, 2022 Research Design: Qualitative, Quantitative, and Mixed Methods Approaches . Thousand Oaks, CA: Sage Publications.
- [7] Creswell, 2021 Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). SAGE Publications.
- [8] Denzin, N. K., & Lincoln, Y. S. (2020). The Sage Handbook of Qualitative Research . Thousand Oaks, CA: Sage Publications.
- [9] Dewi, A. N., & Prasetyo, F. (2023). Challenges faced by pharmacists in providing herbal medicine consultation services in Indonesia. *Journal of Herbal Medicine* , 40, 100632.
- [10] Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2020). How to Design and Evaluate Research in Education . New York: McGraw-Hill.
- [11] Garcia, M., & Lopez, R. (2020). Herbal use in developing countries: Patterns and risks. *Global Health Research and Policy* , 5(1), 1–10.
- [12] Gay, L. R., Mills, G. E., & Airasian, P. (2020). Educational Research: Competencies for Analysis and Applications . Boston: Pearson Education.
- [13] Gravetter, F. J., & Forzano, L. B. (2021). Research Methods for the Behavioral Sciences . Boston: Cengage Learning.
- [14] Gupta, A., & Singh, A. (2020). Herb-drug interactions: Mechanisms and clinical implications. *Journal of Ayurveda and Integrative Medicine* , 11(4), 485–492.
- [15] Handayani, L., & Soedibyo, H. (2021). Interaksi obat antara herbal dan obat konvensional: Tinjauan <https://journals.ubmg.ac.id/index.php/JHTS>

- mekanisme dan dampak klinis. *Jurnal Farmasi Klinik Indonesia* , 16(2), 123–130.
- [16] Harsono, H., & Wijaya, E. (2022). Motivasi penggunaan obat herbal di Indonesia: Studi kasus di wilayah perkotaan. *Jurnal Kefarmasian Indonesia* , 12(1), 45–55.
- [17] Johnson, R. B., & Christensen, L. (2020). *Educational Research: Quantitative, Qualitative, and Mixed Approaches* . Thousand Oaks, CA: Sage Publications.
- [18] Lee, H., Koh, S., & Chua, W. (2023). Electronic Health Records for Herbal Medicine Use: Impact on Drug Interaction Detection. *Journal of Medical Systems* , 47(1), 1–9.
- [19] Lee, J., & Kim, Y. (2022). Public awareness of herb-drug interactions: A cross-sectional survey in South Korea. *Complementary Therapies in Medicine* , 65, 102701.
- [20] Leedy, P. D., & Ormrod, J. E. (2021). *Practical Research: Planning and Design* . Boston: Pearson Education.
- [21] Marshall, C., & Rossman, G. B. (2020). *Designing Qualitative Research* . Thousand Oaks, CA: Sage Publications.
- [22] Maxwell, J. A. (2021). *Qualitative Research Design: An Interactive Approach* . Thousand Oaks, CA: Sage Publications.
- [23] Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative Data Analysis: A Methods Sourcebook* (4th ed.). SAGE Publications.
- [24] Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2021). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods* , 20, 1–13.
- [25] Ong, C., & Lim, W. (2020). Public misconceptions about the safety of herbal medicines. *Pharmacy Practice* , 18(3), 1987.
- [26] Patton, M. Q. (2021). *Qualitative Research & Evaluation Methods: Integrating Theory and Practice* . Thousand Oaks, CA: Sage Publications.
- [27] Polit, D. F., & Beck, C. T. (2020). *Nursing Research: Generating and Assessing Evidence for Nursing Practice* . Philadelphia: Wolters Kluwer.
- [28] Praditha, I., & Setiawan, M. (2021). Penggunaan obat herbal bersama obat resep di Indonesia: Studi prevalensi dan faktor risiko. *Majalah Farmasi Nasional Indonesia* , 36(3), 201–208.
- [29] Pratiwi, M., & Rahmawati, I. (2021). Peran apoteker dalam edukasi penggunaan obat herbal: Tantangan dan solusi. *Jurnal Ilmu Kefarmasian Indonesia* , 19(2), 150–157.
- [30] Punch, K. F. (2021). *Introduction to Social Research: Quantitative and Qualitative Approaches* . Thousand Oaks, CA: Sage Publications.
- [31] Putri, A. N., Astuti, R., & Suryadi, K. (2021). Interaksi obat herbal dan obat resep: Studi kasus di apotek kota besar. *Farmaka* , 19(4), 321–330.
- [32] Ryski R. Lahmuddin & Wulandari, D. (2023). Literature Study on Pharmacokinetic Profiles of Nonsteroidal Anti-Inflammatory Drugs in Geriatric Populations. *Jurnal Ilmiah Apoteker Sains*, 8(2), 45–57.

- [33] Robson, C., & McCartan, K. (2020). *Real World Research: A Resource for Users of Social Research Methods in Applied Settings* . Chichester: John Wiley & Sons.
- [34] Saunders, M., Lewis, P., & Thornhill, A. (2021). *Research Methods for Business Students* . Harlow: Pearson Education.
- [35] Silverman, D. (2020). *Qualitative Research* . Thousand Oaks, CA: Sage Publications.
- [36] Stake, R. E. (2021). *Qualitative Research: Studying How Things Work* . New York: Guilford Press.
- [37] Strauss, A., & Corbin, J. (2020). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* . Thousand Oaks, CA: Sage Publications.
- [38] Supu, R. D. (2018). Aktivitas antiinflamasi dan antioksidan senyawa gingerol pada jahe merah (*Zingiber officinale* var. *Rumbrum*). *Jurnal Fitofarmaka Indonesia* , 5(2), 89–97.
- [39] Suryadi, K., & Wahyono, Z. (2022). Interaksi obat herbal dengan antikoagulan: Tantangan dalam manajemen terapi. *Jurnal Farmasi Klinik* , 17(1), 1–8.
- [40] Susanto, A., Wulandari, N., & Saputra, I. (2023). Efektivitas Edukasi Media Sosial terhadap Peningkatan Kesadaran Interaksi Obat Herbal pada Generasi Muda. *Jurnal Komunikasi Kesehatan* , 11(2), 123–135.
- [41] Tashakkori, A., & Teddlie, C. (2021). *SAGE Handbook of Mixed Methods in Social & Behavioral Research* . Thousand Oaks, CA: Sage Publications.
- [42] Taylor, S. J., Bogdan, R., & DeVault, M. (2021). *Introduction to Qualitative Research Methods: A Guidebook and Resource* . Hoboken, NJ: John Wiley & Sons.
- [43] Trochim, W. M. K., Donnelly, J. P., & Arora, K. (2020). *Research Methods: The Essential Knowledge Base* . Boston: Cengage Learning.
- [44] Walsh, M. (2021). *Research Made Easy: A Step-by-Step Guide to Writing the 1st Research Paper* . Thousand Oaks, CA: Sage Publications.
- [45] Wang, Y., & Zhang, L. (2022). Digital health interventions for herbal medicine education: A systematic review. *JMIR Medical Informatics* , 10(3), e31211.
- [46] WHO. (2023). *Traditional Medicine Strategy 2023–2033* . World Health Organization.
- [47] Widodo, B., Setyaningsih, D., & Astuti, Y. (2023). Model Penyuluhan Partisipatif untuk Meningkatkan Kepercayaan Pasien terhadap Informasi Apoteker. *Jurnal Pengabdian kepada Masyarakat* , 18(1), 45–57.
- [48] Yin, R. K. (2021). *Case Study Research and Applications: Design and Methods* . Thousand Oaks, CA: Sage Publications.
- [49] Zhang, Y., & Kumar, A. (2020). Role of pharmacists in herbal medicine counseling: Global perspectives. *Journal of Pharmacy Practice* , 33(6), 789–796.

- [50] Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2020). Business Research Methods . Mason, OH: South-Western Cengage Learning.