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Antibiotic Self-Medication Behavior at Waras Lestari Pharmacy

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Abstract

Background: The use of antibiotics without a doctor's prescription is a widespread phenomenon in communities around the world, including in Indonesia. According to data from Waras Lestari Pharmacy, 253 patients self-medicated with antibiotics. Preliminary interviews revealed that people tend to self-medicate based on previous experiences and recommendations from friends or family. Healthcare workers, particularly pharmacists, have a critical role to take firm action against selling antibiotics without a prescription and to provide appropriate treatment advice to address patient complaints. This prompted researchers to conduct a study on antibiotic self-medicating behavior at Waras Lestari Pharmacy in Kediri City. **Methods:** The approach used in this research uses a qualitative approach. The informants in this study were patients who purchased antibiotics without a prescription at Waras Lestari Pharmacy in Kediri City. The sampling technique used was purposive sampling. Data collection from informants by means of interviews. **Results:** In this study, all informants self-medicated with antibiotics without a doctor's prescription at the Waras Lestari Pharmacy in Kediri City. Predisposing factors, such as perceptions and beliefs, significantly influenced self-medicating. Enabling factors, such as the availability of readily accessible antibiotics in pharmacies without strict supervision, were the main factors driving self-medicating behavior. Reinforcing factors: Previous personal experience was the dominant reinforcing factor. Informants tended to purchase the same antibiotics that doctors had prescribed for similar complaints in the past, confident in their effectiveness. **Conclusion:** Overall, antibiotic self-medication behavior at Waras Lestari Pharmacy in Kediri City remained high, with various predisposing, enabling, and reinforcing factors contributing. This study also found gaps in the oversight of antibiotic self-medication practices, both in terms of regulation and education, which is an important finding for improving the pharmaceutical care system in the community.

Keywords: Antibiotic Self-medication, Enabling Factors, Pharmacy, Predisposing Factors, Reinforcing Factors.

1. Introduction

Infectious diseases are a major health problem facing the global community, particularly in developing countries. Non-infectious diseases and infectious diseases that are not caused by bacteria are often treated with antibiotics (Ministry of Health of the Republic of Indonesia, 2021).

The use of antibiotics without a doctor's prescription is a widespread phenomenon in communities around the world, including in Indonesia. Data from the World Health Organization in the Antimicrobial Resistance: Global Report on Surveillance indicated that Southeast Asia has the highest rate of antibiotic resistance cases in the world. In addition, research conducted by (Djawaria *et al.,* 2018), of 267 respondents showed that 58.80% of patients purchased antibiotics without a doctor's prescription or self-medicated at pharmacies.

According to data from Waras Lestari Pharmacy, 253 patients self-medicated with antibiotics. Preliminary interviews revealed that people tend to self-medicate based on previous experiences and recommendations from friends or family.

People self-medicate based on previous experience, which leads to familiarity with the types of antibiotics needed, lower prices, and ease of access to medications at pharmacies and drug stores.

According to (Notoatmodjo, 2014), several factors can influence a person's behavior, including predisposing factors (knowledge, attitudes, beliefs, and perceptions), supporting factors (access to health services, skills, and references), and motivating factors (support from family, neighbors, and community leaders).

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Healthcare workers, particularly pharmacists, have a critical role to take firm action against selling antibiotics without a prescription and to provide appropriate treatment advice to address patient complaints. This prompted researchers to conduct a study on antibiotic self-medicating behavior at Waras Lestari Pharmacy in Kediri City.

2. Materials and Methods

2.1. Type of Research and Informants

The approach used in this research uses a qualitative approach. The informants were patients who purchased antibiotics without a prescription at the Waras Lestari Pharmacy in Kediri City.

2.2. Framework

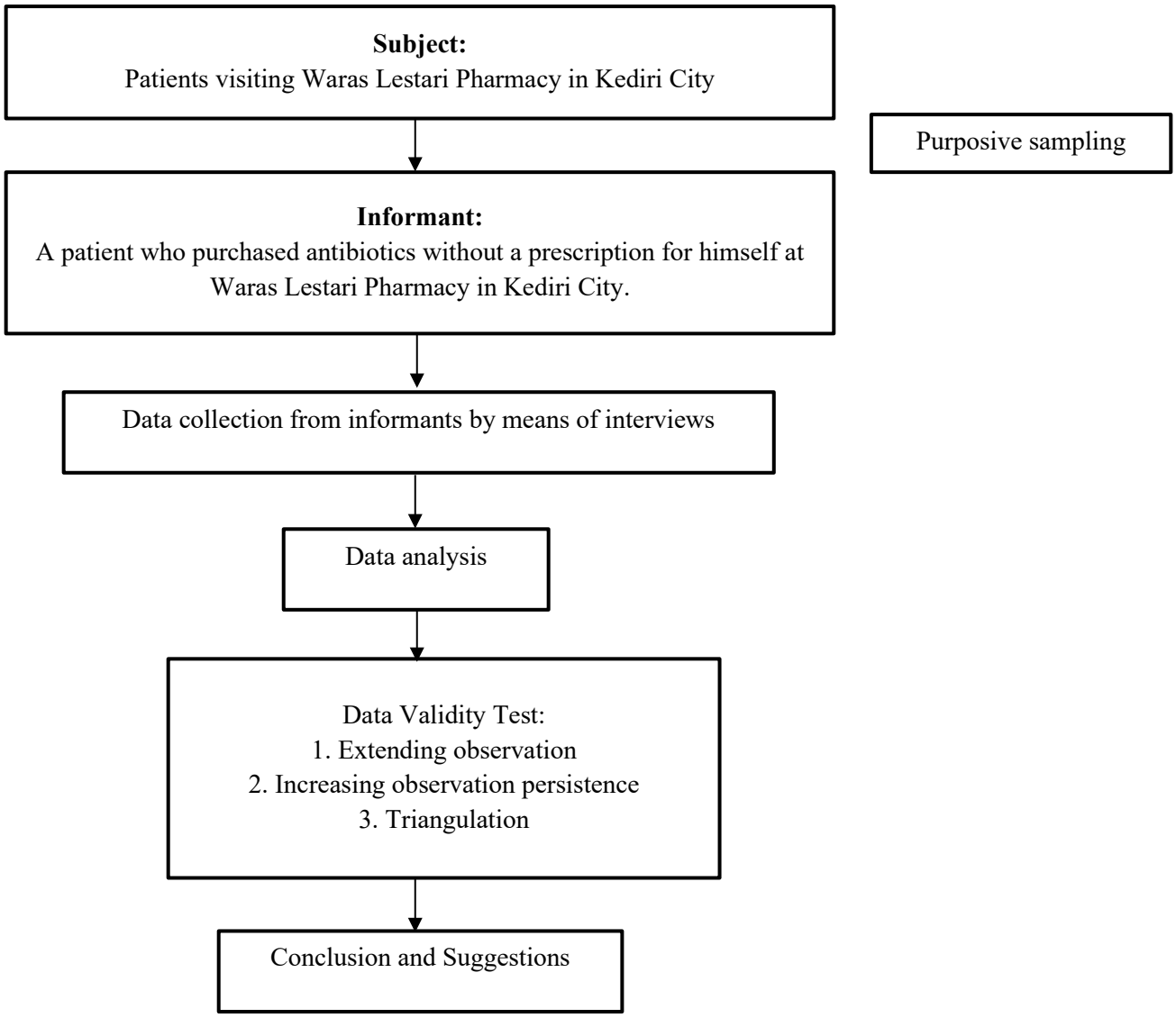

Figure 1. Framework

2.3. Data Sources

Primary data in this study were obtained from key informants, namely patients who purchased antibiotics without a prescription for self-medication between March and May 2025. Secondary data in this study consisted of data on the number of patients who self-medicated with antibiotics obtained from Waras Lestari Pharmacy and previous literature or research references through a literature review.

2.4. Research Instruments and Data Collection Procedures

This research used the following tools:

1. A voice recorder, used to help researchers concentrate on data collection without having to record informants' responses.
2. Interview guidelines, used to ensure that interviews did not deviate from the research objectives. These guidelines were developed based on the research objectives and the theory used.

The data collection techniques in this study were:

1. In-depth Interviews
   In qualitative research, interviews are generally conducted in an unstructured manner, often referred to as in-depth interviews. These interviews involve asking open-ended questions that lead to in-depth information. They are conducted without a formal structure, in order to explore the subjects' perspectives on a wide range of issues that are highly useful for further research.
2. Documentation
   For this documentation method, researchers used triangulation to support research results.
3. Literature Review
   A literature review is a data collection technique from reference books, previous research journals, and other media related to the research problem.
4. Observation
   In this study, researchers directly observed the situation or condition of the subjects under study, namely the phenomenon of antibiotic self-medication behavior.

2.5. Data Analysis

In this study, data processing used content analysis, which was then presented descriptively. Qualitative data collected through participant observation, interviews, and documentation were then edited, sorted, and categorized to answer the research questions. Then, they were analyzed using an interactive model for the data analysis process, namely: (Sugiyono, 2013)

1. Data Reduction
   Data reduction is defined as the process of selecting, focusing on simplifying, summarizing, and sorting data, as well as transforming raw data from written field notes. Qualitative data can be reduced in various ways, including through rigorous selection, summarizing or briefly describing data, and categorizing data into a more coherent pattern.
2. Data Presentation
   In qualitative research, the most frequently used data presentation is narrative description. This is designed to combine organized information into a coherent and easily accessible format. This allows the analyst to see what is happening and determine whether to draw valid conclusions or continue the analysis.
3. Drawing Conclusions/Data Verification
   Tentative conclusions are drawn by comparing the research questions with the research results. These conclusions will be changed if strong supporting evidence is not found in the next data collection stage. These conclusions are then supplemented with other supporting data to complete the research results.

2.6. Validation of Findings

The triangulation used in this study was data source triangulation. This triangulation involved two pharmacy technicians and the pharmacy owner.

2.7. Research Stages

The stages in this research consist of:

1. Pre-research stage
   This stage was carried out before the research was conducted. The activities carried out are:

a. Conducting a literature review by searching for initial data through relevant documents to formulate the research problem.
b. Developing an initial research design.
c. Determining the research location.
d. Obtaining research permits.
e. Conducting a preliminary study.
f. Confirming the research design, research focus, and preparing research instruments.

2. Post-research stage
   This stage was carried out after the research was completed, including:

a. Recording all data obtained after the research.
b. Data processing and analysis.

2.8. Research Ethics

In this study, before approaching potential participants to request their willingness to participate, the researcher requested approval from the pharmacy owner. After receiving approval from the owner, the researcher approached the potential participants and requested their consent to participate. After obtaining approval, the research was conducted, observing the following ethical principles:

1. Informed consent
   This is a form of agreement between the researcher and the participant by providing a consent form to participate.
2. Anonymity
   This is an ethical principle in research that involves not providing or including the respondent's name on the measurement instrument and only providing a code on the data collection sheet or the research results presented.
3. Confidentiality
   This is an ethical principle in research that ensures the confidentiality of research results, both information and other matters. The researcher guarantees the confidentiality of all participants collected, and only specific data sets are reported in the research results.

3. Results

In analyzing the results of this study, the data obtained from the informants were categorized into several groups based on the number of responses. When all of the informants (15 informants) provided the same response, it was classified as "all informants." If the majority, ranging from 9 to 14 informants, gave a similar response, it was categorized as "most informants." When half of the participants, around 7 to 8 informants, shared the same view, it was referred to as "half informants." A response pattern shared by 3 to 6 informants was placed under the category of "some informants." If only a few, namely 1 to 2 informants, expressed a certain view, it was categorized as "a small number of informants." Finally, if no participants (0 informants) provided a particular response, it was classified as "none."

3.1 Predisposing Factors

1. Knowledge of Antibiotics
   The majority of informants demonstrated very limited knowledge regarding antibiotics. Most only understood antibiotics as "medicines that cure" without understanding their mechanism of action or proper medical indications.
2. Knowledge of Self-Medication
   Most informants had a very limited understanding of the concept of self-medication. Although many practiced purchasing medications without a prescription, they were unaware that this practice falls under the category of self-medication and carries certain risks.
3. Knowledge of Antibiotic Resistance
   The majority still had limited understanding. Only a small number of informants fully understood the concept of antibiotic resistance and the importance of taking the prescribed dose of antibiotics. Some informants with a health background were able to explain that not completing a course of antibiotics can lead to bacterial resistance, but many lay informants did not understand this concept at all.
4. Perceptions and Beliefs
   The majority of informants had a misperception but a very strong belief in the effectiveness of antibiotics. Antibiotics were viewed as "miracle drugs" that could quickly cure various illnesses, even for conditions that do not actually require antibiotics, such as the common cold.
5. Attitudes Toward Prescriptions
   Informants' attitudes toward the use of antibiotics without a prescription varied widely and showed ambivalence. Although some informants recognized that antibiotics should require a doctor's prescription, they still preferred to purchase them themselves due to convenience, speed, and previous experience.

3.2 Enabling Factors

1. Pharmacy Accessibility
   The easy accessibility of pharmacies and their proximity to people's homes are key factors enabling the practice of self-medication with antibiotics without a prescription. Most informants considered purchasing antibiotics at pharmacies very easy and without significant obstacles.
2. Antibiotic Services at Pharmacies
   Antibiotic services at pharmacies showed a very loose pattern and minimal oversight. Most informants stated that pharmacists rarely inquire about complaints in detail or provide education regarding the proper use of antibiotics.

3.3 Reinforcing Factors

1. Personal Experience
   Interview results indicated that personal experience is the dominant factor driving people to use antibiotics without a doctor's prescription. Most informants used antibiotics based on previous experiences with doctors or other healthcare professionals, such as paramedics.
2. Pharmacy Staff Response
   Interview results revealed a significant gap in the oversight of antibiotic sales in pharmacies, allowing people to easily obtain antibiotics without a prescription. Although some pharmacists still inquired about patients' complaints or symptoms, they ultimately prescribed the requested antibiotics.

4. Discussion

4.1 Characteristics of General Informant

1. Age
   The informants in this study ranged in age from 20 to 54, with the majority being in the productive age range (20–40 years). This finding aligned with research by (Lavrador et al., 2021) indicated that self-medication is more frequently used by younger individuals due to time efficiency.
2. Gender
   The majority of informants were female (11 out of 15). This finding aligned with research by (Plumptre et al., 2020) which showed that gender was not a significant differentiating factor in antibiotic self-medication practices, but women tended to access pharmacy services more frequently.
3. Occupation
   Private sector employees and students constituted the largest group. This finding aligned with research by (Pekerti, D.R., 2022), which showed that patterns of non-prescription antibiotic use among private sector workers and students, along with time constraints, were factors contributing to the choice of fast-track treatment for minor illnesses.
4. Education
   The majority of informants had a senior high school or college education. This was supported by research (Handayanti et al., 2021), which showed that education level did not guarantee a high level of knowledge regarding the rational use of antibiotics.
5. Symptoms or Complaints
   The main symptoms reported by informants when purchasing antibiotics without a prescription were sore throat and cough (most common), fever, flu, and colds. This finding aligned with a study by (Limato et al., 2022), which supported the assertion that people often use antibiotics for symptoms actually caused by viruses, which can lead to long-term antibiotic resistance.

4.2 Antibiotic Self-Medication Behavior at Waras Lestari Pharmacy

This study revealed antibiotic self-medication behavior as a concerning phenomenon at Waras Lestari Pharmacy in Kediri City. In-depth interviews with fifteen informants revealed that most people used antibiotics without a doctor's prescription based on personal experience or recommendations from others.

Factors influencing this self-medication behavior were classified into three categories: predisposing factors, supporting factors, and reinforcing factors. Support from family, friends, or neighbors also played a significant role in reinforcing factors.

Overall, the results of this study have strengthened previous findings regarding the high rate of antibiotic self-medication in the community and weak oversight at the primary care level, such as pharmacies. However, this study also demonstrated the significant need for comprehensive educational interventions, not only for the general public but also for pharmacy technicians.

4.3 Predisposing Factors

1. Knowledge of Antibiotics
   This study showed that the majority of informants had very minimal knowledge regarding antibiotics. This finding aligned with research (Fitriah et al., 2022), which showed that more than 50% of respondents were unaware that inappropriate antibiotic use can lead to resistance. People tend to equate antibiotics with other drugs due to limited education (Kondoj, 2020).
2. Knowledge of Self-Medication
   Most informants had a very limited understanding of the concept of self-medication.This finding aligned with research conducted by (Silvi et al., 2021), which stated that public knowledge about self-medication was still very limited, and the practice of selling prescription drugs without a prescription was still rampant in Indonesia, driven by economic factors and easy access.
3. Knowledge of Antibiotic Resistance
   Informants' knowledge of antibiotic resistance varied widely, with the majority still having limited or inadequate understanding. This finding aligned with research conducted by (Malaka et al., 2023), which stated that the majority of Indonesians still had limited understanding of antibiotic resistance, which contributed to inappropriate use practices.
4. Perceptions and Beliefs
   The majority of informants held misperceptions but strongly believed in the effectiveness of antibiotics. This was reflected in Informant DR's statement: "I used to be given antibiotics for the flu, so now I just buy them myself if my symptoms are similar." This was reinforced by the Health Belief Model theory, reviewed in a journal by (Lau et al., 2020), which stated that belief in the effectiveness of treatment significantly influenced self-medication behavior.
5. Attitudes Toward Prescriptions
   Informants' attitudes toward the use of antibiotics without a prescription varied widely and showed ambivalence. This was in accordance with research conducted by (Le et al., 2024) which showed that the practice of purchasing antibiotics without a prescription was driven by ease of access, personal experience, social influence, and weak enforcement of regulations in pharmacies.

4.4 Enabling Factors

1. Pharmacy Accessibility
   Most informants considered purchasing antibiotics at pharmacies very easy and without significant obstacles. This finding has strengthened the results of research (Nur et al., 2021), which stated that ease of access and lack of pharmacy supervision were drivers of increased antibiotic self-medication.
2. Antibiotic Services at Pharmacies
   Most informants stated that pharmacists rarely inquire about complaints in detail or provide education regarding the proper use of antibiotics. This finding aligned with research conducted by (Zawahir et al., 2019), which found that 61% of pharmacies dispense antibiotics without a prescription, and almost none inquire about medical history or recommend seeing a doctor.

4.5 Reinforcing Factors

1. Personal Experience
   Most informants used antibiotics based on previous experiences when visiting a doctor or other healthcare professional. This finding aligned with research conducted by (Marina et al., 2024), which showed that personal experience was a significant factor driving people to purchase antibiotics without a prescription, especially among young and elderly age groups.
2. Pharmacy Staff Response
   Interview results revealed a significant gap in the oversight of antibiotic sales in pharmacies, allowing people to easily obtain antibiotics without a prescription. This finding aligned with research conducted by (Ferdiana et al., 2021), which showed that this significant gap in the oversight of antibiotic sales in Indonesian pharmacies is a systemic problem.

The findings of this study aligned with several previous studies, such as those conducted by (Fitriah et al., 2022) and (Kondoj, 2020), which showed that public knowledge about antibiotics remained low, and self-medication is often based on personal experience. However, this study identified a new pattern of active involvement of pharmacists in the self-medication process. Despite being aware of the policy prohibiting the dispensing of antibiotics without a prescription, they still prescribed them out of trust in patients or due to consumer pressure.

4.6 Research Obstacles snd Weaknesses

a. Research Obstacles

1. Access to Informants
   Some informants were initially reluctant to be interviewed due to concerns that their personal data would be misused. Researchers needed time to build trust.
2. Limited interview time
   Some informants could not be interviewed in depth due to personal commitments, resulting in less exploratory data.
3. Field Conditions
   Pharmacies are quite busy, so interviews were often interrupted.

b. Research Weaknesses

1. Limited generalizability of results
   Due to the qualitative approach and limited number of informants, the results of this study cannot be generalized to the entire Indonesian population.
2. Limited data triangulation
   The study was conducted with only two pharmacy staff and one owner, even though other actors such as doctors, pharmacists, and pharmacy technicians could also provide different perspectives.
3. Subjectivity of interpretation
   The researcher, as the primary instrument in data analysis, may introduce bias, despite attempts to maintain objectivity through triangulation and narrative validation.

5. Conclusions

Based on the results of research on antibiotic self-medication behavior at Waras Lestari Pharmacy in Kediri City, several important conclusions can be drawn. The study found that all informants engaged in self-medication with antibiotics without a doctor's prescription. This behavior was strongly influenced by predisposing factors, particularly perceptions and beliefs that shaped their decision to self-medicate. In addition, enabling factors such as the easy availability of antibiotics in pharmacies without strict supervision served as the main driver of this practice. Reinforcing factors also played a significant role, with previous personal experiences becoming the dominant reason for repeated self-medication. Many informants reported purchasing the same antibiotics that had once been prescribed by doctors for similar complaints, as they were confident in the effectiveness of these drugs. Overall, the findings revealed that antibiotic self-medication behavior at Waras Lestari Pharmacy remained high, supported by a combination of predisposing, enabling, and reinforcing factors. Furthermore, the study identified gaps in the regulation and educational oversight of antibiotic use, which highlights the urgent need to strengthen pharmaceutical care systems within the community.

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Conflict of Interest

The authors declare no conflicts of interest.

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