

Level of public knowledge on the principle of DAGUSIBU in antacid drugs at thalhah pharmacy

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ABSTRACT

Introduction: Antacids are commonly used over-the-counter medications for treating gastritis, yet public knowledge regarding their proper use remains limited. The DAGUSIBU (Obtain, Use, Store, Dispose) campaign by the Indonesian Pharmacists Association aims to improve rational drug use among the community. However, initial observation at Thalhah Pharmacy in Makassar revealed a lack of counseling related to DAGUSIBU principles. This study aims to assess the level of public knowledge regarding the DAGUSIBU principles related to antacid use at Thalhah Pharmacy.

Method: This was a descriptive study using a survey method. A total of 48 respondents were selected from 90 pharmacy visitors through accidental sampling using the Slovin formula. Data were collected using a Likert-scale questionnaire and analyzed using Microsoft Excel, with results presented in percentage tables and categorized into three levels: good, fair, and poor.

Results: Findings show that 73.25% of respondents had good knowledge, 20.82% had fair knowledge, and 5.91% had poor knowledge of DAGUSIBU principles. Knowledge of obtaining antacids was good (77.8%), while use (59%), storage (58%), and disposal (43.7%) scored moderately.

Conclusion: The public demonstrates adequate knowledge in obtaining antacids, but further education is needed in the areas of usage, storage, and disposal to support safe and responsible self-medication practices.

Keywords: Antacid; DAGUSIBU; Knowledge; Public Awareness.



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INTRODUCTION

Health is a basic human need that must be maintained and improved sustainably. One of the ways people maintain their health is by doing independent treatment or self-medication, which is the use of drugs without a doctor's prescription to treat complaints of minor illnesses (Karuniawati, Tsaniya and Ismail, 2024). The use of this drug independently is becoming more prevalent due to the ease of access to over-the-counter medications and the increase in public knowledge of common disease symptoms. One of the diseases that is often treated self-medication is gastritis, better known as ulcer disease (Alenzi *et al.*, 2024). Gastritis is an inflammation of the stomach wall that can be caused by various factors such as stress, *Helicobacter pylori* bacterial infection, consumption of spicy foods, or long-term use of nonsteroidal anti-inflammatory drugs (Abdelrahman, Ahmed and Moustafa, 2024). According to data from the World Health Organization (WHO), in 2019, the prevalence of gastritis in various parts of the world is quite high: 69% in Africa, 78% in South America, and 51% in Asia. In Southeast Asia alone, the number of gastritis sufferers reaches around 583,635 people per year, while in Indonesia, the prevalence reaches 40.8%, with the number of cases around 274,396 out of a total population of 238 million people in 2017.

To treat the symptoms of gastritis, antacids are the main choice of the community in self-treatment. Antacids are drugs that function to neutralize excess stomach acid that causes heartburn, nausea, vomiting, and other digestive disorders (De Alwis *et al.*, 2024). This drug is widely sold freely in pharmacies and drug stores with widely known trademarks such as Promag, Mylanta, and Polysilane (Suprpto, Herman and Asmi, 2020). Research data from the Antara Health Center in Makassar in 2021 shows that antacids are one of the most consumed drugs, with a total of 250 uses during the period from January to March. Although the use of antacids is high, the level of public knowledge about how to obtain, use, store, and dispose of these drugs appropriately is still relatively low (Saito, Sato and Yamamoto, 2025). Based on Basic Health Research (Risksedas) in 2013, one of the leading causes of medication errors is limited public knowledge about drug information, including dosage, how to use, and storage and disposal. This can pose risks such as drug resistance, unwanted side effects, poisoning, and even environmental pollution due to improper disposal of drugs (Wegner *et al.*, 2025).

The principles of DAGUSIBU emphasize four important aspects. First, get the drug in a trusted and legal place, such as a pharmacy that has an official license. Second, the drug should be used according to the rules, dosage, and time of use stated on the package or based on the recommendations of health professionals (Rauf *et al.*, 2025). Third, the drug must be stored in a suitable place so that the quality is maintained until the expiration period. Fourth, dispose of unused or expired medications in the proper manner to prevent misuse or environmental pollution (Pepin *et al.*, 2024). However, in practice, education about DAGUSIBU has not been fully applied evenly throughout the region, including at the pharmacy level. The results of initial observations at the Thalhah Pharmacy located on Jalan Goa Ria No. 7, Sudiang, Makassar City, show that until now, there has been no counseling or education directly to visitors related to the DAGUSIBU principle. At the time of purchasing drugs, especially antacids, pharmacists rarely convey information about the proper storage or disposal of drugs. This is an important concern, considering that pharmacies are at the forefront of pharmaceutical services and should play an active role in providing information and education to the public. This condition raises

fundamental questions about the extent to which the knowledge of the public who visit the Thalhah Pharmacy understands the principle of DAGUSIBU, especially in the context of the use of antacids. Do they know the importance of getting medicine from an official place? Do they understand how to use it correctly and keep it in ideal condition? Do they know that certain methods must dispose of expired drugs?

This research was conducted to answer these questions. By knowing the level of public knowledge about DAGUSIBU, especially about antacids as one of the most frequently consumed drugs, it is hoped that a real picture can be obtained that will be the basis for improving public education. The results of this research are also expected to contribute to educational institutions, pharmaceutical personnel, and health authorities in developing a more effective and comprehensive strategy for socializing the use of drugs. This research is focused on three main objectives. First, measuring the level of knowledge of the community at the Thalhah Pharmacy about the principle of DAGUSIBU on antacid drugs. Second, identify which aspects of DAGUSIBU (get, use, keep, discard) are the weakest understood among the public. Third, relevant educational recommendations based on field findings should be provided. By using a descriptive approach and quantitative survey techniques through questionnaires, this study is expected to present empirical data on the actual condition of public understanding. In addition, the results of this study can be used as an initial reference for the development of DAGUSIBU socialization programs at the community level and other pharmaceutical service facilities in Makassar and other regions in Indonesia.

METHODOLOGY

This study uses a quantitative approach with a descriptive research type, aiming to describe the level of public knowledge about the principle of DAGUSIBU (Get, Use, Store, Discard) on the use of antacid drugs. The research was conducted in the form of a survey through the distribution of questionnaires to selected respondents. The research was carried out at the Thalhah Pharmacy, which is located on Jl. Goa Ria No. 7, Sudiang, Makassar City. The research implementation time lasts from March to June 2025. The population in this study was all pharmacy visitors who purchased or used antacids during the data collection period. The number of recorded population is 90 people. Sampling was carried out using the non-probability sampling method, precisely the accidental sampling technique, which is the selection of respondents based on who happens to come to the pharmacy and meets the inclusion criteria. The number of samples was determined using the Slovin formula with an error rate of 10%, so 48 respondents were obtained as research samples. Inclusion Criteria: Visitors to the Thalhah pharmacy are 15–65 years old. Be willing to be a respondent and sign an agreement sheet. Exclusion Criteria: Visitors who are not willing to fill out the questionnaire.

The instrument used in data collection is a closed-ended questionnaire based on the Likert scale consisting of 30 questions, covering 6 cognitive dimensions of knowledge according to Bloom (know, comprehend, apply, analyze, synthesize, evaluate). The respondents' answers were scored as follows: Yes = 3; Hesitation = 2; No = 1. Data Type. Primary data: obtained directly from the results of the questionnaire filled out by the respondents. Secondary data: obtained from relevant literature, journals, and documentation as supporting material. Data Collection Procedures. Respondents were given a questionnaire after declaring their consent to become a participant. Charging is carried out independently under the supervision of the researcher. The data is then recapitulated and encoded into Microsoft Excel. Data Analysis Techniques. The data

obtained were analyzed quantitatively and descriptively. Data processing is carried out by calculating the total score of each respondent and then converting it into percentages. Operational Definition of Variables Independent variables: The level of public knowledge about the principle of DAGUSIBU. Bound variables: Management of antacidic drugs (get, use, store, dispose of). Each DAGUSIBU indicator is described in several questions that reflect the level of knowledge mastery based on Bloom's cognitive domain theory. The results of the answers were processed to determine the distribution of respondents' knowledge as a whole and in each aspect of DAGUSIBU.

Ethical Considerations

The study was conducted in accordance with ethical research standards. Participants were fully informed of the purpose of their involvement, procedures, and voluntary nature. Anonymity and confidentiality were upheld throughout the study. Ethical clearance was obtained from the local ethics committee of the associated academic institution.

RESULT

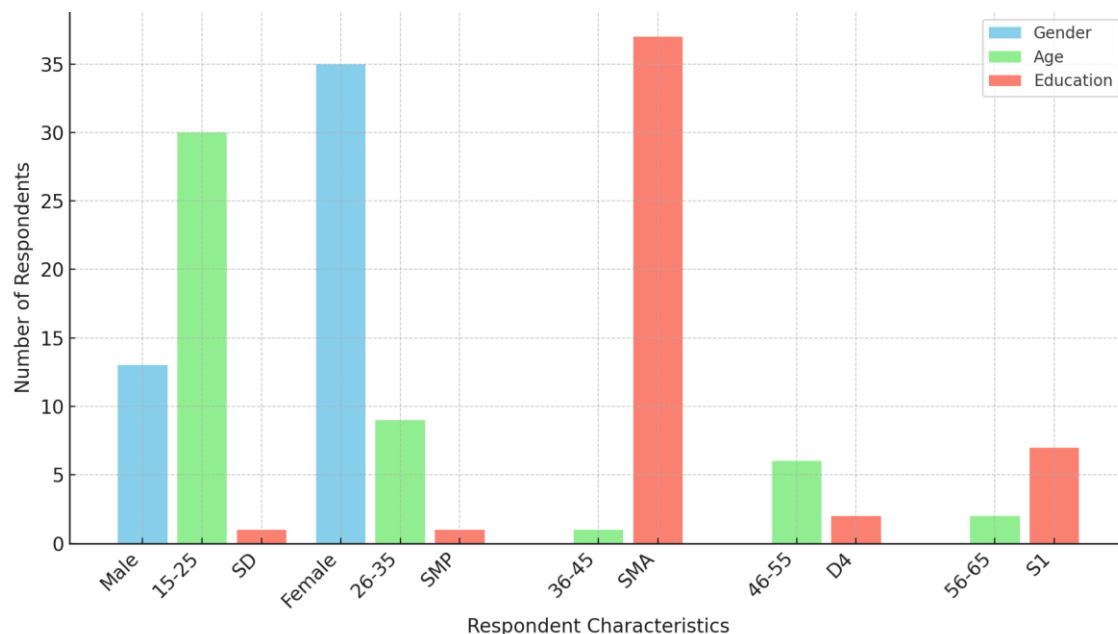


Chart 1. Bar graph of respondent characteristics

The majority of respondents are women. This suggests that women tend to be more active or more involved in decision-making related to self-medication, including the purchase of drugs such as antacids at pharmacies. This is in line with previous research that stated that women have a higher level of concern for family health and tend to be more thorough in understanding drug-related information. The 15–25 year old age group dominated the respondent population. This can be attributed to the high activity and mobility of young age groups and their easy access to modern pharmaceutical services. In addition, this age group also generally has an educational background that is still active or has just been completed, so they tend to be more open to filling out surveys and more aware of the importance of using the right medication. Most of the respondents were high school graduates, which reflects the level of secondary education as the general background of the people who access the pharmacy at the research site. Although their

formal education has not reached a high level, the high number of high school graduates can show the potential for good health literacy but still require additional education, especially related to the principle of DAGUSIBU, which is not commonly taught formally. The characteristics of the respondents show the dominance of young women with a high school education background, which is a strategic group for public health education interventions. Education related to DAGUSIBU is very relevant and aimed at this group so that safer and more responsible drug use practices can be achieved.

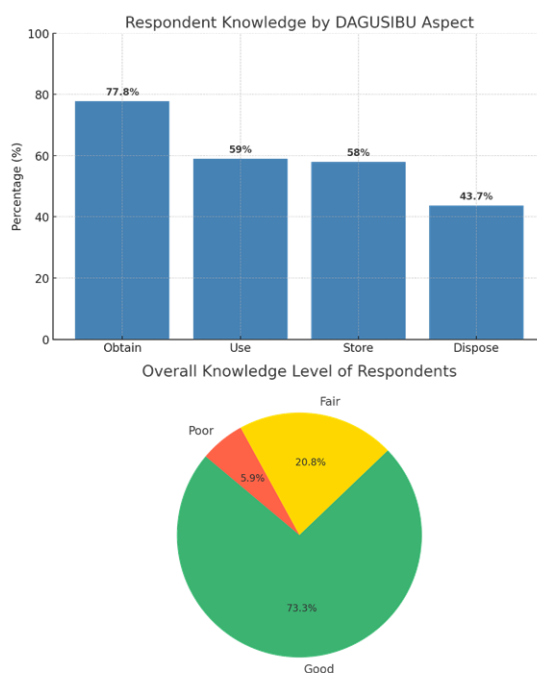


Chart 2. Level knowledge DAGUSIBU

The bar chart presents respondents' knowledge across the four core components of DAGUSIBU: Obtain (77.8%). This aspect falls into the "Good" category. Most respondents are aware of how and where to obtain antacids safely, such as from authorized pharmacies or health facilities. This indicates that public understanding regarding trusted sources of medication is relatively strong. Use (59%) This is categorized as "Fair." While over half of the respondents understand how to use antacids properly, a significant portion either lack full understanding or remain uncertain. Misuse of antacids may still occur due to incorrect dosage, timing, or incomplete reading of the instructions. Store (58%) Also rated "Fair." Knowledge regarding the correct storage of antacids, such as avoiding heat, sunlight, or humidity, is moderate. This suggests a need for more education on how storage conditions affect drug effectiveness and safety. Dispose (43.7%) This aspect approaches the "Poor" category. Many respondents lack knowledge of proper disposal methods for expired or damaged antacids. Improper disposal could lead to misuse, accidental ingestion, or environmental harm, making this the most critical area for intervention.

Overall Knowledge Level (Pie Chart) The pie chart summarizes the total knowledge level of all respondents: Good: 73.25% of respondents demonstrate a generally strong understanding of DAGUSIBU principles. Fair: 20.82% have a moderate grasp of the concepts, requiring additional clarification or reinforcement. Poor: 5.91% show a limited understanding, indicating minimal exposure or awareness of proper medication practices. Although the majority of respondents possess a good overall knowledge of DAGUSIBU,

particularly in the "obtain" component, there are still substantial gaps in understanding how to use, store, and dispose of antacids correctly. These findings highlight the importance of strengthening public education, especially within pharmacies, through counseling and visual aids that reinforce safe and responsible drug management.

Table 1. Analysis based on bloom's cognitive domain

Cognitive Domain	Percentage (%)	Category
Know	69.0	Good
Comprehension	55.0	Fair
Application	57.0	Fair
Analysis	67.5	Good
Synthesis	54.0	Fair
Evaluation	56.0	Fair

Basic knowledge (knowledge and analysis) is relatively good, but the ability to understand, apply, develop new concepts, and evaluate drug use is still quite sufficient. This shows that the community is familiar with basic concepts but lacks depth in the application and critical assessment of drug use practices. Respondents generally have a good knowledge of DAGUSIBU antacids, especially when it comes to obtaining the drug legally and safely. However, aspects of use, storage, and disposal are still not fully understood. High-level cognitive aspects such as synthesis and evaluation also show the need for improved education that is both practical and contextual.

DISCUSSION

This study aims to find out the extent of public knowledge about the principle of DAGUSIBU (Get, Use, Save, Discard) in the context of the use of antacid drugs. Based on the results obtained from 48 respondents at the Thalhah Pharmacy, Makassar, it was found that the level of knowledge of the community in general was relatively good, but with significant variations in each aspect of DAGUSIBU. This discussion will elaborate on these results in more depth, as they are linked to previous literature and their implications for pharmaceutical service practices.

Respondents' general knowledge. The data shows that overall, 73.25% of respondents have a good level of expertise, while 20.82% are in the sufficient category, and 5.91% are classified as lacking. This indicates that the majority of people who access services at Pharmacy Thalhah have an adequate understanding of the basic principles in the management of antacid drugs. The dominance of this level of "good" knowledge can be attributed to the increasing public awareness of the importance of rational treatment, especially in the context of common diseases such as gastritis (Pibul et al., 2025). In addition, indirect education through social media, health advertisements, and informal interactions with pharmacists also affect the level of public knowledge (Pepin et al., 2024).

Analyze each aspect of DAGUSIBU. Obtain 77.8% (Good Category) The "get" aspect obtained the highest score among the four components of DAGUSIBU. This indicates that most respondents already understand the importance of obtaining medication from a legitimate place, such as a pharmacy or an official health facility (Sarwinska et al., 2025). This is certainly a positive indicator that the efforts of the government and professional organizations such as the Indonesian Pharmacists Association (IAI) in educating the public have begun to have a real impact, at least in terms of legality and safety of drug sources (Jia et al., 2024). However, this good

understanding is not necessarily accompanied by an in-depth knowledge of the quality of the drug, for example, related to label marking, distribution license number, or expiration date (Al Dweik, Ajaj and Hafez, 2024). Use 59% (Sufficient Category). Although the majority of respondents are aware that antacids are used to treat symptoms of ulcers or stomach disorders, many of them do not fully understand the correct rules of use, such as daily dosage, time of use (before or after meals), and possible interactions with other foods or medications (Viinanen *et al.*, 2025). Low scores in this aspect are of important concern because errors in the use of antacids can have an impact on the effectiveness of therapy or cause side effects (Puig-Moltó *et al.*, 2024). This signifies the need for the role of the pharmacist to provide brief counseling directly when medication is administered, which, unfortunately, is often overlooked due to time or resource constraints (Lee *et al.*, 2025). Store 58% (Sufficient Category). The aspect of storing drugs is often considered trivial by the public. In fact, the chemical stability and effectiveness of the drug are highly dependent on storage conditions (Thillard *et al.*, 2024). The majority of respondents did not understand the specifics of the ideal storage place for antacids, such as room temperature that is avoided direct sunlight and humidity (Nagaoka *et al.*, 2025). This data reinforces findings from previous studies that stated that awareness of the importance of drug storage is still low, even among long-term drug users (Zhang *et al.*, 2025). Counseling with visual media or simple brochures at pharmacies can be one of the practical educational solutions (Ali *et al.*, 2025).

Disposed 43.7% (Close to Less). This aspect shows the lowest value and indicates that most people do not yet understand the correct way to dispose of drugs. A common practice that still occurs is to throw the drug into household trash cans or even into drains. This can have environmental and health impacts, especially if the drug falls into the risky category or can be abused. The lack of a drug take-back program in Indonesia is a challenge in itself (Krol *et al.*, 2024). In this context, the role of pharmacies as an educational point and collection of used or expired drugs needs to be improved through regulations and technical support from local governments (Carnero Canales *et al.*, 2024).

Analysis Based on Bloom's Taxonomy. Respondents' knowledge was also analyzed based on the six cognitive domains in Bloom's Taxonomy, with the following results: Know: 69% Good Category. Comprehension: 55% Sufficient. Application: 57% Sufficient. Analysis: 67.5% Good. Synthesis: 54% Enough. Evaluation: 56% Adequate. From these results, it can be concluded that the respondents' ability to remember basic information and analyze information is relatively good. However, the ability to understand, apply, synthesize, and evaluate information is still quite sufficient (Miah *et al.*, 2024). This shows that public education has been more one-way and has not touched on the aspect of high-level thinking skills (Habib *et al.*, 2025). To improve this category, health education should be directed at interactive methods such as dialogue, simulations, educational videos, and simple case studies so that people not only memorize information but also be able to apply it in real-world situations (Johnson *et al.*, 2024).

Practical Implications

Pharmacies must take an active role as health education centers, not just as a place to sell drugs. The placement of educational posters, short videos, or leaflets of DAGUSIBU will be very helpful. Policy support is needed to require DAGUSIBU education in every over-the-counter drug transaction at pharmacies. In addition, training programs for pharmaceutical technicians on educational communication are highly recommended. The public needs to be encouraged to be more proactive in asking pharmacists and not hesitate

to seek information about the drugs they consume, even for over-the-counter drugs such as antacids. Further research with a larger sample size and wider coverage of areas is needed to see the variation in knowledge across different cultural and educational backgrounds.

CONCLUSION

Based on the above discussion, it can be concluded that although the public's knowledge of DAGUSIBU is generally relatively good, there are still significant weaknesses in the aspects of the use, storage, and disposal of drugs. The education that the community has received tends to be surface and has not touched the realm of applicative and evaluative skills. Therefore, there is a need for a more active, sustainable, and community-based educational approach so that the principles of DAGUSIBU can really be applied in daily life.

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Conflict of Interest

There are no potential conflicts of interest relevant to this article.

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