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Kajian Kesehatan Masyarakat Pesisir Maluku Utara dalam Pemanfaatan TOGA

(Study of Coastal Community Health in North Maluku in the Utilization of TOGA)

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ABSTRACT. Background: This study aims to examine the profile of Family Medicinal Plant (*Tanaman Obat Kelaurga* (TOGA) utilization among coastal communities on Hiri and Guaeria Islands as part of local wisdom-based health improvement efforts. Method: The study employed a mixed methods design involving 210 respondents. Quantitative data were obtained through questionnaires regarding knowledge, attitudes, and practices regarding TOGA utilization, while qualitative data were obtained through in-depth interviews and observations of medicinal plant processing and use practices in households. The results indicate that community knowledge of TOGA is in the fair category (53%), with an average score of 2.13. The community is generally familiar with several types of medicinal plants, such as ginger, turmeric, lemongrass, and betel leaf, for minor treatments. However, utilization practices remain limited, particularly in terms of sustainable processing and maintenance of medicinal plants. The main obstacles include limited land, knowledge of formulations, and a lack of support from health workers. Conclusion: Overall, TOGA in coastal areas still has significant potential for development as part of a health promotion strategy and the resilience of traditional medicine communities. Community-based interventions are needed to increase community capacity in sustainable TOGA cultivation, processing, and utilization.

INTRODUCTION

Coastal communities have unique health characteristics because they are influenced by environmental, social, economic factors, as well as limited access to health services. [1] In North Maluku, coastal areas play an important role in the social and economic activities of the community, but the challenges in meeting health needs are still high due to limited infrastructure and medical personnel. [2]. This condition encourages people to rely on traditional medicine, one of which is through the use of Family Medicinal Plants /*Tanaman Obat Keluarga* (TOGA)

Coastal communities in island regions face unique health challenges due to limited access to healthcare services, geographic conditions, and socioeconomic factors. In North Maluku Province, particularly on Hiri and Guaeria Islands, limited infrastructure and medical personnel distribution have led communities to rely on Family Medicinal Plants (TOGA) for initial treatment and disease prevention.[3]. Although the use of traditional medicinal plants (TOGA) has been practiced for generations, there is still a lack of research documenting and promoting its use within an evidence-based public health framework in coastal areas of North Maluku. This gap highlights the need for research that integrates local knowledge with modern promotive-preventive approaches. Therefore, this study is novel in examining the promotion of TOGA as a strategy to increase the health independence of coastal communities while providing a scientific basis for the development of contextual and sustainable community-based health interventions.[4][5]

TOGA is a form of community self-reliance in maintaining health by utilizing medicinal plants readily available in the surrounding environment. Many local plants are known to contain bioactive compounds such as flavonoids, alkaloids, tannins, and saponins, which act as antibacterials, anti-inflammatory agents, and antioxidants. [6] The use of TOGA is not only curative, but also preventive, especially in preventing environmental-based diseases that often occur in coastal areas, such as respiratory tract infections, diarrhea, and skin diseases. [7]

According to the WHO (2013), approximately 80% of people in developing countries still rely on traditional plant-based medicine. This demonstrates the importance of scientific documentation and pharmacological development of local medicinal plants, ensuring their safe, effective, and evidence-based use. Strengthening the pharmaceutical aspect of TOGA utilization also supports the national program for the development of Indonesian natural medicine and the independence of traditional medicine based on local wisdom.[8]

Therefore, this study aims to examine the health profile of coastal communities with a focus on the use of family medicinal plants (TOGA) as an effort to improve health based on local resources and the principles of sustainable community pharmacy.

RESEARCH METHOD

Method of collecting data

This study employed a mixed methods design with an embedded quantitative descriptive and qualitative exploratory approach. This approach was chosen to gain a comprehensive understanding of the use of family medicinal plants (TOGA) in improving the health of coastal communities. According to Johnson et al. (2007)[9]Mixed methods allow researchers to integrate numerical and narrative data to provide a more complete picture of a phenomenon. Meanwhile, Creswell and Plano Clark [10] explains that embedded design combines two forms of data where one functions as a complement to the main data form.

The quantitative approach was carried out using a cross-sectional design to obtain an overview of the level of knowledge, attitudes, and practices of the community regarding the use of TOGA at a certain time. [11]. Meanwhile, a qualitative approach is used to explore in depth the perceptions, experiences, and cultural meanings that underlie traditional medicinal practices based on medicinal plants. [12]

Location

The research was conducted in the coastal and island areas of North Maluku Province, including Hiri Island (Ternate City) and Guaeria Village (West Halmahera Regency). These two locations were chosen due to their high dependence on natural resources and limited access to formal healthcare facilities. The study lasted three months, from July to September 2025.

Population

The research population included all heads of families or household members in the research area who utilize or are familiar with family medicinal plants. The sampling technique used was purposive sampling with the following inclusion criteria: (1) Respondents aged ≥ 17 years, (2) Domiciled in the research location for at least 1 year, and (3) Willing to be respondents by signing an informed consent form. The number of respondents was 210 people, consisting of 141 from Hiri Island and 69 from Guaeria Village.

Instrumen

The research instruments included: (1) Structured questionnaires that had been tested for validity and reliability, including the Health Seeking Behavior Questionnaire, the Caring Caregiver Questionnaire, and the Knowledge and Attitude Questionnaire towards TOGA; (2) Semi-structured interview guides to explore social, cultural, and belief factors that influence TOGA use practices; and (3) Field observation sheets to record the types of medicinal plants planted and used by the community. Data were collected through three main methods: quantitative surveys, in-depth interviews, and direct observation of family medicinal plant cultivation and processing practices in home gardens.

Data Analysis

Quantitative data analysis was carried out descriptively using frequency, percentage, mean, and standard deviation to describe the characteristics of respondents, level of knowledge, attitudes, and community practices in the use of TOGA. [13]. Qualitative data were analyzed using an exploratory thematic approach (Thematic analysis) with stages of verbatim transcription of interview data, open coding, axial coding, and selective coding to discover the meaning and socio-cultural context behind the use of TOGA.

Integration was achieved by comparing and confirming quantitative findings with qualitative exploration results. This triangulation approach strengthened the validity of the research findings and provided a deeper understanding of the dynamics of TOGA utilization in coastal communities. [14]

Research Stage

The research stages include: (1) Preparation: compiling instruments, obtaining permits, and training enumerators; (2) Data Collection: conducting surveys, interviews, and observations; (3) Data Analysis: processing

quantitative data and qualitative thematic analysis; and (4) Reporting: writing research results, compiling recommendations, and scientific publication.

RESULTS AND DISCUSSION

Respondent Characteristics

The number of research respondents was 210 people, consisting of 141 respondents in Hiri and 69 respondents in Guaeria.

Distribution by age

Table 1. Distribution of Age

No	Age	Hiri	%	Guaria	%
1	10-17 years	7	4,96	1	1,45
2	18-59 years	120	85,1	63	91,3
3	≥60 years	14	9,93	5	7,25
Total		141	100	69	100

The majority of respondents were of productive age (18–59 years), namely 120 people in Hiri (85.1%) and 63 people in Guaria (91.3%). There were relatively few adolescent respondents (10–17 years), only 7 people (4.96%) in Hiri and 1 person (1.45%) in Guaria. There were 14 elderly respondents (≥60 years) in Hiri (9.93%) and 5 people (7.25%) in Guaria. This indicates that the majority of respondents were of productive age.

Distribution by gender

Table 2. Distribution by Gender

No	Gender	Hiri	%	Guaria	%
1	Male	42	29,8	26	44,1
2	Female	99	70,2	43	72,9
Total		141	100	69	117

There were more female respondents than male respondents. In Hiri, there were 99 women (70.2%) and 42 men (29.8%), while in Guaria, there were 43 women (72.9%) and 26 men (44.1%). This fact is important because the role of women, particularly housewives, is highly influential in determining daily household waste management habits.

Distribution by Education

Table 3. Distribution by Education

No	Level of education	Hiri	%	Guaria	%
1	Elementary school	25	17,7	27	39,1
2	Junior high school	17	12,1	8	11,6
3	Senior High School	76	53,9	25	36,2
4	College	23	16,3	9	13,0
Total		141	100	69	100

Respondents with a high school education dominated in both regions: 76 people in Hiri (53.9%) and 25 people in Guaria (36.2%). The level of primary education (elementary school) was quite high in Guaria (39.1%) compared to Hiri (17.7%). Respondents with a higher education (university) were relatively few, namely 23 people in Hiri (16.3%) and 9 people in Guaria (13.0%). This difference in education levels influenced variations in community knowledge regarding health awareness and understanding, with respondents with higher education tending to have a better understanding.

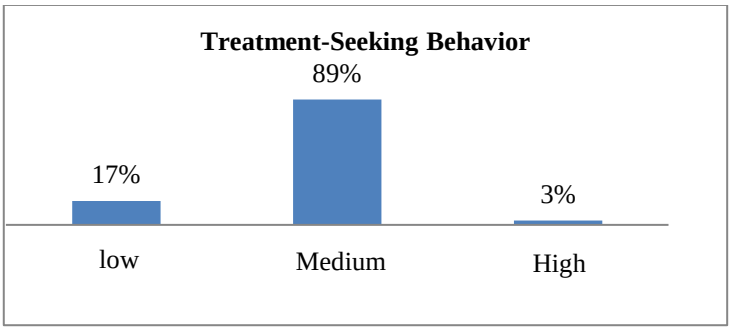
Health Seeking Behavior Level

The data shows that 89% of the population falls into the moderate category of health-seeking behavior. This indicates that the majority of the population is already aware of the need to seek help when facing health problems, although the intensity is not yet entirely consistent. This condition aligns with the concept of health-seeking behavior in the Health Belief Model (HBM), where help-seeking behavior is influenced by an individual's perception of the health problem, benefits, and barriers. [15]

This can be explained by, first, the perceived seriousness indicator appears to be quite high. People perceive health problems as important to address, which encourages them to seek help. Second, perceived susceptibility varies. Some people don't fully perceive the risk of disease, thus delaying seeking medical help.

Furthermore, perceived benefits are quite a motivator for the community, as they believe that seeking treatment can lead to health recovery. However, perceived barriers, such as limited costs, access to transportation, or social stigma, are factors that keep some people in the low category (17%). This aligns with Ofalabi's 2013 findings.[16] which explains that help-seeking behavior is influenced by complex interactions between individual, family, and health system factors.

Meanwhile, only 3% are in the high category, indicating that few people proactively, promptly, and consistently utilize formal health services. This situation emphasizes the need for community-based interventions, such as health education, strengthening the role of village health workers, and increasing access to more affordable services. This will reduce barriers and hopefully increase health-seeking behavior from the moderate to the high category.



Picture 1. Level of health-seeking behavior in Hiri and Guaeria

The results of the analysis of the community's health-seeking behavior are as follows. The perceived seriousness indicator indicates the extent to which individuals perceive the problem they are experiencing (e.g., health, psychological, or social) as serious. If people perceive the problem to be serious, they tend to be quicker and more active in seeking help. Data on Hiri Island shows that the average health-seeking behavior is in the moderate category (60–89), with scores in the 70s for most villages. This indicates that the community is aware that the problem they are experiencing is important to address. However, differences in scores between villages (e.g., Tafraka has the lowest) indicate that the community there may not yet fully view the problem as urgent.

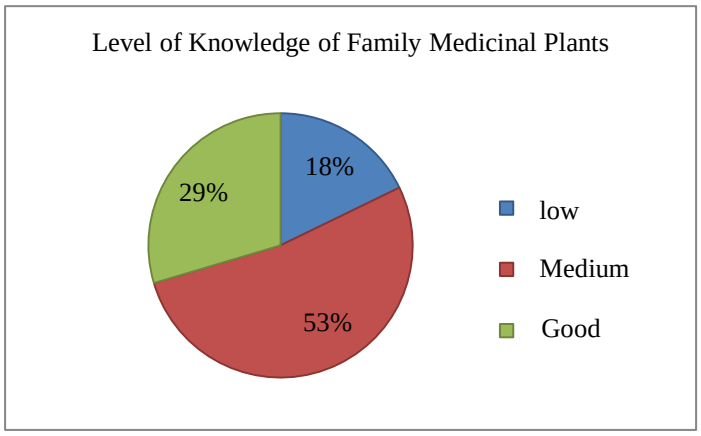
The perceived vulnerability/susceptibility indicator relates to people's beliefs about the likelihood of experiencing problems. Faudu Village, with a score of 76.09, is in the moderate category, indicating that people there are more aware of the risks or vulnerabilities to certain problems, leading them to be more active in seeking help. Conversely, villages with lower scores tend to perceive themselves as less vulnerable and are therefore slower to seek help. The perceived benefits indicator relates to people's beliefs that seeking help will provide tangible benefits, such as solutions, recovery, or a sense of security. Moderate scores in most villages (e.g., Mado 76.31; Dorari Isa 76.21; Tomajiko 75.41; Togolobe 78.52) indicate a fairly strong belief that seeking help is beneficial.

Perceived barriers include cost, transportation access, social stigma, or shame. Greater barriers lead to lower help-seeking behavior. Tafraka Village, with the lowest score of 74.67 (in the moderate category), likely faces greater barriers, such as difficult access to professionals, limited facilities, or social norms that discourage people from seeking help. Conversely, villages with higher scores face fewer barriers, leading to more active help-seeking behavior. In general, the people of Hiri Island fall into the moderate category (60–89) in terms of help-seeking behavior. They have relatively good perceived seriousness and perceived benefits, encouraging them to be more open in seeking help. However, variations between villages indicate differences in perceived vulnerability and, in particular, perceived barriers, which influence the final score. Togolobe Village scored the highest (78.52) because its residents feel vulnerable, believe in the benefits of assistance, and face relatively few barriers. Conversely, Tafraka Village scored the lowest (74.67) due to persistent strong barriers.

Level of Knowledge of Family Medicinal Plants

Based on the analysis of 213 respondents, a family medicinal plant knowledge score was obtained with a value range between 0 and 4. The average knowledge score was 2.13 with a median of 2, indicating that most respondents had a moderate level of knowledge. If categorized, then respondents with low knowledge (score 0–1) numbered 38 people (18%). The group with sufficient knowledge (score 2) was the majority, namely 112 people (53%). Meanwhile, respondents with good knowledge (score 3–4) numbered 63 people (29%).

These results indicate that the majority of respondents were in the moderate knowledge category regarding family medicinal plants. However, the proportion of respondents with good knowledge was also quite large, amounting to almost a third of the total. Conversely, respondents with poor knowledge were only around one-fifth. Thus, it can be concluded that, in general, the public has a basic understanding of family medicinal plants, although efforts are still needed to improve knowledge to increase the number of respondents in the good knowledge category.



Picture 2. Level of Knowledge of Family Medicinal Plants

The results of the study showed that the majority of respondents (53%) had sufficient knowledge about family medicinal plants, with an average score of 2.13. This means that most people already know the basics of using medicinal plants, but do not have in-depth knowledge regarding the types, benefits, processing methods, or dosages of use. The proportion of respondents with good knowledge was also quite large (299%), indicating that there are groups of people who are accustomed to using family medicinal plants in their daily lives. Meanwhile, respondents with low knowledge remained at 18%, which could be caused by factors such as limited information, education, or lack of access to learning resources about medicinal plants.

CONCLUSION

Based on the results of this study, it can be concluded that the majority of respondents were from the productive age group, predominantly women, demonstrating their important role in household management and family health. The education level of most respondents was high school, although a relatively high proportion of those with primary education remained, particularly in Guaria. Community health-seeking behavior generally fell within the moderate category, influenced by awareness of the importance of health but hampered by access and social factors. Furthermore, knowledge of family medicinal plants was also at a sufficient level, indicating a good basic understanding but still requiring improvement to support optimal utilization of medicinal plants.

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