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Education on the Use of Herbal Plants in the Community to Increase Knowledge in the Use and Manufacture of Herbal Plants

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Abstract

Education about the use of herbal plants is a step taken to increase public knowledge and empower the potential of medicinal plants. Education aims to increase knowledge in the use and preparation of herbal plants. Some of which people often use are ginger, lemongrass, cinnamon and turmeric. Respondents in the service were from the community in the RT. 16 North Alalak Subdistrict. The ABCD method focuses on the potential assets to be observed, namely herbal plants which are easily obtained by the people of Alalak Utara Subdistrict RT 16 by conducting surveys and distributing leaflets. The data collection technique uses a questionnaire. Based on the results obtained, before the educational activities were carried out and after the educational activities were carried out, the value was obtained from 35% to 100%. Thus, it can be concluded that in this educational activity, there was an increase in knowledge of the use of herbal plants by 65%.

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INTRODUCTION

Indonesia is a country rich in flora and fauna. There are many flora that are useful and easy to find in Indonesia. So many Indonesian people make plants in Indonesia as herbal medicines, and this has been done for generations. Indonesian people maintain many plants, some of which have effects or properties as ingredients for treatment, prevention, and recovery, as well as improve the quality of health in people who use the plants. Some plants in Indonesia are also useful as antihypertensive and anticholesterol (De et al., 2022). Indonesia has many plants that unwittingly grow around the environment where people live, and some people even use these plants as cooking spices without knowing that these plants have many benefits (Herowati & Azizah, 2021).

Hypertension is a condition where blood pressure exceeds normal blood pressure levels, namely ≥ 140/90 mmHg; hypertension is categorized as a silent killer because people with hypertension will not know whether they have hypertension or not; this is because hypertension must be diagnosed using a tool. Patients with hypertension in Indonesia in 2014 amounted to 22,216 cases, and people with hypertension who experienced death in 2014, with a total of 22,216 cases, were 1,122 people. Poor control of hypertension can lead to dangerous complications such as coronary heart disease, stroke, impaired vision and kidney disorders (Kasumayanti & Maharani, 2021).

Hypercholesterolemia is when the amount of cholesterol in the blood exceeds the normal level of cholesterol, which is > 200 mg. Hypercholesterolemia occurs due to increased use of LDL (*low-density lipoprotein*) (Wardani et al., 2020). Atherosclerosis can form and become the forerunner of degenerative diseases. The formation of atherosclerosis is strongly related to increased total cholesterol levels in the blood. The classification of hypercholesterolemia can be divided into two parts. Genetic factors, age, and gender influence primary hypercholesterolemia. Then, secondary hypercholesterolemia is influenced by the patient's diet, exercise and weight (Zulfahmidah et al., 2022). Nowadays, teenagers easily get fast food, which contains high fat and calorie content, so it is feared that if fast food is consumed excessively, it can cause hypercholesterolemia in adolescents (Limanan et al., 2024).

Ginger (*Zingiber officinale*) is a rhizome that is very easy to find in Indonesia; Indonesians have widely recognized ginger as a rhizome plant with properties and benefits in Indonesian medicine. Besides being used in herbal medicine, Indonesians use ginger to make spices. One of the benefits of ginger is that it is an antihypertensive by inhibiting calcium so that there is no contraction in smooth muscle tissue, and muscle relaxation occurs, which will cause a decrease in blood pressure (Nadia, 2020). One of the popular ginger preparations in Indonesia is sarabba. Sarabba is a drink made with ginger as the main ingredient, and it can warmly affect the body when consumed. Sarabba can be made with lemongrass, coconut milk and brown sugar (Hilmi et al., 2023). In addition, ginger is also useful in people with autism because there have been many tests on ginger extracts that show that ginger has immunomodulatory, anti-inflammatory, anti-pain, antioxidant and neurotrophic activities, so ginger is very well used in people with autism to overcome behavioural disorders in people with autism (Siampa & Jayanto, 2020).

Lemongrass is a plant that is easily found in Indonesia; lemongrass has various benefits, such as reducing high blood pressure. Lemongrass contains essential oils and flavonoids that will affect a person's blood pressure when consuming it (Sutik & Pangestuti, 2022). In addition, lemongrass also contains a compound called citronella, which has characteristics such as poison. Thus, lemongrass can also be used as an alternative insect and mosquito repellent without having to spend much money, and it is natural (Duda & Adpriyadi, 2019).

Cinnamon is a plant that is often found in Indonesia; cinnamon has been used empirically by the Indonesian people as herbal medicine. One of the properties of cinnamon is a lowering of cholesterol levels. This is because cinnamon has a compound called cinnamate, which has a mechanism similar to cholesterol drugs, namely by inhibiting the activity of the HMG-CoA reductase enzyme so that as a result of inhibiting the HMG-CoA reductase enzyme, there will be no synthesis of cholesterol in the body (Wardani et al., 2020). In addition, another benefit of cinnamon is the content of cinnamaldehyde compounds, namely as an analgesic (Handayani et al., 2024).

Turmeric is a plant that is often used in Indonesia as a plant for herbal medicine because turmeric is very easy to find in Indonesia. One of the benefits of turmeric is lowering cholesterol levels, so it would be very good if people with hyperlipidemia routinely consume turmeric as an herbal companion to treatment to control cholesterol in the blood (Gustomi & Larasati, 2015). One of the compounds contained in turmeric includes shogaol, which is efficacious as an antioxidant, and there is also curcumin content in turmeric with the same properties as shogaol, namely as an antioxidant (Kumalasari et al., 2021).

Herbal education and counselling programs are carried out for the community to broaden their horizons and increase its understanding. Many people have implemented programs like this. This program is carried out to educate the community of RT. 16 of

Alalak Utara urban village so that the community can broaden their horizons regarding plant empowerment as herbal therapy.

METHODS

This community service was held on Wednesday, July 24, 2024, in Alalak Utara RT 16 Village, North Banjarmasin District, Banjarmasin City, South Kalimantan Province. Students of the pharmacist professional education study program at Sari Mulia University carried out community service. The community service material presented was making herbal medicines from kitchen spices. The method of implementing community service is the ABCD method. The ABCD method is a method that focuses on the potential assets owned in a community (Yuwana, 2022). In this service, the potential assets to be observed are herbal plants used as kitchen spices, such as turmeric, lemongrass, cinnamon, brown sugar, and ginger. The utilization of these herbal plants is expected to have the potential to improve quality empowerment and community welfare. The implementation of community service is divided into three stages and carried out in certain time intervals, namely:

1. This is a gathering activity between the community service team and Posyandu Cadres of North Alalak Village RT 16, North Banjarmasin District, Banjarmasin City, South Kalimantan Province. The team aims to get acquainted with residents and learn about their use of herbal plants.
2. The implementation of counselling or education to the community of 20 people about the benefits of medicinal plants for health by gathering residents.
3. Surveyed by distributing questionnaires to participants regarding residents' level of knowledge about the benefits of herbal plants in medicine.

The educational design used is descriptive quantitative, implemented using surveys and leaflet distribution. The data collection technique used a questionnaire. Data collection techniques go through several stages: pre-test, education on evidence-based herbal plant material, and distribution of herbal medicine products "JAKUSEKA". After that, a post-test will be carried out. Before the education and discussion with the community, the Pre-test stage was carried out first. Then, the post-test stage after education and discussion is carried out; this is done in order to determine the level of understanding of the RT 16 community in Alalak Utara. Educational methods are carried out with leaflets to help respondents understand (Figure 1). The questionnaire assessment is calculated using a score of 1 if the answer is correct and 0 for the wrong answer or not filled in. Important materials include evidence based on the plants to be educated and how to make them.

Figure 1 JAKUSEKA leaflet

RESULTS AND DISCUSSION

Community service activities are carried out in the North Alalak village RT. 16 regarding knowledge of herbal plants as herbal therapy (see Figure 2).

Figure 2 Community service documentation

The community service activities used leaflet media. Leaflet media makes it easier for people to remember what is taught or conveyed through the media, making learning more interesting and innovative (Tangkas et al., 2024). Table 1 presents the characteristics of respondents in Alalak Utara urban village RT. 16 regarding knowledge of herbal plants as herbal therapy.

Table 1 Respondent characteristics

Description	Frequency	Percentage (%)
Gender		
Female	20	100
Male	0	0
Total	20	100
Age		
40-50	7	35
51-60	7	35
61-70	5	25
>70	1	5
Total	20	100
Education Level		
SD	4	20
Junior/Senior High School	6	30
Senior High School	10	50
Total	20	100

The majority of community service activity respondents are female (100%), with the most age groups being 40-50 (35%) and 51-60 (35%). Most of the respondents had a history of high school or high school education (50%). The process carried out in community service activities begins with a *pre-test*, the evaluation results of which can be seen in Table 2.

Table 2 Pre-test

Question	Number Correct	Percentage (%)
Did you know that turmeric and lemongrass rhizomes can lower cholesterol?	7	35%
Do you think turmeric and lemongrass can treat cholesterol?	13	65%
Did you know that ginger rhizome and cinnamon can reduce high blood pressure?	9	45%

Question	Number Correct	Percentage (%)
Do you think ginger and cinnamon rhizomes can treat high blood pressure?	7	35%
Do you know how to make and use herbal medicines correctly?	10	50%
Average Percentage of Correct Answers		46%

Based on Table 2, out of 5 questions, respondents had an average percentage of correct answers of 46%. This states that most respondents do not understand the benefits of using herbal medicines and how to process herbal medicines. The use of traditional medicine in Indonesian society is still low, and there are many mistakes, such as considering traditional medicine as just a concoction (Samudra et al., 2021). Previous research also states that public knowledge about traditional medicine is still relatively low (Yulianto et al., 2023). A post-test was conducted to determine whether knowledge increased. The post-test results are in Table 3.

Table 3 Post-test

Question	Number Correct	Percentage (%)
Did you know that turmeric and lemongrass rhizomes can lower cholesterol?	20	100%
Do you think turmeric and lemongrass can treat cholesterol?	20	100%
Did you know that ginger rhizome and cinnamon can reduce high blood pressure?	19	95%
Do you think ginger and cinnamon rhizomes can treat high blood pressure?	20	100%
Do you know how to make and use herbal medicines correctly?	20	100%
Average Percentage of Correct Answers		99%

Based on Table 3, respondents answered an average of 99% of the questions correctly. This indicates that most respondents understand the benefits of using herbal medicines and how to process them. Service on education on the use of herbal plants as herbal therapy was attended by 20 people in Alalak Utara village RT. 16 with age > 40 years, which is included in productive age. A person's activeness in following the development of science and a person's activeness in giving and receiving responses is influenced by productive age (Choironi et al., 2019). Implementing Herbal Plant Education to the community in Alalak Utara RT. 16 is very useful with the *leaflet* model, where the average percentage of correct answers increases by 53% after education.

CONCLUSION

Based on the results of this activity, all activities using the ABCD method on the use of herbal plants were conducted for the RT community. 16 Alalak Utara Village, i. It can be concluded that all people who participated in the activity experienced an increase in knowledge of the use of herbal plants after being educated.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS STATEMENT

Conceptualization, SA. And MNAH; methodology, RN; formal analysis, ADO and PA; writing—preparation of the original draf, SR.

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