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Increasing knowledge of medicinal plants usage for the prevention of digestive tract diseases in Tamansari Sub-district, Tasikmalaya City

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ABSTRACT

Medicinal plants have been identified and known based on human observations to have compounds beneficial for preventing and curing diseases, performing certain biological functions, and preventing insect and fungal attacks. In this modern era, few people use medicinal plants to treat illnesses. They prefer to use modern medicines that contain chemicals that can cause other diseases or side effects. Therefore, it is better to take medicines from traditional plants as alternative treatments for diseases. The problem faced by the community in Sukahurip Village, Tamansari District, Tasikmalaya city, was a lack of knowledge about medicinal plants used to prevent digestive tract diseases, including mouth sores, ulcers, diarrhea, constipation, and hemorrhoids, resulting in high rates of diarrheal diseases. The Community Service program aimed to increase knowledge about medicinal plants and create a guidebook on self-medication and medicinal plants, as a reference to prevent and reduce the high number of digestive tract diseases. Based on the research result and data analysis, the participants' knowledge increased by 60% after counseling. The increase in public knowledge about self-medication of digestive tract diseases with synthetic and herbal medicines is expected to improve public health, especially in Tamansari District.

KEYWORDS
Community service;
medicinal plants;
self-medication;
digestive tract;
Tamansari

1. Introduction

Tasikmalaya City has been a separate autonomous region from Tasikmalaya Regency since 2001. It is divided into ten sub-districts. Tamansari District is made up of eight villages, one of which is Sukahurip Village which has the highest rate of digestive tract disease, according to data from the Tasikmalaya City Health Office. Many people continue to suffer from digestive tract diseases such as mouth sores, ulcers, diarrhea, constipation, and hemorrhoids, prompting the Poltekkes Kemenkes Tasikmalaya, one of the universities in Tasikmalaya, to consider holding an activity to reduce the number of these diseases. The high number of diseases in that region is critical for educational institutions to carry out the Tri Dharma of Higher Education, one of which states that universities are required to support the surrounding community through community service activities under the Tri-Darma of higher education. Poltekkes Kemenkes Tasikmalaya wishes to carry out community service in the Tamansari District area. Based on the situation review, the main issue is the high number of digestive tract diseases, such as mouth sores, ulcers, diarrhea, constipation, and hemorrhoids, so it is necessary to increase knowledge of efforts to prevent them, one of which is education about self-medication and medicinal plants for disease prevention [1].

The community service refers to several books and journal articles on medicinal plants as literature reviews, such as Khan's investigation on probiotic potential of lactobacillus agilis antagonistic, antioxidant, anti-inflammatory, and antidiabetic isolated from the rhizosphere of medicinal plants [2]. Akhtar's analysis on Phytochemical and comprehensive evaluation of antimicrobial and antioxidant properties of 61 medicinal plant species [3]. Nigussie's systematic review of Ethiopian medicinal plants used for their anti-inflammatory and wound healing activities was investigated by Recommendation of

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Medicinal Plants as Sources of Natural Products [4]. Boys reviewed on recommendation of medicinal plants as sources of natural products [5].

One of the interesting resources for biopharmaceuticals is Yadav's investigation of the bioprospection of endophytes in medicinal plants in the Thar Desert [6]. Gu studied ethnobotanical medicinal plants from the Dragon Boat Festival herbal market in Qianxinan, southwest of Guizhou, China [7]. Other than medicinal plants, aromatic plants can also be used to prevent and treat diseases. Chaachouay studied ethnobotany and ethnopharmacology of medicinal and aromatic plants for metabolic disease treatment in the Moroccan Rif [8]. Lediga investigated the biosynthesis and characterization of antimicrobial silver nanoparticles derived from selected fever-reducing medicinal plants in South Africa [9]. There are upcoming threats to plants with medicinal as written by Ray in his research, including the analysis of alternatives for their unavailability [10].

Many Plant species have been analyzed and used for treatment and therapy [11]–[15]. The followings are some researches written about it: An analysis of species richness and traditional therapeutic uses of ethnomedicinal plants in West Bengal, India by Vineeta [16], Medicinal plants Aurora, Zamboanga del Sur, Traditional knowledge and usage among healers and locals by Pucot [17]. Adenium obesum, a potential endemic medicinal plant in Oman by Hossain [18], Ethnodermatological use of medicinal plants in India by Anand [19], the potential of South African medicinal plants against microbial biofilms and quorum sensing of foodborne pathogens by Erhabor [20], medicinal plant resources in the Palas Valley of the Western Himalayas, Indus Kohistan by Islam [21].

Adamu reviews plant-based bioactive nanofiber wound dressings [22]. As with other plants, medicinal plants are affected by the environment, as written by Zhang [23]. in his research on the environmental impact on the quality variability of Gentiana rigescens, a medicinal plant in southwest China. Kalyniukova investigated the application of deep eutectic solvents for separating and determining bioactive compounds in medicinal plant stem cells in natural products and medicinal plant drug discovery [24]. Nembo wrote an overview of new screening approaches [25]. Evaluation of the potential of selected bioactive molecules from Indian medicinal plants with MPro SARS-CoV-2 through in silico analysis was investigated by Halder [26]. Every country has its medicinal plant depending on the seasons and geographical land it has. Bouyahya researched anti-inflammatory and analgesic properties of Moroccan medicinal plants: Phytochemistry, in vitro and in vivo investigations, mechanism insight, evidence, and clinical perspective [27]. Oladele wrote a systematic review of the COVID-19 pandemic, emphasizing the healing potential of Nigerian-based medicinal plants [28]. The excessive use of medicinal plants affects their existence. Hilonga , in his research, investigated the trade-in wild-harvested medicinal plant species in local Tanzanian markets and their implications for conservation [29]. Other research on medicinal plants is herbal genomics as a tool to dissect new metabolic pathways of unexplored medicinal plants and drug discovery by Chakraborty [30] and integrating endemic medicinal plants into global value chains, challenges and opportunities of ecological degradation by Volenzo [31].

The community service activity goal is to help partners solve problems by using an integrated approach to reduce the number of digestive tract diseases such as mouth sores, ulcers, diarrhea, constipation, and hemorrhoids. The contribution of the community service program is expected to increase knowledge of the use of medicinal plants for the prevention of digestive tract diseases by providing a treatment guidebook as a resource.

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2. Method

The method used by the community service to implement the program was by transferring knowledge and training from a team of lecturers from the Department of Pharmacy, Poltekkes, Ministry of Health, Tasikmalaya, assisted by students and related parties, to residents in Sukahurip Village, Tamansari District, and Tasikmalaya City. The stages of implementing the PKM activity program were first compiling a pocketbook. The book, entitled "Self-Medication of Gastrointestinal Diseases with Synthetic and Herbal Medicines", has been compiled and published with an ISBN of 978-623-7448-12-9. It was distributed during the Community Service implementation. Second, producing educational videos as part of a community service partner's training; and third, training and mentoring. Offline training was held at the Sukahurip Village Head Office. The evaluation was carried out during training. Online assistance was provided for those who needed further discussion and explanation.

3. Results and Discussion

Community service activities have been carried out in conjunction with training programs to increase public knowledge to achieve increased welfare in the health sector, with the aim of the community being able to prevent digestive tract diseases and thus reduce the high prevalence of diseases in Sukahurip Village, Tamansari District, Tasikmalaya City. The four activities, as shown in figure 1(a)-1(d), are opening activities, including a speech by the team members and community representatives, watching a video about health issues, discussion and explanation related to the topic of health, disease, and medicinal plants, and closing activity.

a. Creating a guidebook

In the first stage, an ISBN pocketbook was created and distributed to sub-district and village representatives and 15 integrated service posts (POSYANDU) cadres. Posyandu is a form of community-based health effort that is managed and organized from, by, for, and with the community in carrying out health development to empower the community and provide convenience to the community in obtaining basic social health services to accelerate the reduction of maternal and infant mortality rates. At this stage, the community was expected to have self-medication references and medicinal plants to prevent digestive tract diseases such as mouth sores, ulcers, diarrhea, constipation, and hemorrhoids.

b. Knowledge Transfer

The second stage was the material delivery of the community knowledge improvement program through learning videos to the community. At this stage, the community could understand the importance, knowledge, and attitudes about preventing digestive tract diseases, including mouth sores, ulcers, diarrhea, constipation, and hemorrhoids, with self-medication and medicinal plants. The participants were 15 POSYANDU cadres and ten community representatives. Some participants were not present because of the COVID pandemic. Knowledge and attitudes were measured by distributing questions in the form of a questionnaire to assess the increase in the participants' knowledge and attitudes. This effort was expected to result in an objective assessment of public knowledge, both before and after the distribution of booklets, the engagement of explanation and discussion, and the viewing of videos. The result of the assessment of knowledge about preventing digestive tract diseases through self-medication and medicinal plants was then presented to local policymakers.

Table 1. Differences in Cadre Knowledge Levels Before and After Extension

Knowledge level	*Pre-test*		*Post-tes*	
	f	%	f	%
Good	2	13.33	6	40.00
Enough	4	26.67	7	46.67
Not enough	9	60.00	2	13.33
Total	15	100	15	100

Based on Table 1, it is known that cadres who have good knowledge at the time of the pre-test are 2 people (13.33%) after receiving the counseling material there are respondents who have good knowledge on the post-test to 6 people (40%) of all respondents.

Table 2. Knowledge Change

Knowledge Change	Amount	Percentage
Decrease	1	6.67
Permanent	1	6.67
Increase	13	86.67
Total	15	100 %

Table 1 presents that participants who have good knowledge of the pre-test are two people (13.33%), and respondents who have good knowledge of the post-test six people (40%) of all respondents after receiving the counseling material. According to Table 2, 13 respondents (86%) have increased their knowledge. Based on the average difference between the pre-test and post-test results, the increase in knowledge was 60%. Knowledge-based behavior can be formed in several ways, one of which is understanding through cognitive learning. The score of the participant's knowledge of related topics during the pre-test was 5.54, but after counseling, the average score increased to 7.32. It indicates an increase in participants' knowledge before and after counseling meaning that the education and extension intervention was effective. Intervention on behavioral and knowledge factors can take two forms: education (counseling) or coercion (pressure). The most appropriate approach to solving problems, including economic problems, is through education (counseling). Counseling is expected to change knowledge, resulting in a change in behavior that will assist cadres in improving the family economy.

(a) (b)

(c) (d)

Fig. 1. Photos of the implementation of activities (a) opening, (b) screening of extension videos (c) pre/posttest atmosphere (d) closing.

4. Conclusion

According to the research finding and data analysis, the participants' knowledge increased by 60% after counseling. The increased public awareness of self-medication of digestive tract diseases with synthetic and herbal medicines is expected to improve community health, particularly in Tamansari District.

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Author Contribution

The method used by the community service to implement the program was by transferring knowledge and training from a team of lecturers from the Department of Pharmacy, Poltekkes, Ministry of Health, Tasikmalaya, assisted by students and related parties, to residents in Sukahurip Village, Tamansari District, and Tasikmalaya City.

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Conflict of Interest

The authors declare no conflict of interest.

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