Health Innovation In Kemranggon Hamlet, Tanjung Kulon Village, Kajen District, Pekalongan: Boiled Bay Leaves

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Abstract:

In Indonesia, the prevalence of hypercholesterolemia continues to increase, where at the age of 25 - 34 years the prevalence of this disease is 9.30%, and for those aged more than 55 years to those aged less than 65 years 15.50%. To overcome the problem of hypercholesterolemia, there are various types of antihypercholesterolemic synthetic drugs, but sometimes these drugs have certain side effects. Therefore other alternatives that come from nature are needed. Bay leaves contain flavonoid compounds. This compound can lower cholesterol levels. Bay leaves boiled and brewed in the morning and evening have been proven to reduce cholesterol levels. From this background, providing community service regarding bay leaf drinks is necessary to help lower cholesterol levels. The bay leaf drink preparation was chosen because of its ease and acceptability which is easily applied by the public. The target of this service is Kemranggon Hamlet, Tanjung Kulon Village, Kajen District, Pekalongan. The service method used is participatory action research (PAR). This community service increases public understanding regarding making boiled bay leaf to help lower cholesterol. This can be concluded by increasing pretest and posttest scores.

Keywords: Health, Cholesterol, Natural, Bay Leaf, Alternative

Introduction

Health is a basic human need to be able to live a productive life (Marampa, Nurhayani, and Marzuki 2022). As civilization develops, there are changes in people's lifestyles in various regions, especially related to the number of various diseases, especially due to abnormal cholesterol levels in the blood. This occurs as a result of uncontrolled intake of foods containing high fat so that more people experience hypercholesterolemia (Alfitha et al. 2023). Hypercholesterolemia is a condition that can increase the risk of coronary heart disease, stroke, high blood pressure, obesity and other health problems (Listiyana, Mardiana, and Prameswari 2013). In Indonesia, the prevalence of hypercholesterolemia continues to increase, where at the age of 25 - 34 years the prevalence of this disease is 9.30%, and for those aged more than 55 years to less than 65 years 15.50% (Nurul Agustiyanti, Fatimah Pradigdo, and Aruben Rony 2017).

To overcome the problem of hypercholesterolemia, there are various types of antihypercholesterolemic synthetic drugs, but sometimes these drugs have certain side effects. Research of Mahwal, Untari, and Nurmainah (2022) shows that statin (antihypercholesterolemic synthetic drugs) can cause myalgia. Myalgia is a mild form of statin-induced muscle toxicity that is clinically apparent. The results of the study showed that the most cases of myalgia were found in respondents aged 36-45 years (26.08%), and the least incidence occurred in patients > 65 years

(8.69%). The results of the gender distribution data show that women have a prevalence of 56.52% and men have a prevalence of 43.47%. The group of statins used by research respondents was simvastatin with a percentage of 58.69%, while respondents who used atorvastatin had a percentage of 41.30%. The severity of myalgia experienced by respondents was mild with a proportion of 43 people, to moderate with a proportion of 3 people. Based on this data, there is a need for other alternatives that can help lower cholesterol. Moreover, recently people are more interested in using medicinal ingredients derived from natural ingredients with the assumption that herbal medicines can minimize side effects. One natural ingredient that has cholesterol-lowering activity is bay leaves (Afrilliani, Supriyanta, and Rahayu 2014).

Bay (*Eugenia polyantha* Wight) is a plant that is spread throughout Indonesia. Bay leaves are often taken and used as a complementary ingredient in kitchen spices. As a medicinal plant, bay leaves are used to treat high cholesterol, diabetes, high blood pressure (hypertension), stomach ulcers, diarrhoea and weight loss. Bay leaves contain flavonoids (Afrilliani et al. 2014). This compound can reduce cholesterol levels by increasing the activity of lipoprotein lipase (LPL) so that the catabolism of triglyceride-rich lipoproteins such as VLDL (Very Low-Density Lipoprotein) and IDL (Intermediate Density Lipoprotein) increases. HDL (High-Density Lipoprotein) cholesterol levels increase indirectly due to decreased VLDL triglyceride levels or due to increased production of apo A-1 and apo A-II (proteins in VLDL/LDL and HDL respectively). This Apo functions as a ligand (label/label) for binding to the LDL receptor. The effect of reducing LDL cholesterol is thought to be related to the increased reduction of VLDL and IDL in the liver so that LDL production decreases. The flavonoids in katuk leaves are also able to prevent oxidative stress which can cause LDL (Low Density Lipoprotein) cholesterol to be oxidized (Lanipi, Hardia, and Sarifuddin 2021).

In a previous publication, one of the regional general hospitals in Pekalongan showed that there was a trend in fat consumption patterns with hypercholesterolemia. In this publication, it is recommended that community service be carried out in the Pekalongan district to control hypercholesterolemia (Bintanah and Muryanti 2010). The targets of this community service are people who live in Kemranggon Hamlet, Tanjung Kulon Village, Kajen District, Pekalongan. The results of field observations showed that many elderly people in this area had a history of hypercholesterolemia. For these reasons, the solution that can be taken is to provide community service regarding the innovation and development of bay leaf drinks to help lower cholesterol levels. It is hoped that this community service can improve the level of public health in Kemranggon Hamlet.

Method

Community service is carried out in Kemranggon Hamlet, Tanjung Kulon Village, Kajen District, Pekalongan. The target of this community service is Kemranggon PKK women. The method of implementing community service uses a participatory action research (PAR) approach with observation/evaluation, reflection, action plans, and actions (Qomar et al. 2022). To facilitate the implementation of community service, the PAR method was modified into several stages. As shown in Figure 1. These modifications refer to the publication Walid et al. (2023) and Endriyatno, Rochmawati, et al. (2023) where service begins with a survey of service land to gather information on partner problems, problem-solving and solutions. After that, it was continued with service approval by LPPM Unikal and partners. Preparation for implementing the service begins with a survey of the location of the service location, permits and trials. The implementation of the

service begins with a preset, presentation, discussion and posttest. Service evaluation takes the form of a report presented to LPPM Unikal.
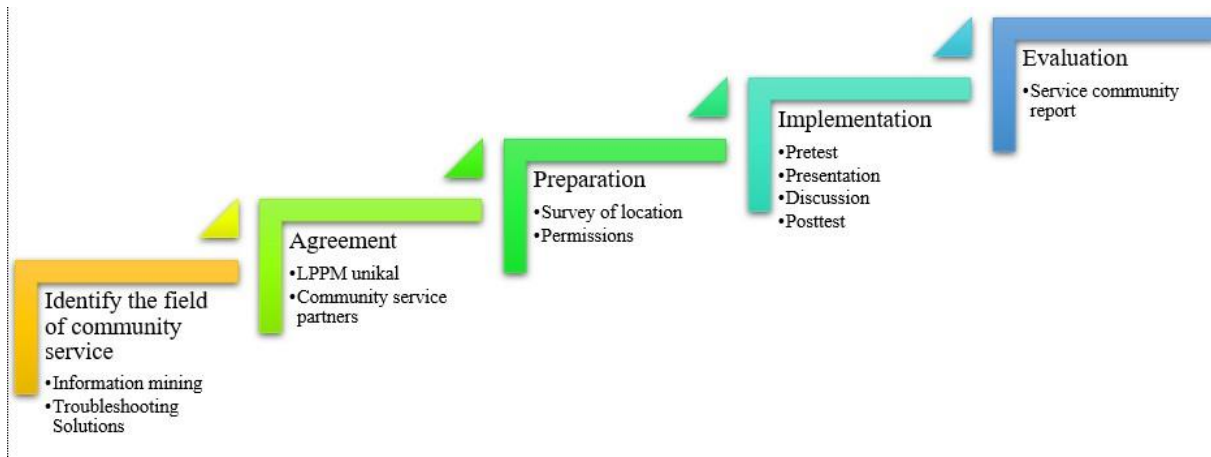

Figure 1. Method of community service

Results and discussions

Community service was carried out at Kemranggon Hamlet on Saturday, 6 July 2024. Community service starts at 15.30 to 17.00. The service community team consists of 2 lecturers and 2 students from Pekalongan University. The theme of community service is boiled bay leaves to help lower cholesterol. The service was attended by 20 participants. Before the service begins, participants are given a brochure containing important points regarding this service. It is hoped that when participants complete the service, the brochure can be used as a reminder and applied at home. The dedication brochure is shown in Figure 2.

Figure 2. Community service brochure

The service is divided into 4 parts, namely pretest, presentation, discussion and posttest. The pre-test and post-test were carried out as an evaluation of the level of understanding of service participants before and after being given the knowledge (Endriyatno, Dimas, et al. 2023). An overview of the course of community service is shown in Figure 3.

Figure 3. Community service

After the pretest, the team delivered the presentation. The material presented is in the form of an explanation of important points that must be understood by the public, such as the meaning of cholesterol, normal cholesterol values, characteristics of high cholesterol, causes of high cholesterol, prevention of high cholesterol, bay leaves to help lower cholesterol, making boiled bay leaf, attention in consumption, and non-pharmacological therapies that can be carried out. A PowerPoint illustration for delivering the material is shown in Figure 4.
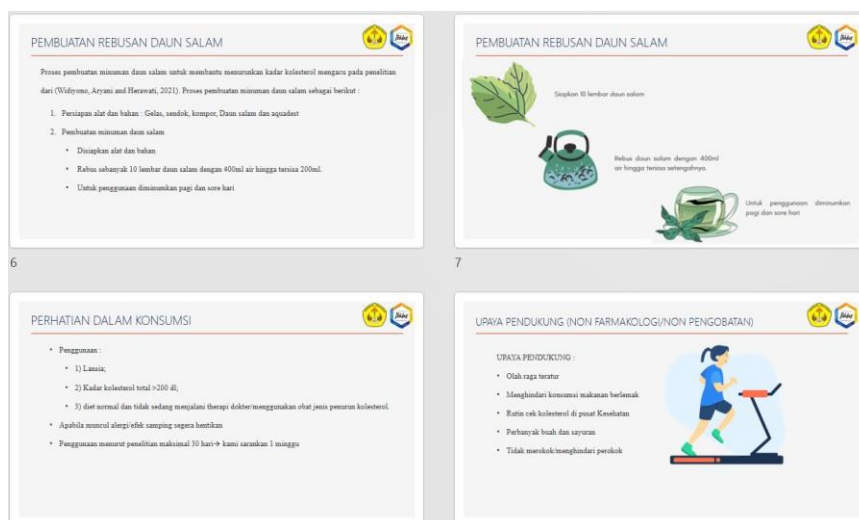

Figure 4. Illustration of the knowledge conveyed

In this community service, the most important thing is to convey how to prepare boiled bay leaves to help lower cholesterol. The process of making boiled bay leaf to help lower cholesterol levels refers to research from (Widiyono, Aryani, and Herawati 2021). The process of making bay leaf drinks requires tools and materials in the form of glasses, spoons, stoves, bay leaves and water. Meanwhile, the steps are to boil 10 bay leaves with 400ml of water until 200ml remains. For use, give 200ml in the morning and 200ml in the afternoon.

After completing the presentation, it was continued with a discussion session. In this session, feedback is carried out between the service team and the participants. In this session the public looked very enthusiastic, it can be seen in Figure 5. In the discussion session, there were 4 questions from participants as listed in Table 1.

Figure 5. Community service discussion session

No.	Question	Answer
1.	Bay leaves can help lower cholesterol by boiling them. Is it permissible to drink 1 glass of boiled bay leaves 3 times?	According to research (Widiyono et al. 2021), Bay leaf decoction can be consumed 200 ml (1 glass) in the morning and 200 ml (1 glass) in the afternoon. The preparation must be fresh so that the therapeutic effect can be maximized.
2.	I once made a drink from ginger and lemongrass in the morning. After that I drank half of it and had no problems. However, when I drank the rest during the day I felt dizzy. Why did it happen?	The dizziness could be caused by several things, such as the drink preparation being damaged by bacteria, fungus or sunlight.
3.	My knees feel stiff and difficult to bend, is this considered hypercholesterolemia?	In my opinion, it is still not possible to determine hypercholesterolemia. These characteristics need to be checked again, such as checking via cholesterol strips.
4.	I have consumed drinks that come from nature, such as boiled moringa leaves, turmeric, ginger and lemongrass. But after that my head was dizzy. Why did it happen?	In my opinion, it could be that you consume too much. In each ingredient there are compounds, if the levels of the compounds we consume are too high it will cause side effects. For example, there is compound "x" in moringa, but it is also found in turmeric, ginger and lemongrass. If the

		concentration of this compound is high, maybe it could cause side effects such as dizziness.

Community service evaluation is carried out by comparing the results of the pretest and posttest that have been carried out on community service participants. The aim of the evaluation is to assess the level of community understanding before and after being given the material. The pretest and posttest questions are the same 5 questions. The question points given in the questions represent important points in this service. The results of the service evaluation are shown in Figure 6.
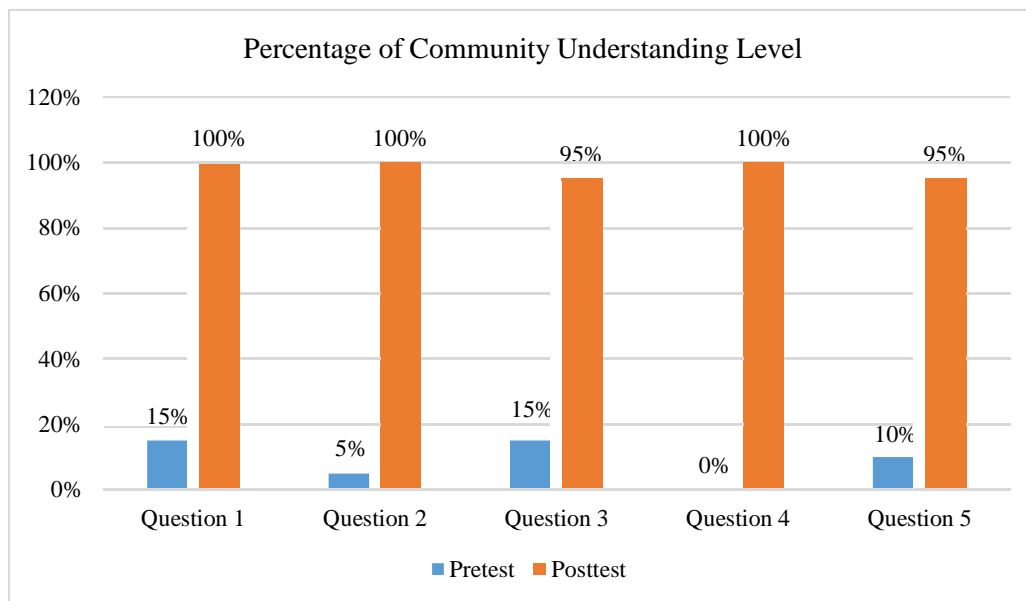

Figure 6. Percentage of Community Understanding Level

Information :
Question 1: Do you know the dangers of cholesterol?
Question 2: Do you know of alternative natural ingredients to lower cholesterol?
Question 3: Do you know the benefits of bay leaves for health?
Question 4: Do you know how to process bay leaves to help lower cholesterol?
Question 5: Do you know any efforts to support cholesterol-lowering therapy?

From the results of this analysis, in general, there was an increase in public understanding after this service was carried out. This can be seen as an increase in the percentage of pretest and posttest scores. Of the 5 questions, there was an increase, with the lowest score being 95% in question 3 and 5. At this point, the percentage was not 100% due to several possibilities, namely participants being late for the event, participants' ability to understand or other influences. However, if you average the 5 questions, the average post-test score is above 90%. Apart from that, the service team has made efforts to provide service brochures so that when the service is finished, participants can reopen the material they have been given. From these results, it can be said that this service was successful with an average increase in post-test scores above 90%.

Conclusion

This community service concludes that there has been an increase in public understanding regarding making boiled bay leaves to help lower cholesterol. This is proven by the increasing pretest and posttest scores.

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