

Counseling Prevention and Intervention Yogurt of Dragon Juice for Diabetes Mellitus

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Abstract

Background: Integrated Development Post (Posbindu) Neighbourhood 10 and 13 in 2023 the coverage of the elderly without diabetes mellitus is 87%, while the expected target of pregnant women who do not have diabetes mellitus is 90%. In the field, it shows the elderly with diabetes mellitus as much as 13%. One solution to overcome anemia in mothers by non-pharmacological means with the innovation of dragon fruit juice and yogurt.

Objective: The purpose of community service is to educate the elderly about the importance of paying attention to blood sugar levels.

Methods: community service followed by 10 elderly people, for experiments (getting dragon fruit juice and yogurt innovations). As an indicator to measure the success of giving dragon fruit juice and yogurt innovations to prevent diabetes mellitus in the elderly.

Results: The implementation of community service activities begins with preparing educational materials in the form of power point materials and demonstrations of making innovations. After being given educational materials, tell pregnant women to make innovations at home so that they can consume them every day. The next 7 days will be observed every day by the implementation team of this community service activity.

Conclusion: The innovations provided in the form of dragon fruit juice and yogurt are useful for reducing diabetes mellitus in the elderly.

Keywords: Diabetes mellitus, Dragon fruit, Yoghurt

Introduction

Indonesia is a country with an Aging Population structure, where the projected proportion of the elderly is currently 27.08 million people or 9.99%.¹ The elderly (elderly) is someone with criteria for reaching the age of 60 years and over and experiencing an aging process that lasts throughout life, not only starting from a certain time but starting from the beginning of life. At this time the body will change function and decrease endurance. Old age is not a disease, but a natural process in the human life cycle.²

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According to WHO (1999), the elderly are divided into several criteria, namely: old age (elderly) between the ages of 60-74 years, old age 75-90 years, and very old age is the age of > 90 years. Meanwhile, according to the Ministry of Health of the Republic of Indonesia (2005), it is explained that Presenile old age is between the ages of 45-59 years, the elderly are aged 60 years and over and the elderly are at risk of age 70 years and over or the age of 60 years and over with health problems.

The number of people with Diabetes Mellitus globally was increasing every year, the causes include an increase in population, age, obesity, and lack of physical activity. An estimated 578.4 million people with diabetes by 2030 compared to 463 million in 2019 and by 2045 the number will increase to 700.2 million. Diabetes cases globally have nearly doubled. This indicates an increase in risk factors for excess weight or obesity. In the last 10 years, the prevalence of DM has increased dramatically, especially in low- and middle-income countries, compared to high-income countries. In 2015 there were 415 million people with diabetes mellitus in the world and Indonesia ranked 7th with the number of people with diabetes mellitus as many as 10 million people.³

One alternative that can be done by DM sufferers is to control blood sugar and cholesterol levels in the blood by eating fruits that contain tocotrienols and high vitamins, one of which is red dragon fruit. Red Dragon Fruit (*Hylocereus polyrhizus*) is a functional food that is good for health. Red dragon fruit has a high tocotrienol content as an inhibitor of HMG-CoA reductase. Tocotrienols can inhibit the process of cholesterol biosynthesis in the liver. Tocotrienols are essential nutrients of vitamin E that can inhibit HMG-CoA reductase which controls the cholesterol biosynthesis pathway in the liver that inhibits the formation of mevalonate so that cholesterol production will decrease. High fiber content will inhibit the absorption of bile acids in the intestine, as compensation the liver will synthesize more bile acids that need cholesterol, so to get a sufficient amount of cholesterol, the liver will multiply receptors to capture cholesterol from the blood so that cholesterol levels in the blood are reduced.⁴ According to the results of previous studies, eating dragon fruit can control blood sugar levels and lower cholesterol in the blood.

Method

The location of community service was in Neighbourhood 10 and 13 Hamlet 06

Sub-District Cipulir, District Kebayoran Lama, South Jakarta. The time needed for community service carried out for 4 weeks. The tools used educational materials in the form of power points, leaflets, and making Nagumi juice. The way community service worked by collecting data, determining the priority of problems, preparing educational materials, and demonstrations. Then we conducted counseling directly to elderly groups with diabetes mellitus.

Results

1. Planning Phase

The planning phase begins with proposing a proposal. Next, the preparation of an activity permit.

2. Implementation Phase

The implementation of community service activities begins with preparing educational materials in the form of powerpoint materials and demonstrations of making innovations. After being given educational materials, tell pregnant women to make innovations at home so that they can consume them every day. The next 7 days will be observed every day by the implementation team of this community service activity.



Figure 1. Counseling Activities

Discussion

Before starting the activity, the community service implementation team made an initial visit to the location of the activity site. The implementation of community service activities begins with preparing educational materials in the form of PowerPoint materials and demonstrations of making innovations. After being given educational materials, tell pregnant women to make innovations at home so that they can consume them every day. The next 7 days will be observed every day by the implementation team of this community service activity.

After the implementation phase is complete, an evaluation is carried out to assess how much impact the results of the implementation of community service are. Evaluation is done by discussion or question and answer. Based on the results of the community service counseling, 14 participants followed until the end of the activity. This activity is carried out together with the team. The participants were very active during the activity with a question and answer session. The participants were willing to accept innovations in the form of dragon fruit juice and Yogurt. The evaluation was carried out using interviews with pregnant women to determine the effectiveness before and after the administration of dragon fruit juice and yogurt. Observations were made to assess the quantity of dragon fruit juice and yogurt for diabetes mellitus. This community service activity has been carried out well and runs smoothly under the activity plan that has been prepared.

From 14 experimental respondents before the innovation in the form of dragon fruit juice obtained results as many as 6 pregnant women After the innovation by the team in the form of dragon fruit juice and yogurt, the number of pregnant women with diabetes decreased to 2 elderly. Dragon fruit juice and yogurt are given in a ratio of 1 dragon fruit, 100 cc of mineral water, and 1 bottle of yogurt.

Currently, medical treatment that can be done for diabetes mellitus therapy uses modern drugs and injections. But other therapies that can be done are using natural remedies by utilizing traditional medicinal plants. One of the traditional medicinal plants commonly used by the community is red dragon fruit.⁵ Red dragon fruit (*Hylocereus polyrhizus*) is believed to balance blood glucose levels.

Red dragon fruit (*Hylocereus polyrhizus*) is one of the tropical fruits of the cactus family, Cactaceae which is currently widely cultivated in Asian countries such as Taiwan, Vietnam, the Philippines, Malaysia, and Indonesia. Dragon fruit is rich in antioxidants and contains many substances such as calcium, betacarotene, vitamin B1, vitamin B2, vitamin C, phosphorus, and flavonoids.⁶

Red dragon fruit is proven to have various health benefits. A study shows that giving red dragon fruit extract is effective in increasing oxidative defenses and protecting the aorta from damage due to hyperglycemia in diabetics. Dragon fruit also contains vitamin C which is used by the body as an anti-oxidant.⁷

In making yogurt, sugar is fermented into lactic acid and CO₂ gas, so that sugar levels become low while other nutrient levels do not change, Probiotics contained in yogurt can help lower blood sugar.

The results of this community service are supported by the results of giving dragon fruit juice and yogurt given to the elderly stating that dragon fruit juice and yogurt are effective in reducing diabetes mellitus. In addition, dietary fiber has health benefits, namely controlling weight or obesity, overcoming diabetes, preventing gastrointestinal disorders, colon cancer (colon), and reducing blood cholesterol levels. Dragon fruit is believed to have the effect of lowering blood glucose levels because dragon fruit contains antioxidant compounds in the form of flavonoids that are protective against Beta cell damage as insulin producers and can increase insulin sensitivity.⁸

Conclusion

Based on the results of community service activities that have been carried out, it can be concluded that the innovations provided in the form of dragon fruit juice and yogurt are useful for reducing diabetes mellitus in the elderly.

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Conflict of Interest

There is no conflict of interest among authors.

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