

**EMPOWERMENT OF PREGNANT WOMEN IN THE USE OF *LEMONGRASS PLANTS*
AS AN EFFORT TO PREVENT HYPERTENSION IN PREGNANCY IN THE WORKING
AREA OF THE AL-AQSA MOSQUE POSYANDU
SENTANI IN 2023**

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ABSTRACT

Hypertension in pregnancy (HDK) is one of the health problems, especially in the world of obstetrics which is still a top priority to be resolved immediately because it is a direct cause of death in mothers. The purpose of this service is to increase the knowledge of pregnant women in preventing hypertension in pregnancy. The methods used are conducting site surveys, identifying problems, planning activities, managing permits, implementing and evaluating activities. Promotional media given to respondents are banners and leaflets. The results of service activities showed an increase in adolescent knowledge after being given counseling materials related to HIV/AIDS. The conclusion of this community service activity is in the form of efforts to prevent hypertension in pregnancy so that later it can be implemented independently by pregnant women in their respective places.

Keywords: Knowledge, Pregnant Women, HDK, Lemongrass Plant

1. INTRODUCTION

Hypertension in pregnancy (HDK) is one of the health problems, especially in the world of obstetrics which is still a top priority to be resolved immediately because it is a direct cause of death in mothers (Wulandari et al., 2020). Some data states that the incidence of HDK is still very high both on a world scale and on a national scale in Indonesia. According to the World Health Organization (WHO), in 2019 about 14% of 289,000 maternal deaths were caused by gestational hypertension. According to Basic Health Research (Riskesdas) in 2013, the prevalence of hypertension in pregnancy in Indonesia was 25.8%. The sudden appearance of hypertension during pregnancy requires preventive efforts so that it does not occur. One of the preventive efforts that can be done to avoid the occurrence of HDK is to apply the principle of body relaxation (Fitriadi et al., 2019). Various forms of relaxation that can be done, one of which is by doing warm water foot soak therapy using natural ingredients that are easily obtained by the community as local wisdom. One plant that can be used and easily obtained in various circles of society is lemongrass. The oil content contained in the lemongrass

plant is used as a mixture of foot soak therapy (Richard et al., 2014). Foot soak therapy is one of the non-pharmacological therapies part of water therapy (Hydrotherapy) which according to some studies is proven to be able to lower blood pressure (Elvan-Tas, Ayten Franx & Delprat, Constance Bruinse, Hein W. Koomans, 2016). The results of previous research by Wulandari et al, and Nopriani et al concluded that there was a relationship between lowering blood pressure and giving foot soak therapy (Liszayanti & Fortune, 2019), (Widowati et al., 2014), (Wulandari et al., 2020). Linalool and geraniol compounds which are the main ingredients of lemongrass oil have activities as analgesics, soothing and balancing, stimulants, vasodilator and hypotensive effects (Wulandari et al., 2020). The relaxing effect can help lower blood pressure through the olfactory nerve to be sent to the limbic system. The stimulants sent to the limbic system will stimulate the hypothalamus which will then stimulate the vagus nerve. The vagus nerve will convey parasympathetic impulses to the heart and there is a decrease in the frequency and contractility of the heart (Widowati et al., 2014).

Although several studies have proven the effectiveness of foot soak therapy using lemongrass plants in lowering blood pressure, not all levels of society, especially pregnant women, know this. Therefore, it is very important to make promotional efforts to increase the knowledge of pregnant women about foot soak therapy using lemongrass plant decoction in overcoming and preventing the occurrence of HDK while empowering the community in utilizing local plants so that conditions that lead to emergencies can be avoided so as to reduce maternal morbidity and mortality rates (Triyoso et al., 2023).

With the provision of understanding / education, it is hoped that pregnant women will be able to carry out efforts to prevent HDK independently. Based on the background of these problems, it is necessary to have a Community Service activity to increase the knowledge of pregnant women in the use of lemongrass plants as an effort to prevent hypertension in pregnancy.

2. PROBLEM AND QUESTION FORMULATION

Although several studies have proven the effectiveness of foot soak therapy using lemongrass plants in lowering blood pressure, not all levels of society, especially pregnant women, know this. Therefore, it is very important to make promotional efforts to increase the knowledge of pregnant women about foot soak therapy using lemongrass plant decoction in overcoming and preventing the occurrence of HDK while empowering the community in utilizing local plants so that conditions that lead to emergencies can be avoided so as to reduce maternal morbidity and mortality. From these data, the formulation of the question is "How is the knowledge of pregnant women about efforts to prevent hypertension in pregnancy with foot soak therapy with lemongrass boiled water?"

3. LITERATURE REVIEW

Knowledge is the result of human perception or the result of a person knowing an object through the senses he has (eyes, nose, ears, etc.). At the time of discovery to create knowledge is greatly influenced by the intensity

of the perceived attention of the subject. Most human knowledge is acquired through hearing (ears) and senses (eyes). One's knowledge of objects of varying magnitudes or degrees (Usonwu et al., 2021).

Hypertension is a condition where the systolic blood pressure > 140mmHg while the blood diastolic pressure >90mmHg which is carried out repeated examination (Proboosiwi et al., 2023). Hypertension is a condition in which systolic blood pressure is more than 120 mmHg, diastolic blood pressure is more than 80 mmHg. Hypertension can be treated pharmacologically and non-pharmacologically. Pharmacological treatment certainly contains chemicals that can cause side effects, while non-pharmacological can be done with a healthier lifestyle, including natural remedies such as nutritional therapy, aromatherapy, and foot soak therapy. Scientifically, soaking the feet, especially with warm water, has many benefits for the body, especially in facilitating blood circulation. Soaking the feet in warm water can improve circulation, reduce oedema, promote muscle relaxation (Silva & Bárbara, 2022). This foot soak therapy is also able to improve blood circulation by widening blood vessels so that more to the swollen tissue. Soaking feet with Epsom Salt itself can relieve tension in the leg muscles, while soaking the feet with Epsom Salt allows the skin to absorb magnesium content which then helps to overcome various problems. Then lemongrass itself is useful as an anti-inflammatory, relieves pain, and facilitates blood circulation (Tresna A et al., 2023).

Citronella (*cymbopogon nardus*) is a plant that can be found in the yard of the house which is usually used as a medicinal plant. Lemongrass plants contain chemicals in the form of alkaloids, saponins, tannins, flavanoids, antraquinones and essential oils. The content of secondary metabolites in the form of saponins and tannins has mucolytic activity (Clara et al., 2022). The main role of lemongrass in lowering blood pressure is its high potassium content plays a role in maintaining a balanced volume of fluids, electrolytes and acid-base balance in the body. The content of high potassium levels in lemongrass, where potassium is useful as a lowering of blood pressure through a diuretic mechanism by producing excess body urine production. Increased urine production will stimulate the blood circulation system so that it is very impactful in helping stabilize blood pressure to a normal position (Sutik & Pangestuti, 2022).

Efforts that can be made to prevent hypertension in pregnancy are to provide lemongrass water soak therapy by empowering the community so that the delivery of this information can also be distributed to other communities by utilizing plants that are easily obtained by the surrounding community, namely lemongrass.

4. METHOD

The method of implementing activities carried out through the approach is analysis of the condition of the target area, followed by identifying problems, planning interventions and implementing in overcoming planned problems by carrying out activities in the form of providing education about HDK prevention by means of foot soak therapy using lemongrass plant decoction. This activity was carried out in collaboration with the Sentani Health Center as the organizer of the Al-Aqsa

Mosque Posyandu. After the activity is carried out, then evaluate the results of the activity. The media used in this activity used banners and leaflets.

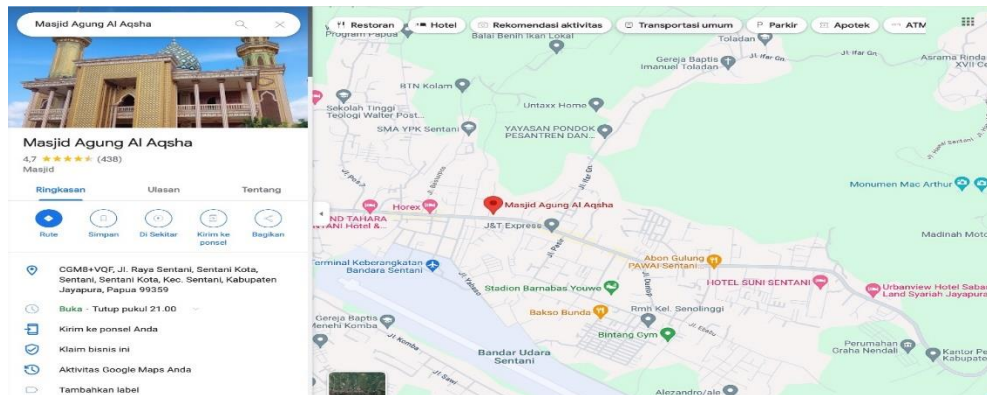


Figure 1. Map of Masjid Al Aqsa Sentani, Jayapura Regency

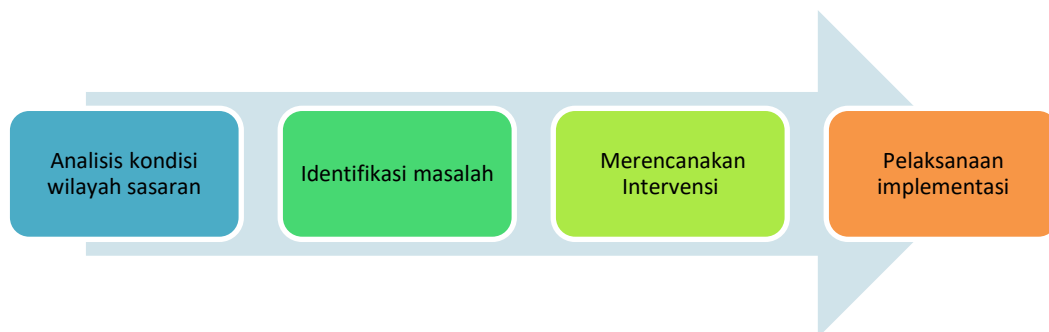


Figure 2. Steps for Implementing PKM Activities

The activities carried out are in the form of:

- a. Collaborating with partners in this case, the Sentani Puskesmas Coordinator Midwife in exploring problems related to HDK in the working area of the Al-Aqsa Sentani Mosque Posyandu.
- b. Directly carry out education to pregnant women about the use of lemongrass plants as an effort to prevent HDK at the Al-Aqsa Sentani Mosque Posyandu.
- c. The following is an explanation of the implementation of each activity:

1) Provision of Health Information

Activities to provide health information to pregnant women about the use of lemongrass plants as an effort to prevent HDK are carried out in an integrated manner with the Monthly Posyandu activities carried out by the Sentani Health Center.

2) Collaborate with partners

The cooperation that will be carried out with other partners is the coordination of the implementation of all activities with the parties involved. Cooperation planning with partners will also be developed not only in limited areas, but will also be coordinated with the Sentani Puskesmas Coordinating Midwife to expand the reach of PKM in other Posyandu which are the working areas of the Sentani Health Center so that knowledge and behavior about the use of lemongrass plants to

prevent HDK can increase and be empirically proven by decreasing HDK incidence data in the Sentani Puskesmas Working Area.



Figure 3. Leaflet on Hypertension in Pregnancy

Table 1. extension activities

Time	Activities
Thursday, July 20, 2023	Counseling on Hypertension in Pregnancy in 1st Pregnant Women
Friday, 28 July 2023	Counseling on Hypertension in Pregnancy in 2nd Pregnant Women
Thursday, 10 August 2023	Providing information to pregnant women about the use of lemongrass plants as an effort to prevent HDK 1
Tuesday, 15 August 2023	Providing information to pregnant women about the use of lemongrass plants as an effort to prevent HDK 2
Friday, 25 August 2023	Activity Evaluation

5. RESULTS AND DISCUSSION

a. Result

In community service activities that have been carried out at the Al-Aqsa Sentani Mosque Posyandu, it was carried out in stages which was attended by 15 pregnant women. The theme of the counseling presented was hypertension education in pregnancy and monitoring knowledge and implementation of foot bathing with lemongrass water decoction as an effort to prevent hypertension. The mothers followed very actively and implemented themselves according to what the extension agent had said.

Pregnant women are willing to do regular examinations and prevent hypertension in pregnancy.



Figure 4. Information Providing Activities and Implementing Foot Soak Therapy in Lemongrass Water Decoction.

b. Discussion

The implementation of community service activities carried out to pregnant women, where researchers monitor the increase in knowledge of pregnant women and the implementation of foot soak therapy in lemongrass water decoction. The result is, after education using leaflets, there is an increase in knowledge of pregnant women about hypertension in pregnancy. Then the implementation of providing information to pregnant women (counseling) runs smoothly also according to the predetermined time. With the intervention in the form of health

information, it can affect the improvement of a person's attitude towards something. The attitude of pregnant women to recognize efforts to prevent hypertension and the use of lemongrass plants is influenced by respondents' knowledge of the same, and there is also a possibility that existing attitudes are formed due to factors of personal experience, mass media and the influence of religious institutions. Education can increase a person's knowledge so that the person can change a negative attitude to a positive attitude (Khofiyah & Islamiah, 2018).

The sudden appearance of hypertension during pregnancy requires preventive efforts so that it does not occur. One of the preventive efforts that can be done to avoid the occurrence of HDK is to apply the principle of body relaxation (Fitriadi et al., 2019). Various forms of relaxation that can be done, one of which is by doing warm water foot soak therapy using natural ingredients that are easily obtained by the community as local wisdom. One plant that can be used and easily obtained in various circles of society is lemongrass. The oil content contained in the lemongrass plant is used as a mixture of foot soak therapy (Richard et al., 2014). Foot soak therapy is one of the non-pharmacological therapies part of water therapy (Hydrotherapy) which according to some studies is proven to be able to lower blood pressure (Elvan-Tas, Ayten Franx & Delprat, Constance Bruinse, Hein W. Koomans, 2016). The results of previous research by Wulandari et al, and Nopriani et al concluded that there was a relationship between lowering blood pressure and giving foot soak therapy (Liszayanti & Fortune, 2019), (Widowati et al., 2014), (Wulandari et al., 2016). Linalool and geraniol compounds which are the main ingredients of lemongrass oil have activities as analgesics, soothing and balancing, stimulants, vasodilator and hypotensive effects (Wulandari et al., 2016). The relaxing effect can help lower blood pressure through the olfactory nerve to be sent to the limbic system. The stimulants sent to the limbic system will stimulate the hypothalamus which will then stimulate the vagus nerve. The vagus nerve will convey parasympathetic impulses to the heart and there is a decrease in the frequency and contractility of the heart (Widowati et al., 2014)

The application of warm water foot soak with salt and lemongrass can be beneficial for elderly people with hypertension, which is able to lower blood pressure. Salt has benefits for maintaining pH balance in the body, maintaining water balance in the body, maintaining osmotic pressure in body fluids, playing a role in nerve sensitivity that functions as a stimulant both in the body itself and from outside the body, as a mineral that is needed by the human body while lemongrass has benefits as an anti-oxidant, anti-inflammatory, can relieve pain symptoms, It can be used as a natural remedy for menstrual cramps, bloating, and lightening body heat, and to lower blood pressure (Aisyah & Nur Imamah, 2023).

Soaking the feet using warm water will stimulate the nerves in the feet to stimulate baroreceptors, where baroreceptors are the most important reflex in determining regulatory control of heart rate and blood pressure. Baroreceptors receive stimulation from stretching or pressure located in the aortic arch and carotid sinuses. As arterial blood pressure increases and arteries stretch, these receptors rapidly send their impulses to the vasomotor center resulting in vasodilation of arterioles, veins and

changes in blood pressure. Arteriole dilatation decreases peripheral resistance and venous dilatation causes blood to build up in the veins thereby reducing venous backflow, and thus decreasing cardiac output. The afferent impulse of a baroreceptor that reaches the heart stimulates parasympathetic nerve activity and inhibits the sympathetic center (cardioaccelerator), causing changes in heart rate and heart contractility (Tresna A et al., 2023).

The success of Health Education depends on the learning component, one of which is learning media. Media that can be used include videos and leaflets because using videos and leaflets has a more impact on health education, namely matching hearing and vision from the target, interesting, messages delivered quickly and easily remembered and can develop the mind and can develop the imagination of adolescents. Video media began to be often used because it was considered more effective in delivering information because it was able to stimulate the senses of hearing and vision so as to obtain maximum results (Susanti, 2022).

6. CONCLUSION AND ADVICE

Community service activities in the form of providing health information about hypertension in pregnancy and the use of lemongrass plants as an effort to prevent and treat that have been carried out found that some pregnant women have increased knowledge. This activity received a very good response from participants and health workers from partners (Puskesmas Sentani) so that it was said to have succeeded in increasing participants' knowledge about hypertension in pregnancy. Advice to health workers to better intervene in health problems by using natural ingredients that are easily obtained by the community as local wisdom.

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