

## THE EFFECTS OF MENOPAUSE AND AGING ON HYPERTENSION AND DEGENERATIVE DISEASES: HYPERTENSION AND GDS COUNSELING AND SCREENING

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### Abstract

Menopause is a natural biological phase in women that is characterized by the cessation of the menstrual cycle due to a decrease in the hormones estrogen and progesterone. A decrease in this hormone has implications for an increased risk of hypertension and degenerative diseases such as diabetes and osteoporosis. This phenomenon is also seen in the elderly in RW 07, Tanah Tinggi Village, Central Jakarta, with a prevalence of hypertension of 48.8% and diabetes mellitus of 16.3%. This community service aims to increase the knowledge and awareness of the elderly about the effects of menopause, the risk of hypertension, degenerative diseases, and provide health screening in the form of blood pressure, cholesterol, and blood sugar checks during (GDS). The activity was held on July 11, 2025 with 82 elderly participants aged 40–72 years. The material was delivered through lectures and interactive discussions by supervisors and students, with PPT and leaflet media. Knowledge evaluation using pre-test and post-test was carried out on 35 participants who completed the questionnaire. The results showed an increase in the average score from 6.1 to 8.5, indicating an increase in understanding of educational materials. It also provides free health screening, allowing for early detection of the risk of degenerative diseases. The results of this service are in line with the literature that states that community-based education is effective in improving health literacy for the elderly. The combination of education and health screening has proven to be the right strategy for preventing complications of degenerative diseases and improving the quality of life of the elderly.

**Keywords:** Menopause, Hypertension, Degenerative Diseases, Elderly, Health Education

### INTRODUCTION

Menopause is a biological phase that occurs naturally in women, generally at the age of 45–55 years, and is characterized by the cessation of the menstrual cycle due to the loss of ovarian function and a significant decrease in the hormones estrogen and progesterone.<sup>(1)</sup> Globally, the World Health Organization estimates that there are about 25 million women entering menopause each year, and more than 40% of them are in developing countries. The

increase in the number of menopausal women goes hand in hand with an increase in life expectancy, so that the prevalence of the elderly continues to increase, including in Indonesia.<sup>(2)</sup>

Based on a report by the Indonesian Ministry of Health, the percentage of Indonesia's elderly increased from 7.6% in 2010 to 10.48% in 2023, making Indonesia one of the countries with a fast-growing aging population. This condition has led to an increase in the need for health services related to degenerative problems that often occur in menopausal women and the elderly. A decrease in estrogen has a major effect on the cardiovascular system, fat metabolism, insulin sensitivity, bone strength, and blood vessel stability.<sup>(3)</sup>

A decrease in estrogen leads to increased vascular resistance, thickening of blood vessel walls, and a decrease in arterial elasticity, leading to hypertension—a degenerative disease most commonly found in postmenopausal women.<sup>(4)</sup> Other studies show that menopausal women have twice the risk of developing hypertension than premenopausal women, especially when accompanied by risk factors such as obesity, consumption of foods high in sugar, habits of lack of physical activity, and family history.<sup>(5)</sup> In addition to hypertension, metabolic changes during menopause also increase the risk of type 2 diabetes mellitus due to decreased insulin sensitivity and body fat redistribution.<sup>(6)</sup>

This phenomenon is also seen in the RW 07 area of Tanah Tinggi Village, Johar Baru District, Central Jakarta. Based on the initial data collection carried out by the team, it is known that there are 63 elderly women aged 50–80 years, with 48.8% of them experiencing hypertension and 16.3% having diabetes mellitus. This figure is relatively high and has the potential to increase the risk of health complications such as stroke, coronary heart disease, and kidney failure if early detection and comprehensive health education are not carried out.<sup>(7)</sup>

Seeing the high prevalence of degenerative diseases in the elderly in the region, promotional and preventive efforts are needed through education about menopausal physiological changes and the risk of hypertension and diabetes, accompanied by health screening in the form of blood pressure, cholesterol, and blood sugar checks (GDS). This community service activity is important to increase knowledge, awareness, and healthy living behavior in elderly women so that they can prevent more serious complications in the future.

## **METHOD**

This community service activity is carried out through several stages starting from the planning process. The planning stage begins with the preparation of proposals, team coordination, determination of implementation times, and the preparation of materials and educational media. Planning began on July 4, 2025 and was followed by technical preparations for implementation. The implementation of the activity is scheduled for July 11, 2025 at 09.00 WIB at the RW 07 Community Interaction Building, Tanah Tinggi Village, with a target of 25 elderly participants aged 50–80 years.

The activity began with an opening and introduction session, guided by students as master of ceremonies. In this session, an opening greeting, ice breaking, and technical briefing of activities were carried out. The person in charge of this session was Virginia Anastasya with the support of the other student team.

The next stage is the delivery of the core material on "The Effects of Menopause and the Elderly with Hypertension and Degenerative Diseases." The speakers consisted of supervisors,

namely Ni Nyoman Sri A.D., M.Keb., and Baharika Suci Dwi Aningsih, S.Keb., Bd., M.Keb. The material was delivered through lecture methods and interactive discussions that included the definition of menopause, physiological changes in the elderly, the concept of degenerative diseases, hypertension, GDS, the importance of health checks, and prevention and a healthy lifestyle. The learning media used is in the form of PPT and leaflets.

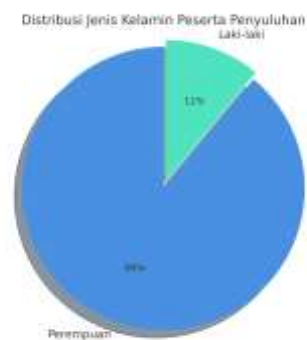
The activity was closed with a closing session, which included the implementation of a post-test to measure the increase in participants' knowledge and the distribution of door prizes as a form of appreciation. The questionnaire was used as an evaluation instrument, with media support in the form of a sound system.

## RESULTS

The total number of participants who attended was 82 people, consisting of 73 elderly women and 9 elderly men. The age distribution of participants was in the range of 40 to 72 years, with fairly balanced variations in each age group.



**Figure 1. Distribution of Participants by Age Range**



**Figure 2. Distribution of Participants by Gender**

The age group of 50–59 years was the most participants (36.6%), followed by the age of 40–49 years (30.5%) and 60–69 years (24.4%), while the age of 70–72 years was the least (8.5%). This distribution shows that counseling reaches all age categories from adults to the elderly, with the majority being in the age range at high risk for hypertension, diabetes, and degenerative diseases, emphasizing the importance of health education and screening.

Knowledge evaluation is carried out through pre-test and post-test. Only 35 participants managed to fill out the questionnaire until it was completed, because some participants had difficulty reading, for example not bringing glasses or limited visual ability. Although the number of respondents was limited, this data provided an indication of an increase in participants' knowledge after the educational intervention.



**Figure 3. Pretest and Submission of Materials**

The results of the evaluation showed a significant increase. The average pre-test score is 6.1, with a high score of 8 and a low score of 5. After counseling, the average score increased to 8.5, with a high score of 9 and a low of 6. This increase reflects a better understanding of hormonal changes due to menopause, the risk of hypertension in the elderly, degenerative diseases such as osteoporosis and diabetes, and prevention and early detection strategies.

These findings are in line with previous research. A study in Parakan Village, Garut, shows that counseling about hypertension in the elderly can increase knowledge related to the symptoms and prevention of hypertension.<sup>(8)</sup> Research in the working area of the Sindar Raya Health Center, Simalungun, found that health education is significantly related to increasing the elderly's knowledge on how to prevent hypertension.<sup>(9)</sup> In addition, education about menopause through educational videos in Blabak Village, Kediri, increased the elderly knowledge category from 25% to 91.7% after the intervention.<sup>(10)</sup> Another study in Palembang also reported that self-management-based health education can improve knowledge, behavior, and lower blood pressure in the postmenopausal elderly.<sup>(11)</sup>

In addition to education, this activity is complemented by health checks, including blood pressure, cholesterol levels, and blood sugar during (GDS). Participants who attend early can choose the type of examination according to the quota (10 cholesterol tests and 25 GDS tests), which are carried out free of charge. This approach provides a dual benefit: increasing health literacy while screening the risk of degenerative diseases.



**Figure 3. Health Check-Up**

Some limitations need to be noted. Only a small percentage of participants completed the questionnaire, so the results of the knowledge evaluation may not be fully representative of all participants. Factors with physical limitations, such as vision and reading ability, affect the participation of the elderly. Therefore, for future activities, alternative methods such as interviews, group discussions, or audiovisual media can be used so that all elderly people can participate.

Although knowledge is improving, long-term evaluations have not been conducted, so it is not yet known whether this increase in health literacy translates into behavioral changes, such as dietary arrangements, routine blood pressure control, or early detection of osteoporosis/diabetes. The literature suggests that educational interventions should be combined with family support and community mentoring to ensure sustained behavior change.<sup>(12)</sup>

Overall, this counseling shows that community-based educational interventions are effective in improving elderly health literacy, especially on the topic of menopause, hypertension, and degenerative diseases. The combination of education and health screening is the right strategy for early detection and prevention of diseases in the elderly.

## CONCLUSION

The results of the pre-test and post-test evaluations followed by 35 participants showed an increase in the average score from 6.1 to 8.5. This improvement indicates a better understanding of the material presented, including hormonal changes in menopause, the risk of hypertension in the elderly, common degenerative diseases such as osteoporosis and diabetes, as well as efforts to prevent and treat these conditions early. Thus, this counseling has proven to be effective in increasing health knowledge and literacy among the elderly, as well as providing an opportunity for early health screening for early detection of the risk of degenerative diseases.

Based on these results, some suggestions can be given for future activities. Educational methods should be developed to be more inclusive for all participants, for example through



live interviews, audio-visual media, or group discussions, so that the elderly with reading limitations can still participate fully. The involvement of families and Posyandu cadres is also very important to strengthen the effect of education, help the elderly implement healthy behaviors, and monitor health conditions on an ongoing basis. In addition, it is recommended to conduct a follow-up evaluation a few months after counseling to assess whether the increased knowledge translates into behavioral changes, such as hypertension management, healthy diet, or physical activity. Regular expansion of health screening services is also recommended so that more elderly people can be reached and the risk of degenerative diseases can be detected early.

With good implementation, this activity makes a positive contribution to improving health literacy for the elderly, as well as becoming a model of community service that can be replicated in other areas to support the prevention of degenerative diseases and improve the quality of life of the elderly.

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