

Early detection of non-communicable diseases in the elderly in RW 06 Notoprajan, Ngampilan, Yogyakarta City

Evi Wahyuntari^{3*}, Niken Tri Mawati¹, Rheina Marthalia Haryuana¹, Aliffia Aulia Rahma², Naila Barida², Helen Threesika², Charlie Fatria Izha Maharani², Vannya Jingga Rahadian³, Siti Fatimah³, Redho Allmahesa¹, and Rivaldo Febrilian Rohaendi⁴

¹ Department of Nutrition, Faculty of Health Sciences, Universitas 'Aisyiyah Yogyakarta, Indonesia

² Department of Nursing, Faculty of Health Sciences, Universitas 'Aisyiyah Yogyakarta, Indonesia

³ Department of Midwifery, Faculty of Health Sciences, Universitas 'Aisyiyah Yogyakarta, Indonesia

⁴ Department of Physiotherapy, Faculty of Health Sciences, Universitas 'Aisyiyah Yogyakarta, Indonesia

*Email: evi.wahyuntari@unisayogya.ac.id

Abstract

Non-communicable diseases (NCDs) such as hypertension, diabetes, and gout are becoming a growing health problem among the elderly in Indonesia. This community service program aims to conduct early detection of NCDs in the elderly in RW 06 Notoprajan, Ngampilan, Yogyakarta City, through free blood pressure, blood sugar, and uric acid checks accompanied by health education. The method used was direct examination of the elderly by measuring blood pressure, random and fasting blood sugar, and uric acid levels. The target group for this activity was 42 elderly people. The examination showed that the majority of the elderly had high uric acid levels (hyperuricemia) of in 16 elderly people, while the majority of blood pressure and blood sugar were still within normal limits. This early detection is expected to increase awareness among the elderly about adopting a healthy lifestyle and preventing NCDs. It is recommended that this program be continued sustainably in collaboration with health cadres and local elderly health posts.

Keywords: blood sugar; early detection; hypertension; gout; non-communicable diseases

1. Introduction

Non-communicable diseases (NCDs) such as blood pressure, blood sugar, and gout are major health problems that are increasing among elderly Indonesians. The prevalence of NCDs in Indonesia has increased significantly. According to 2018 Riskesdas data, the prevalence of diabetes mellitus in Yogyakarta was 4.5%, and hypertension in Yogyakarta was 10.7%. NCDs are often associated with unhealthy modern lifestyles, such as poor diet, lack of physical activity, and stress (Sugiarti et al., 2024).

Non-communicable diseases (NCDs) develop due to modifiable and non-modifiable risk factors (Rohmah et al., 2024). Examples of non-modifiable factors include age, gender, and heredity. Meanwhile, modifiable factors are usually related to habits and lifestyle that can be controlled by the individual or with the help of interventions from the social environment (Joyotakan, 2025). Several common behaviors, such as smoking, drinking alcohol, an unhealthy diet, and a lack of exercise, can trigger metabolic disorders, such as high blood pressure, excess weight, high blood sugar levels, and high cholesterol levels. These disorders then increase the risk of developing non-communicable diseases in a person (Amalia et al., 2025).

Hypertension is a condition of high blood pressure with a value of $\geq 140/90$ mmHg, which is a chronic disease and cannot be cured entirely, but can be controlled. It is called a "silent killer" because it usually does not cause symptoms, so sufferers are often unaware of this condition (Lia Mar'atiningsih et al., 2024). Hypertension can affect both men and women, and if it persists for a long time, it can damage vital organs such as the kidneys, heart, and brain. Low public awareness of the need to regularly check blood pressure results in many cases of hypertension going undetected. Therefore, early detection is critical to get the proper treatment (Wikandari et al., 2025).

Blood glucose is a monosaccharide sugar that is included in the carbohydrate group and acts as the body's main energy source (Mukaromah et al., 2020). According to the 2022 Standards of Medical Care in Diabetes (Health, 2022). A diagnosis of diabetes mellitus can be confirmed if the HbA1c value exceeds 6.5%, the fasting blood sugar (FBS) level is more than 126 mg/dL, or the random blood sugar (FBS) level exceeds 200 mg/dL (Nuryati et al., 2025).

Uric acid is a compound produced by purine metabolism that is naturally formed in the human body. Under normal physiological conditions, uric acid dissolves well in blood plasma (Sipahutar et al., 2022). However, the blood will become highly saturated if it exceeds a certain threshold. This condition is known as hyperuricemia, which is a significant factor in the development of gout (Afif Amir Amrullah et al., 2023).

This activity is a form of community service in the health sector, aimed at early detection of non-communicable diseases such as hypertension, blood sugar, and gout. It also serves to raise public awareness of non-communicable diseases (NCDs).

2. Method

The health check and healthy elderly exercise activities as part of the UNISA's Community Service Program 73 work program were carried out in RW 06 Notoprajan, Ngampilan, Yogyakarta City. The main target of this activity was all elderly people in RW 06 Notoprajan, Ngampilan, Yogyakarta City. This activity's implementation method was using free blood pressure, uric acid, random blood sugar, and fasting blood sugar checks. This health check was carried out with a target of 42 elderly people. The implementation of blood pressure, uric acid, random blood sugar, and fasting blood sugar checks was also provided with educational materials related to information on normal limits and prevention methods.

3. Results and Discussion

A health checkup was conducted on August 24, 2025, at the Green Open Space (RTH) in RW 06 Notoprajan. The elderly residents of RW 06 Notoprajan participated in this health checkup. The health checkup results included blood pressure, height, weight, blood sugar, and uric acid levels.

The health checkup for the elderly in RW 06 Notoprajan began with participant registration, which involved recording the identity and attendance of the elderly. Afterward, blood pressure was checked to determine their current blood pressure. Next, height and weight were measured to assess the elderly's nutritional status and physical health. Furthermore, blood sugar and uric acid tests were performed. After all examinations were completed, the results were recorded in a health record as supporting data for the Community Service Program (KKN). Each elderly person was also given a small letter containing the test results to take home as a personal record and guide to maintaining their health.

Table 1. Blood pressure test results

Blood Pressure Parameters	Amount	Percentage (%)
Hypertension	9	22
Pre-Hypertension	13	31,7
Normal	14	34,1
Hypotension	5	12,2

Based on the diagram, the number of elderly people who underwent blood pressure checks was 42. Based on the data, the results obtained were 43.7% of elderly people were categorized as hypertensive (high), 34.1% of elderly people were categorized as normal, and 12.2% of elderly people were categorized as hypotensive (low). Based on these results, it can be concluded that the majority of elderly people in RW 06 Notoprajan have hypertension. Hypertension is a medical condition characterized by continuously increasing blood pressure in the arteries above the normal limit. Blood pressure is considered high if the systolic pressure exceeds 140 mmHg and/or the diastolic pressure exceeds 90 mmHg. Risk factors causing hypertension include genetic factors, age, gender, education level, type of work, stress, being overweight, excessive salt consumption, and smoking habits. In addition, other risks that also play a role are high cholesterol levels, tobacco use, low consumption of vegetables and fruit, and lack of physical activity (Cut Rahmiati & Tjut Irma Zuriyah, 2020)

Table 2. Blood sugar test results

Blood Sugar Levels	Amount	Percentage (%)
Diabetes	7	35
Pre-Diabetes	6	20

Blood Sugar Levels	Amount	Percentage (%)
Normal	8	45

Based on the blood sugar test diagram, the number of elderly people who underwent blood sugar tests was 21. Based on the data obtained from the blood sugar checks, the results showed that 35% were categorized as diabetes, 20% were categorized as pre-diabetes, and 45% were categorized as normal. Thus, the results of blood sugar tests in RW 06 Notoprajan obtained an average normal result. Diabetes mellitus is when blood glucose levels increase or are higher than normal values (Saintek ; Susilawati et al., 2024). Increased blood glucose levels can occur because the body lacks insulin or the insulin function does not work effectively. Factors of diabetes mellitus in the elderly occur because the body does not respond well to insulin, decreased muscle mass, changes in blood vessels, obesity caused by lack of physical activity without being balanced with healthy food intake, regular use of medications, plus hereditary factors. Blood sugar tests are divided into Fasting Blood Sugar (FBS) and Random Blood Sugar (GDS). GDP value > 120 mg/dl, normal GDP value < 100 mg/dl, pre diabetes 100-125 mg/dl. GDS value > 200mg/dl, normal GDS value < 140 mg/dl, pre diabetes 140-199mg/dl (Lariwu et al., 2024).

Table 3. Uric acid test results

Uric Acid Levels	Amount	Percentage (%)
Hyperuricemia	16	66,7
Normal	8	33,3
Hypouricemia	0	0

Based on the diagram, the number of elderly people who underwent uric acid examination was 21. Gout is a joint inflammation that occurs due to the accumulation of uric acid crystals, in the toes, ankles, knees, and big toes (Afif Amir Amrullah et al., 2023). Based on the data obtained from the uric acid examination, the results were 66.7%, amounting to 16 elderly people, categorized as hyperuricemia (high), and 33.3%, amounting to 8 elderly people, classified as normal. Thus, it was concluded that the results of the uric acid examination in RW 06 Notoprajan were categorized as high. According to the Ministry of Health, the normal uric acid value for men is: 3.4-7.0 mg/dL, while for women it is: 2.4-6.0 mg/dL. The balance of production and excretion determines uric acid levels in the human body. If uric acid production increases and its excretion through the kidneys in urine decreases, it can result in hyperuricemia (Eka & Betty, 2023). Gout usually occurs due to consuming foods high in purines such as shrimp, squid, shellfish, crab, chicken, and nuts. As for prevention, it is a healthy lifestyle and diet.

This program provides a comprehensive approach to health by providing health screening services for gout, high blood pressure, and blood sugar levels (Nissa et al., 2024). These three health problems are interconnected. Connected in the way the body works. Uric acid is the end product of the breakdown of molecules that come from the degradation of purine nucleotides (Nuryati et al., 2025). Excessively high uric acid levels, or hyperuricemia, can cause inflammation of the joints called gout. Furthermore, this condition can also increase the risk of heart disease and impaired kidney function. People with hyperuricemia tend to be more susceptible to other metabolic problems, such as high blood pressure and diabetes (Putri et al., 2024). High blood pressure, or hypertension, is a condition where blood pressure in the blood vessels increases chronically. (Pratiwi & Wibisana, 2018) This often occurs in people with high uric acid levels because the buildup of uric acid can disrupt the function of blood vessels and kidneys. Conversely, diabetes and high blood sugar levels can worsen high blood pressure by damaging blood vessels (Khoiriyah et al., 2022). Eating habits, lifestyle habits, the function of body organs such as the kidneys, pancreas and heart, and other factors generally influence the main causes from. These three conditions.

4. Conclusion

The conclusion of the health checks conducted in RW 06 Notoprajan found that most elderly people showed higher than normal uric acid levels, while blood pressure and blood sugar levels were generally within the normal range. It is hoped that routine health checks for elderly people in RW 06 Notoprajan will be encouraged to continue through collaboration with local health cadres and the elderly health

post(posyandu).

References

- Afif Amir Amrullah, Kareena Sari Fatimah, Nikita Puteri Nandy, Wulan Septiana, Siti Nurul Azizah, Nursalsabila Nursalsabila, Adzkie Hayyanal Alya, Dayini Batrisyia, & Nabiilah Salsa Zain. (2023). Gambaran Asam Urat pada Lansia di Posyandu Melati Kecamatan Cipayung Jakarta Timur. *Jurnal Ventilator*, 1(2), 162–175. <https://doi.org/10.59680/ventilator.v1i2.317>
- Amalia, D. R., Azzahra, N. Z., Ariyanti, S. D., & Wijhati, E. R. (2025). Upaya Peningkatan Kesehatan di Dusun Sentul RW 03 , Sidoagung , Godean ,. 5(1), 1–5.
- Cut Rahmiati, & Tjut Irma Zurijah. (2020). Pengaruh Senam Lansia Terhadap Tekanan Darah Pada Lansia Dengan Hipertensi. *Penjaskesrek Journal*, 7(1), 15–28. <https://doi.org/10.46244/penjaskesrek.v7i1.1005>
- Eka, N., & Betty, K. (2023). Deteksi Dini Penyakit Tidak Menular Dengan Pemeriksaan Asam Urat Pada Lansia. *Jurnal Masyarakat Madani Indonesia*, 2(1), 7–12.
- Health, P. (2022). Standards of Medical Care in Diabetes—2022 Abridged for Primary Care Providers. *Clinical Diabetes*, 40(1), 10–38. <https://doi.org/10.2337/cd22-as01>
- Joyotakan, K. (2025). Edukasi Penggunaan Habbatussauda Sebagai Penurun Kadar Asam. 9(2), 315–321.
- Khoiriyah, N., Siregar, P. P., & Kota, M. (2022). Edukasi Hipertensi dan Pemeriksaan Tekanan Darah, Asam Urat dan Kadar Gula Darah di Masjid Al- Hasanah, Kelurahan Sudirejo II. *Jurnal Implementa Husada*, 3(3). <https://doi.org/10.30596/jih.v3i3.11700>
- Lariwu, C. K., Sarayar, C. P., Pondaag, L., Merentek, G., & Lontaan, E. M. (2024). Indeks Masa Tubuh, Riwayat Keluarga dan Kebiasaan Konsumsi Gula : Faktor Dominan Penyebab Diabetes Melitus Tipe 2 Pada Lanjut Usia di Kota Tomohon. *AKSARA: Jurnal Ilmu Pendidikan Nonformal*, 10(1), 379–386.
- Lia Mar'atiningsih, Sugiah Sugiah, Muhammad Hadi Sulhan, Gina Nafsa Mutmaina, Mamay Mamay, Astari Nurisani, Meti Rizki Utari, & N.Ai Erlinawati. (2024). Penyuluhan Kesehatan dan Pemeriksaan Kadar Asam Urat pada Masyarakat di Jungserih Garut. *Compromise Journal : Community Proffesional Service Journal*, 2(3), 48–55. <https://doi.org/10.57213/compromisejournal.v2i3.307>
- Mukaromah, A. H., Putri, G. S. A., Qomariyah, N., Wijanarko, W., & Sya'diah, P. R. H. (2020). Pemeriksaan Glukosa, Kolesterol dan Asam Urat pada Masyarakat Peserta Car Free Day di Balai Pelatihan Kesehatan (Bapelkes) Kota Semarang. *Jurnal Surya Masyarakat*, 2(2), 133. <https://doi.org/10.26714/jsm.2.2.2020.133-138>
- Nissa, I., Utami, D. R., Rahim, A. R., Widiharti, W., & Sukaris, S. (2024). Peduli Sehat Sukodono Dengan Medical Check Up Dan Konseling (Tekanan Darah, Gula Darah Dan Asam Urat). *DedikasiMU : Journal of Community Service*, 6(1), 96. <https://doi.org/10.30587/dedikasimu.v6i1.7496>
- Nuryati, A., Wuri Astuti, D., Nadifah, F., & Anwarudin, A. (2025). Pemeriksaan gula darah dan asam urat sebagai upaya peningkatan kesehatan masyarakat. *Abdimas Siliwangi*, 8(2), 530–539. <https://doi.org/10.22460/as.v8i2.26899>
- Pratiwi, O. M., & Wibisana, A. A. (2018). Hubungan Pola Makan Dengan Kejadian Penyakit Hipertensi Pada Lansia Di Dusun Blokseger Kecamatan Tegalsari Kabupaten Banyuwangi. *Ikesma*, 14(2), 77. <https://doi.org/10.19184/ikesma.v14i2.10458>
- Putri, M. K., Rosita, M. E., & Sari, E. K. (2024). Pemeriksaan kesehatan tekanan darah, glukosa darah sewaktu dan asam urat pada lansia di dusun karangsari, sleman, yogyakarta. *Epmas: Edukasi Dan Pengabdian Masyarakat*, 4(1), 001–002.
- Rohmah, N., Dina, P., Rahayu, S., Nuraisyah, D. A., Rifqi, M., Aprilia, N., Dewi, C., Sugiarti, T., Febiola, P., Safitri, R. T., & Kristiana, D. (2024). Padukuhan Sumber Balecatur Health counseling on hypertension , uric acid , blood sugar , and cholesterol in Padukuhan Sumber Balecatur. 2(September), 1692–1695.
- Saintek ; Susilawati, D., Kuzzairi, E. F., & Denta, A. O. (2024). Pemberdayaan Keluarga dalam Penatalaksanaan dan Pencegahan Diabetes Melitus pada Lansia Melalui Edukasi dan Senam Kaki Diabetes di Desa Plakpak Pamekasan (Family Empowerment in The Management and

- Prevention of Diabetes Melitus Emergencies with Health Education and Diabetic Foot Exercise for Elderly In Plakpak Village Pamekasan). *Jurnal Pengabdian Masyarakat*, 3(1), 45–56.
- Sipahutar, D. M., Napitupulu, L., Barus, L., Ginting, J., & Vivi, Y. (2022). Pemeriksaan Kolesterol, Gula Darah Dan Asam Urat Sebagai Deteksi. *Pengabdian Deli Sumatera*, 1(2), 1–4.
- Sugiarti, M., Musiana, M., & Nurminha, N. (2024). Penyuluhan Dan Skrinning Pencegahan Penyakit Tidak Menular (Diabetes, Hipertensi Dan Asam Urat). *Jurnal Pengabdian Masyarakat Sasambo*, 5(2), 154. <https://doi.org/10.32807/jpms.v5i2.1499>
- Wikandari, R. J., Rosidah, U., Auliya, Q. A., & Qomariyah, N. (2025). Optimalisasi Kesehatan Lansia melalui Senam Lansia, Pemeriksaan Tekanan Darah, Gula Darah dan Asam Urat. *Jurnal Pengabdian Masyarakat Bangsa*, 3(3), 999–1005. <https://doi.org/10.59837/jpmba.v3i3.2347>