

Optimizing Health Educated Family to Reduce Hypertension and Integrated Diabetes Mellitus in Bligo

Hanna Rasyidah¹, Halim Purnomo^{2*}, Nada Nadiva Aisy Amieni³, Naura Ufaira³,
Naufal Raihan Ramadhan⁴, Lia Fakila Nisa¹, Zalfaa Hanifatun Nisa³, Amri Adi Nur Salam³,
Dipo Andang Narpati⁴, Dyah Raras Anindhita³, Hiban Qosthori³, Marsya Nadiyyatul Hani'ah¹,
Muhammad Imam Mahfudz⁶, Mullah Muhammad Agwa¹, Nurfiana⁵, Sajida Fihrisa Afaki³, Sri Riyani⁵,
Tri Wahyuningsih¹, Ersan Al-Ghazali¹

¹Program Studi S1 Farmasi, Universitas Muhammadiyah Yogyakarta,

²Program Studi S1 Komunikasi dan Penyiaran Islam, Universitas Muhammadiyah Yogyakarta

³Program Studi S1 Kedokteran, Universitas Muhammadiyah Yogyakarta,

⁴Program Studi S1 Agribisnis, Universitas Muhammadiyah Yogyakarta,

⁵Program Studi S1 Keperawatan, Universitas Muhammadiyah Yogyakarta,

⁶Program Studi S1 Pendidikan Agama Islam, Universitas Muhammadiyah Yogyakarta,

*e-mail: halimpurnomo@umy.ac.id

Abstrak

Kuliah Kerja Nyata (KKN) yang dilaksanakan di Kelurahan Bligo, Kecamatan Buaran, Kabupaten Pekalongan, bertujuan untuk mengoptimalkan program Bina Keluarga dalam menekan angka hipertensi dan diabetes melitus. Program ini mencakup berbagai kegiatan, seperti penyuluhan kesehatan, skrining, dan pembinaan keluarga berisiko tinggi. Hasil dari program ini menunjukkan adanya penurunan tekanan darah dan kadar gula darah pada peserta, yang disertai dengan perubahan pola hidup menuju lebih sehat. Keberhasilan program ini menunjukkan pentingnya peran aktif masyarakat dan dukungan dari berbagai pihak dalam mengatasi masalah kesehatan tidak menular di komunitas.

Kata Kunci: kuliah kerja nyata; bina keluarga; hipertensi; diabetes melitus; kesehatan masyarakat

Abstract

The Community Service Program (KKN) conducted in Bligo Village, Buaran District, Pekalongan Regency, aimed to optimize the Family Guidance program in reducing hypertension and diabetes mellitus rates. The program included various activities such as health education, screening, and family guidance for high-risk individuals. The results showed a decrease in blood pressure and blood sugar levels among participants, accompanied by lifestyle changes towards healthier habits. The success of this program highlights the importance of active community participation and support from various stakeholders in addressing non-communicable health issues within the community.

Keywords: community service program,; family guidance; hypertension; diabetes mellitus; public health

1. INTRODUCTION

Bligo Village is located in Buaran Sub-district, Pekalongan Regency. It has great potential to become a more developed and prosperous area. Its strategic location in Buaran Subdistrict makes it easily accessible and a center of economic activity for the surrounding community. However, to reach its full potential, Bligo needs to continuously strive to improve the quality of life of its citizens,

especially in terms of health. The high rates of Hypertension and Diabetes Mellitus are one of its main focuses. With various innovative health programs and the active participation of the community, it is hoped that these problems can be effectively resolved. The increasing number of elderly people has a significant impact on the healthcare system. The decline in physiological function associated with the aging process leads to an increase in the prevalence of chronic non-communicable diseases. This condition requires more intensive preventive and curative efforts, as well as adjustments to the health care system to meet the special needs of the elderly.

In addition, the increasing burden of chronic diseases also has an impact on increasing health costs (9). One of the preventive measures that can be taken is through family guidance and regular health checks. Family development aims to increase patient awareness of diabetes mellitus (DM). The program is designed to provide a comprehensive understanding of DM, from early symptoms, acute and chronic complications, to effective prevention methods. In addition, it also emphasizes the importance of regular blood sugar monitoring, proper disease management, and blood pressure control as an effort to prevent further complications (1).

Based on the results of Posbindu monitoring in July 2024, Bligo Village recorded a significant prevalence of hypertension and diabetes mellitus cases. The data shows that 56 cases were identified in all Rukun Tetangga (RT) and Rukun Warga (RW) in the area. This condition indicates that non-communicable diseases, especially hypertension and diabetes mellitus, are major health problems that need serious attention, especially among the elderly. As we age, there will be many changes in the body. One of them is a decrease in the performance of the body's organs. This is what causes the elderly to be more susceptible to degenerative diseases such as hypertension and diabetes mellitus (Priyambodo et al., 2022).

In addition to age, several factors that can cause hypertension and diabetes mellitus problems are gender, heredity, obesity, smoking, excessive salt consumption, stress, and several other factors (7). The Indonesian Health Survey (IHS) reported that the prevalence of hypertension in Indonesia reached 30.8%. This figure shows that hypertension is a serious public health problem. Uncontrolled high blood pressure can lead to a variety of dangerous complications, including heart failure, stroke and chronic kidney disease. Given the high risks involved, it is crucial for people to have regular health check-ups to detect hypertension early and initiate appropriate treatment. Thus, more serious complications can be prevented and quality of life can be improved.

Based on data from the International Diabetes Federation (IDF), Indonesia ranks fifth as the country with the highest number of people with diabetes. The figure reached 19.5 million people in 2021 and is projected to increase to 28.6 million by 2045. This problem has received serious attention from the Ministry of Health, considering that diabetes mellitus is often referred to as the "mother of all diseases". In 2013, the Ministry of Health issued Minister of Health Regulation No. 30/2013 regulating the Inclusion of Information on Sugar, Salt and Fat Content and Health Messages on Processed and Prepared Food. This regulation aims to make people aware of the nutritional values listed on food and beverage labels, so that they can control their intake of sugar, salt and fat and avoid

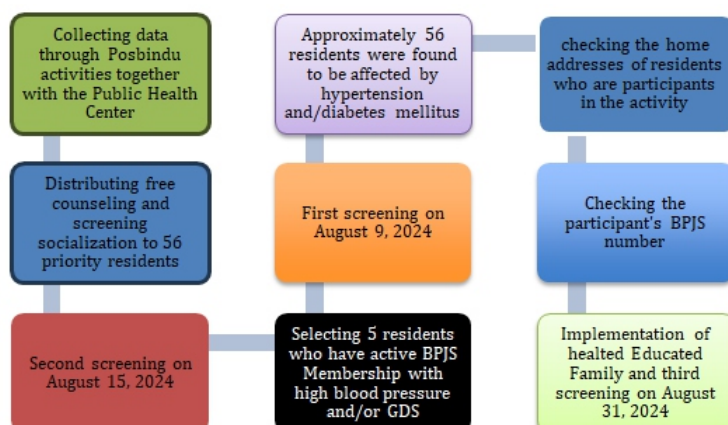
risk factors for non-communicable diseases. Some efforts that can be made to reduce the number of cases of hypertension and diabetes mellitus are to conduct routine screening and health checks. In addition, an effective prevention effort that can be done is to initiate family development in families that have a high risk of hypertension and diabetes mellitus. Family development is a program that aims to develop knowledge, lifestyle, and skills in a family that covers several aspects of life, especially health aspects.

2. METHOD

The method used in efforts to reduce hypertension and diabetes mellitus rates in Bligo Village consists of several stages, as follows:

- a. *Preparation Stage.* This preparation stage includes the data collection stage which is in collaboration with the Buaran Health Center team. In this stage, it starts with submitting a proposal for cooperation with the Buaran Health Center team, making an activity plan, budget design, and the tools needed. The data collection process took place at the same time as Posbindu took place in July 2024, which in its implementation invited the entire community of Bligo Village to check blood pressure, and blood sugar levels.
- b. *Implementation Phase.* The implementation stage itself is divided into 3 main programs, namely:
 - 1) *Counseling Program.* Counseling related to hypertension and diabetes mellitus was held on August 09, 2024 which was filled directly by the Head of the Buaran Health Center, Dr. Noor Endah Artanti.
 - 2) *Screening and Examination Program.* This screening and examination program was carried out 3 (three) times, namely on August 09, 15, 31, 2024. In its implementation, it was accompanied by brief education to the community of Bligo Village.
 - 3) *Family Development Program.* This family coaching program was carried out on 5 families of the Bligo Village community who were selected based on the results of blood pressure and blood sugar checks who had a high risk of hypertension and diabetes mellitus. From the results of data on patients with high risk of hypertension and diabetes mellitus, then filtered again by prioritizing the availability of BPJS Health cards and including beneficiaries in the Integrated Social Welfare Data (DTKS). This Family Development was carried out 4 (four) times, namely on August 09, 15, 23, 29, 2024. With this routine family development, it is hoped that there will be at least a change in behavior within the family, especially in the health aspect.
- c. *Data Processing Stage.* At this stage, a recap of the results of blood pressure and blood sugar of family-assisted patients from the first examination on August 09, 2024 to the last examination on August 31, 2024 is carried out. The recapitulated data will be diagrammed to see if there is a decrease in blood pressure and blood sugar in family assisted patients (Diagram 1).

Diagram 1. Health Educated Family Scheme



3. RESULTS AND DISCUSSION

This family coaching program is carried out for a month with a focus on controlling the patient's blood pressure and blood sugar. A series of activities in this program began with checking blood pressure and blood sugar, joint control to the Health Center. Then continued with a questionnaire interview session containing questions about treatment, diet, activity patterns, rest patterns, and knowledge (Figure 1).



Figure 1. (a). Blood sugar check, (b). Blood pressure check, (c). Taking medicine from the health center, (d). Lifestyle monitoring

Based on Diagram 2 below, it can be seen that the systolic blood pressure figures of five patients at the first examination were >120 mmHg, which can already be said that the patients are hypertensive. Hypertension is a condition of persistently high blood pressure, where systolic pressure exceeds 140 mmHg and diastolic pressure exceeds 90 mmHg (3). As in Diagram 3, the blood sugar numbers of several patients were above 100-180 mg/dl, which can be said that these patients

are at risk of diabetes mellitus. During the five blood pressure and blood sugar checks, five patients showed some decreases and some showed increases. This could be due to changes in some of the patients' lifestyle factors.

Diagram 2. Systolic and diastolic blood pressure screening results

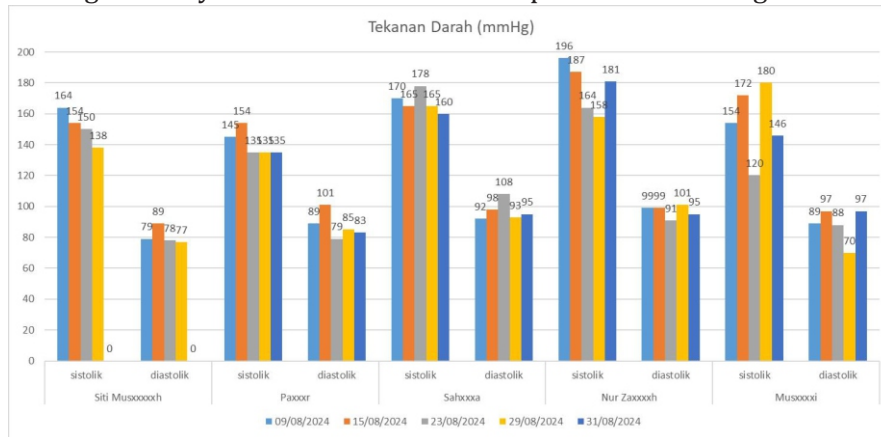
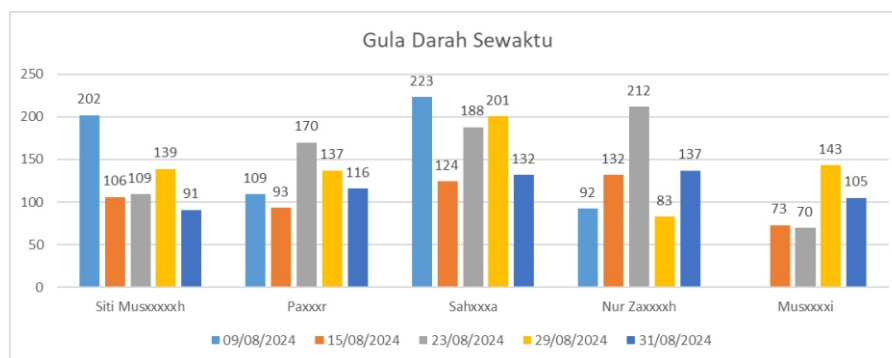


Diagram 3. Blood sugar screening results



Based on the results of lifestyle monitoring to 5 fostered families, limited knowledge about hypertension and/or diabetes mellitus affects people's health. A healthy lifestyle, such as reducing salt consumption and exercising regularly, is key in controlling high blood pressure. In addition, the use of medication is also necessary to achieve optimal blood pressure control (4). A healthy diet refers to a meal plan that takes into account three main aspects: the amount, type, and regular schedule of meals. An unhealthy diet can result in an imbalance between the intake of carbohydrates and other nutrients needed by the body. This can lead to an increase in sugar levels in the body beyond the pancreas' ability, potentially triggering diabetes mellitus (2).

One thing that can cause an unhealthy diet is the habit of most patients making fried foods as side dishes that are eaten every day. The habit of consuming such food can cause an increase in cholesterol levels in the blood, which then triggers the formation of plaque in the blood vessels. The narrowing of the blood vessels due to these plaques causes an increase in pressure when the heart contracts, otherwise known as an increase in systolic blood pressure (5). Many patients complain that they do not feel any symptoms of diabetes mellitus but their blood sugar levels are found to be high at every check-up. Many patients were not fond of consuming sweet foods and drinks and

wondered where the disease came from. When we asked if there was a family history of diabetes mellitus and told him that there were risk factors for developing diabetes mellitus from a hereditary history, the patient also admitted that he did not know this. When discussing heredity (genetics), genes are the elements that determine the inheritance of certain traits from a person to their offspring.

However, despite having a higher risk, this does not mean that the person will definitely develop diabetes. Heredity is one of the causes that increase the risk of developing diabetes mellitus, and this condition can be exacerbated by an unhealthy lifestyle (8). During this family-building activity, we felt that the enthusiasm and desire for treatment from patients was very high. Based on the impressions of the messages we asked, patients feel helped because we have been delivered to the health center every week for examination and drug collection, patients feel well monitored in their treatment and lifestyle. Our hope after the end of this program is that there will be a high desire for treatment in each patient. We hope that patients will continue to incorporate the education that we have provided during family building so that the patient's lifestyle and health will continue to improve.

4. CONCLUSION

Based on the implementation of this family-building activity program, it is concluded that the blood pressure and sugar levels of patients of 5 fostered families have increased and decreased. In the results of some patients, a significant decrease was obtained, and in some patients, fluctuations in blood pressure and blood sugar levels were also obtained. Through the family assistance program, knowledge education about hypertension and diabetes mellitus has been carried out, then blood pressure and blood sugar screening, joint examination and drug collection at the Buaran Health Center, and monitoring of the patient's lifestyle.

So, if the target achievement of this program is not met, there are several possible factors that influence one of them from the patient's lifestyle which we cannot monitor every hour or every day. The problem of hypertension and diabetes mellitus in Bligo Village is quite high, and knowledge related to hypertension and diabetes mellitus is still minimal so that many patients are surprised when diagnosed with hypertension and diabetes mellitus because they do not feel any symptoms. During the month, the family development activities were considered good and the enthusiasm of the community was very high.

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REFERENCES

- [1] Aqsyari, R., Siti, D., Aminah, F., Adhila, N. P., Tari, I., Sitepu, F. B., & Murti, B. (2023). *Edukasi Pencegahan Diabetes Pada Lansia Di Rw 13 Jebres*.
- [2] Hariawan, H., Fathoni, A., Purnamawati, D., Keperawatan, J., Kemenkes Maluku, P., & Kemenkes Mataram, P. (2019). Hubungan Gaya Hidup (Pola Makan dan Aktivitas Fisik) Dengan Kejadian Diabetes Melitus di Rumah Sakit Umum Provinsi NTB. *Jurnal Keperawatan Terpadu (Integrated Nursing Journal)*, 1(1), 1–7. <http://jkt.poltekkes-mataram.ac.id/index.php/home/article/view/16>
- [3] Johnson, J. Y. (2010). *Handbook for Brunner & Suddarth's Textbook of Medical- Surgical Nursing, 12th edition* (12th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.\
- [4] Ketut, G., Ngurah, G., Kadek, N., Cahyani, V., Jurusan, Y., Politeknik, K., & Denpasar, K. (2015). *Gaya Hidup Penderita Hipertensi*.
- [5] Madani, Y., Widada, W., Sasmito, G., Fakultas, M., Kesehatan, I., Muhammadiyah Jember, U., & Fakultas, D. (2019). *Hubungan Perilaku Mengonsumsi Gorengan Dengan Tekanan Darah Sistolik Pada Dosen Usia Dewasa Muda Di Universitas Muhammadiyah Jember*. Retrieved September 14, 2024, from <http://fikes.unmuhjember.ac.id>
- [6] Priyambodo, A. B., Andrian, A., Kamila, D. A., Erwanenda, M. R., Tri, R., Sari, A., Luthfia, Z., & Ah, N. (2022). Deteksi Dini Hipertensi Dan Diabetes Melitus Pada Lansia Di Desa Argoyuwono, Kecamatan Ampelgading. *Jurnal Graha Pengabdian*, 4(2), 163–172. <https://journal2.um.ac.id/index.php/jgp/article/view/26873>
- [7] Sari, Y., Haryati, S., Setyawan, S., Prasita Negara, K. S., Dirgahayu, P., Wijayanti, L., Ma'rufah, S., Listyaningsih S, E., Riyadi, S., Supriyana, D. S., & Purnomo, S. (2022). Pemberdayaan Kader Kesehatan untuk Mendukung Program Indonesia Sehat melalui Pendekatan Keluarga (PISPK) dan Tatalaksana Diabetes Mellitus (DM), Hipertensi dan Merokok. *Smart Society Empowerment Journal*, 2(2), 49. <https://doi.org/10.20961/SSEJ.V2I2.61678>
- [8] Sutanto, T. (2013). *Diabetes : deteksi, pencegahan, pengobatan* (Y. Erni, Ed.). Buku Pintar.
- [9] Yuliet, Khaerati, K., Widodo, A., & Arani. (2023). Physicochemical, Phytochemical, And Evaluation Angiotensin-Converting Enzyme Inhibitory Activity Of Tamoenju (*Hibiscus Surattensis L.*) Leaves Extract. *Rasayan Journal of Chemistry*, 16(2), 565–572. <https://doi.org/10.31788/RJC.2023.1628199>