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### Improving Community Knowledge on Blood Glucose Control through Health Education in Type 2 Diabetes Mellitus

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#### ABSTRACT

Type 2 diabetes mellitus is a non-communicable disease with a prevalence that continues to increase worldwide and in Indonesia. In Indonesia, diabetes mellitus has risen from 7th to 5th place globally, with 19.5 million sufferers and is projected to reach 28.6 million people by 2045, while in South Sumatra there were 605,570 cases recorded in 2023. Type 2 DM is at risk of causing complications when blood glucose levels are not controlled, while low public knowledge regarding blood glucose control is one of the contributing factors. This community service activity aimed to improve public knowledge regarding blood glucose level control in patients with type 2 diabetes mellitus. The activity was conducted on July 26, 2025, in RT 25, Pulokerto Village, Gandus District, Palembang, involving 31 participants. Health education was delivered through lectures, discussions, and question-and-answer sessions using leaflet media. Knowledge levels were evaluated using pre-test and post-test questionnaires administered before and after the educational intervention. The evaluation results showed an improvement in participants' knowledge after receiving education. Before the counseling session, the majority of participants had a moderate level of knowledge (48.4%) and poor knowledge (32.3%), while only 19.4% had good knowledge. After the counseling session, most participants had a good level of knowledge (80.6%), while the remaining 19.4% had a moderate level of knowledge.

This community service activity showed that counseling was effective in improving participants' knowledge. Before the activity, most participants had moderate and poor knowledge, while after the activity, the majority were in the good knowledge category.



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## INTRODUCTION

Diabetes mellitus (DM) has currently become a serious global health problem as it contributes significantly to premature mortality in many countries. In addition, DM is a major cause of blindness, cardiovascular disorders, and kidney failure (Kemenkes RI, 2020). The prevalence of diabetes mellitus (DM) continues to increase every year and has become a global health problem. The International Diabetes Federation stated that the number of DM cases is projected to reach 643 million in 2030 and 783 million in 2045 International Diabetes Federation. In Indonesia, DM has risen from 7th to 5th

place in the world, with 19.5 million sufferers and projected to reach 28.6 million people by 2045 (IDF, 2021). The 2023 Indonesian Health Survey showed that DM remains a major health problem, with type 2 DM accounting for 50.2% of all cases, and South Sumatra ranked 6th nationally (Soelistijo et al., 2021). In South Sumatra, DM cases increased to 435,512 in 2022 and 605,570 in 2023 (Badan Pusat Statistik Provinsi Sumatera Selatan, n.d.), with the highest number of cases recorded in Palembang at 112,112 cases (Dinkes Sumsel, 2023).

Type 2 Diabetes Mellitus is the most common type of diabetes, affecting around 90% of people with diabetes worldwide (IDF, 2019). In Type 2 Diabetes Mellitus, insulin resistance occurs, leading to hyperglycemia. Uncontrolled blood glucose levels can increase the risk of various complications and death (Woferst Rismadefi, Karim Darwin, 2018). A study by Ya'la et al., (2025) stated that poorly managed blood glucose can damage blood vessels and body organs, thereby increasing the risk of heart disease, stroke, kidney disorders, and neuropathy. In addition, Musyafirah et al., (2017) also reported that uncontrolled blood glucose levels are associated with an increased risk of cardiovascular complications in patients with Type 2 Diabetes Mellitus. Therefore, optimal blood glucose control is an important step in preventing complications among people with diabetes. These complications are also known to reduce patients' quality of life (Pebriani et al., 2024).

Several studies have shown that diabetic patients with complications have a lower quality of life compared to those without complications (Hariani et al., 2020; Prajapati et al., 2017; Younis et al., 2017). Therefore, optimal blood glucose control is needed to prevent complications and improve quality of life. Blood glucose control is carried out through four main pillars, namely education, dietary management, physical activity, and medication adherence (Soelistijo et al., 2015). One of the important pillars in diabetes management is education.

Among these four pillars, education plays a very important role because it aims to encourage the adoption of a healthy lifestyle. Education also provides knowledge on how to modify lifestyle habits, so that patients ultimately gain a better understanding of their disease and can play an active role in diabetes care (Kurtanty et al., 2023). Education needs to be provided continuously as a preventive effort and serves as a key component in the comprehensive management of Diabetes Mellitus (Soelistijo et al., 2021). Through appropriate education, both the community and people with diabetes can develop good knowledge, thereby increasing awareness and active participation in consistently implementing diabetes prevention behaviors.

Based on the 2022 Health Profile of Puskesmas Gandus, type 2 diabetes mellitus ranked fifth among diseases in the working area of Puskesmas Gandus. Type 2 diabetes mellitus also commonly occurs among older adults. However, there is still a knowledge gap in the community regarding the importance of blood glucose control and the prevention of diabetic complications. This condition indicates the need for educational efforts to improve blood glucose control, reduce the risk of complications, and lower mortality and morbidity rates caused by type 2 diabetes mellitus. Therefore, community-based health education is needed to improve community knowledge, awareness, and ability in managing type 2 diabetes mellitus.

## IMPLEMENTATION METHOD

This community service activity began with a preparation stage, which included a field survey conducted by the implementation team at the activity location. Subsequently, the team submitted a request for permission to the Head of RT 25 and

coordinated to determine the schedule and venue for the counseling session. The educational activity was carried out on July 26, 2025, at the house of the Head of RT, starting at 1:00 PM (WIB) until completion. The implementation method was conducted in the form of health education using a lecture approach combined with interactive discussions supported by leaflet media. The material delivery session lasted for 30 minutes, followed by a question-and-answer and discussion session for 45 minutes. The indicator of success for this activity was an increase in community knowledge regarding Type 2 Diabetes Mellitus and strategies to control blood glucose levels. Participants' level of knowledge was evaluated using a knowledge-based questionnaire categorized into three levels: good, moderate, and poor. The questionnaire was designed for the general public and consisted of 10 items with true or false answer choices. The instrument was administered to participants before the activity (pre-test) and after the activity (post-test) to assess changes in participants' knowledge following the educational intervention.

## RESULT AND DISCUSSION

The community service activity in the form of health education on blood glucose control in type 2 diabetes mellitus was conducted on July 26, 2025, in RT 25, Pulokerto Subdistrict, and took place from 1:00 p.m. (WIB) until completion. A total of 31 participants attended the activity. The educational material was delivered using leaflet media through a lecture method combined with discussion, covering topics such as the definition of type 2 diabetes mellitus, signs and symptoms, and strategies to maintain controlled blood glucose levels. In addition to providing education, the community service team also conducted random blood glucose examinations. The results of the evaluation of participants' knowledge levels are presented in Table 1 below.

Table 1. Participants' Knowledge Levels Before the Educational Intervention

No.	Knowledge Level Before Education	Frequency	%
1	Good	6	19.4
2	Moderate	15	48.4
3	Poor	10	32.3
	Total	31	100

Table 2. Participants' Knowledge Levels After the Educational Intervention

No.	Knowledge Level After Education	Frequency	%
1	Good	25	80.6
2	Moderate	6	19.4
	Total	31	100

Based on the table above, before the health education session, most participants had knowledge in the moderate (48.4%) and poor (32.3%) categories, while only 19.4% were in the good category. After the session, an improvement in knowledge was observed, with the proportion of participants in the good knowledge category increasing to 80.6%, the moderate category decreasing to 19.4%, and the poor category declining to 0%. These results indicate that the health education session had a significant positive impact on improving participants' knowledge.



Picture 1. Material Delivery



Picture 2. Random blood glucose screening



Picture 3. Souvenir distribution



Picture 4. Group photo with participants

In this community service activity, health education was considered successful because it was able to improve participants' knowledge. Through the delivery of clear, systematic, and easy-to-understand information, participants gained a better understanding of the risk factors, signs and symptoms, complications, and management strategies of Type 2 Diabetes Mellitus. This increase in knowledge was reflected in the pre-test and post-test results, which showed an increase in the proportion of participants with good knowledge levels, from 19.4% before the education session to 80.6% after the session.

Various studies have shown that community-based interventions are an effective approach for the prevention and control of Type 2 Diabetes Mellitus (Gyawali et al., 2019). One form of such intervention is health education, which has been proven to improve public knowledge and awareness, encouraging people to actively undergo regular health check-ups as an early detection measure for the disease (Asmanidar et al., 2025). This indicates that appropriate educational approaches can enhance the effectiveness of delivering health information to the community (Kusumawati et al., 2025).

Providing information to individuals with diabetes serves as a stimulus that enhances knowledge and fosters awareness, thereby encouraging the adoption of expected health-related behaviors (Astuti, 2024). Educational interventions can promote behavioral change through improved individual knowledge. When information is delivered effectively, it is more easily understood, motivating individuals to apply the educational content and ultimately resulting in behavioral change (Soelistijo et al., 2015). Insufficient education has been shown to negatively affect an individual's level of knowledge (Enarga et al., 2023). Knowledge about Type 2 Diabetes Mellitus plays an important role in supporting the effectiveness of prevention efforts, disease control, and the reduction of complication risks (Ferreira et al., 2024; Kalsum et al., 2023).

Adequate knowledge about diabetes mellitus helps individuals develop accurate perceptions of the disease, which in turn influences their behavior and preventive efforts (Mulyani & Patimah, 2023). The greater and better an individual's knowledge of diabetes mellitus, the more likely they are to adopt positive behavioral changes and effectively control their disease condition (Siswanti et al., 2025). This is consistent with the findings of Astuti (2024), which demonstrated that increased knowledge following educational interventions was associated with a reduction in blood glucose levels. The decrease in blood glucose levels after educational interventions indicates strong patient motivation to adopt healthy lifestyle behaviors and prevent diabetes-related complications. This motivation encourages patients to consistently avoid factors that may increase blood glucose levels. These findings are further supported by the study of Enarga et al., (2023), which showed that self-care knowledge among respondents increased after educational interventions compared to pre-intervention levels. The study also demonstrated that the education provided was effective in reducing the average blood glucose levels of participants.

### CONCLUSION AND SUGGESTION

This community service activity demonstrated that health education was effective in improving participants' knowledge regarding type 2 diabetes mellitus and blood glucose control. The evaluation results showed an increase in participants' level of knowledge after the educational intervention. The improvement in knowledge is expected to encourage individuals with type 2 diabetes mellitus to consistently implement blood glucose control behaviors through appropriate dietary management, regular and safe physical activity, adherence to prescribed therapy, and self-monitoring of blood glucose levels.

As a follow-up action, health workers and community health volunteers are encouraged to conduct routine education, regular monitoring, and strengthen collaboration with Community Health Centers (Puskesmas) in providing continuous assistance to individuals with type 2 diabetes mellitus. These efforts are important to ensure that the knowledge provided can be optimally applied in daily life.

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### BIBLIOGRAPHY

- Asmanidar, Yushida, Julianti, R., Zulkiflii, & Norisa, N. (2025). Edukasi Dan Sosialisasi Diabetes Melitus Bagi Warga Gampong Alue Tampak Kecamatan Kaway XVI. *Jurnal Pkm*, 1(2), 1–15. <https://doi.org/https://doi.org/10.5281/zenodo.15861554>
- Astuti, R. K. (2024). Pengaruh Diabetes Self-Management Education (DSME) Berbasis Keluarga terhadap Peningkatan Pengetahuan dan Sikap dalam

- Pengendalian Glukosa Darah. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, 7(2). <https://doi.org/10.56338/mppki.v7i2.4456>
- Dinkes Sumsel. (2023). Profil Kesehatan Dinas Kesehatan Provinsi Sumatera Selatan 2022. In *Dinkes Provinsi Sumatera Selatan*. <https://drive.google.com/file/d/1tdFCVQIxUyr80CYPdOYSAwUiwsJKzd98/view>
- Enarga, A. B. P., Megasari, P. O. D., Novitasari, D., & Pranadipta, A. R. (2023). Pengaruh Pemberian Edukasi Terhadap Tingkat Pengetahuan, Self Management, Dan Kadar Glukosa Darah Pasien DMT2. *Pharmacy Genius*, 2(3). <https://doi.org/10.56359/pharmgen.v2i3.288>
- Federation, I. D. (2019). IDF Diabetes Atlas - 2019. In *International Diabetes Federation*. <https://doi.org/10.1289/image.ehp.v119.i03>
- Ferreira, P. L., Morais, C., Pimenta, R., Ribeiro, I., Amorim, I., Alves, S. M., & Santiago, L. (2024). Knowledge about type 2 diabetes: its impact for future management. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1328001>
- Gyawali, B., Bloch, J., Vaidya, A., & Kallestrup, P. (2019). Community-based interventions for prevention of Type 2 diabetes in low- And middle-income countries: A systematic review. In *Health Promotion International* (Vol. 34, Issue 6). <https://doi.org/10.1093/heapro/day081>
- Hariani, Abd. Hady, Nuraeni Jalil, & Surya Arya Putra. (2020). Hubungan Lama Menderita Dan Komplikasi DM Terhadap Kualitas Hidup Pasien DM TIPE 2 Di Wilayah Puskesmas Batua Kota Makasar. *Jurnal Ilmiah Kesehatan Diagnosis*, 15(1). <https://doi.org/10.35892/jikd.v15i1.330>
- IDF. (2021). International Diabetes Federation (IDF). In *International Diabetes Federation Diabetes Atlas 10th edition*. <https://idf.org/news-and-resources/resources/idf-diabetes-atlas-2021/>
- Kalsum, U., Safitri, Y., Susanti, F., Jamiatun, J., & Nugraha, A. T. (2023). Hubungan Pengetahuan terhadap Perilaku Pencegahan Diabetes Melitus Tipe 2 pada Masyarakat di RT 09 RW 01 Kelurahan Bambu Apus Cipayung Jakarta Timur Tahun 2022. *Jurnal Bidang Ilmu Kesehatan*, 13(3). <https://doi.org/10.52643/jbik.v13i3.3442>
- Kemendes RI. (2020). Infodatin Diabetes Melitus 2020. In *Pusat Data dan Informasi Kementerian Kesehatan RI*.
- Kurtanty, D., Bachtiar, A., Candi, C., Pramesti, A., & Rahmasari, A. F. (2023). Information-Motivation-Behavioral Skill in Diabetes Self-management Using Structural Equation Modeling Analysis. *Kesmas*, 18(1). <https://doi.org/10.21109/kesmas.v18i1.6255>
- Kusumawati, N., Hamid, A., Virgo, G., & Indrawati. (2025). Peningkatan Pengetahuan Masyarakat tentang Diabetes Melitus Tipe 2 di Desa Pulau Rambai, Kecamatan Kampa, Kabupaten Kampar, Provinsi Riau. *Jurnal Pengabdian Meambo*, 4(1). <https://doi.org/10.56742/jpm.v4i1.133>
- Mulyani, A. Y., & Patimah, S. (2023). Analisis Faktor Yang Mempengaruhi Kualitas Hidup Pasien Diabetes Melitus Tipe II di Rumah Sakit Umum Daerah Lasinrang Kabupaten Pinrang Tahun 2022. *Journal of Muslim Community Health (Jmch)*, 4(4), 345–357. <https://doi.org/https://doi.org/10.33096/jmch.v4i4.1435>
- Musyafirah, D., Rismayanti, & Ansar, J. (2017). Faktor yang Berhubungan dengan Kejadian Komplikasi DM pada Penderita DM di RS Ibnu Sina. *Jurnal Kesehatan Masyarakat*.
- Pebriani, S. H., Marleni, L., Anggraini, H., & Yunola, S. (2024). Implementasi Self Care Management Diabetes Terhadap Kualitas Hidup Pasien DM Tipe 2. *Jurnal Kesehatan : Jurnal Ilmiah Multi Sciences*, 14(2).

<https://doi.org/10.52395/jkjims.v14i2.453>

- Prajapati, V. B., Blake, R., Acharya, L. D., & Seshadri, S. (2017). Assessment of quality of life in type II diabetic patients using the modified diabetes quality of life (MDQOL)-17 questionnaire. *Brazilian Journal of Pharmaceutical Sciences*, 53(4). <https://doi.org/10.1590/s2175-97902017000417144>
- Siswanti, H., Rohmaniah, F. A., Sukarmin, S., & Ridwanto, M. (2025). Deteksi Dini Faktor Risiko sebagai Upaya Pencegahan Penyakit Diabetes Mellitus. *Jurnal Inovasi Penelitian Dan Pengabdian Masyarakat*, 5(1). <https://doi.org/10.53621/jippmas.v5i1.417>
- Soelistijo, S. A., Novida, H., Rudijanto, A., Soewondo, P., Suastika, K., Manaf, A., Sanusi, H., Lindarto, D., Shahab, A., Pramono, B., Langi, Y. A., Purnamasari, D., Soetedjo, N. N., Saraswati, M. R., Dwipayana, M. P., Yuwono, A., Sasiarini, L., Sugiarto, Sucipto, K. W., & Zufry, H. (2015). Konsensus Pengendalian dan Pencegahan Diabetes Melitus Tipe 2 di Indonesia 2015. In *Perkeni*. <https://doi.org/10.1017/CBO9781107415324.004>
- Soelistijo, S. A., Suastika, K., Lindarto, D., & Decroli, E. (2021). Pedoman Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 Dewasa di Indonesia 2021. In *PB PERKENI*. PB PERKENI. <https://pbperkeni.or.id/wp-content/uploads/2021/11/22-10-21-Website-Pedoman-Pengelolaan-dan-Pencegahan-DMT2-Ebook.pdf>
- Ya'la, N., Sijid, S. A., & Marhani, M. (2025). Hubungan kadar glukosa darah dengan risiko komplikasi pada penderita diabetes di Balai Besar Laboratorium Kesehatan Masyarakat Makassar. *Filogeni: Jurnal Mahasiswa Biologi*, 5(1). <https://doi.org/10.24252/filogeni.v5i1.55338>
- Younis, B. Bin, Arshad, R., Yousuf, H., Salman, F., Masood, J., & Khurshid, S. (2017). Impact of type 2 diabetes mellitus on quality of life in people with diabetes presenting to a specialist diabetes clinic. *Turkish Journal of Medical Sciences*, 47(1). <https://doi.org/10.3906/sag-1508-3>