

# Community empowerment model to improve healthy living behaviors in rural areas: qualitative study



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## ABSTRACT

**Introduction:** Limited knowledge is the leading cause of the high prevalence of type 2 diabetes (DM) in rural communities. Community empowerment is one strategy to increase knowledge regarding type 2 diabetes control. This study aims to design a rural community empowerment model to advance knowledge in controlling type 2 diabetes.

**Methods:** The method used was qualitative with an action research design. Data collection included interviews, focused group discussions (FGD), and literature reviews. The participants of study involve the health office and cadres. The criteria for participants is to understand the procedures for preventing non-communicable diseases (NCD's). Participants were selected using a purposive sampling method. Triangulation and member check to test the validity of the data. The analysis technique used was the N-Vivo software.

**Results:** Four main themes related to the empowerment of rural communities to control type 2 diabetes were found: the DM control model based on community empowerment, cadres as health partners, types of health services in villages, and the families' roles in increasing the success of controlling DM.

**Conclusion:** Community empowerment can help in controlling type 2 diabetes in rural areas. Suggestions for next investigators is to evaluate the implementation of community empowerment programs in rural for clinical improvement.

**Keywords:** behavior, community empowerment, and health promotion.

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## INTRODUCTION

Non-communicable diseases (NCD) have caused 63.50% of deaths globally and type 2 diabetes mellitus (DM) is one of the NCD with high mortality and morbidity.<sup>1,2</sup> Globally, deaths caused by DM reached 1.5 million in 2012.<sup>1</sup> The high prevalence of death due to DM aligns with the increase of DM patients.<sup>3</sup> Four hundred sixty-three (463) million people in the 20-79 year age group had diabetes.<sup>4</sup> In 2019, Indonesia was in sixth place of DM globally with a prevalence of 10.7 million. Almost all provinces in Indonesia have experienced an increase in DM cases. The highest provinces are Jakarta, East Kalimantan and Yogyakarta Special Region. The prevalence of DM patients in Yogyakarta (DIY) was 74,668 cases.<sup>5</sup>

Sleman Regency is in the first place in Yogyakarta, with 24,690 cases from 74,688 cases.<sup>6</sup> The DM patients in Sleman Regency are spread across all districts. The highest prevalence of DM in Sleman

Regency is in Ngaglik, Depok, Melati, Tempel, and Godean sub-districts. Most DM patients in Godean District live in Sidokarto Village.<sup>7</sup>

The high prevalence of DM is accompanied by various problems related to efforts to control it. The most common problem is low control over diet and physical activities.<sup>8-10</sup> In Indonesia, a unique strategy that fits the community is needed. Based on the region, Indonesian society has two groups, urban and rural communities. In the rural community, problems related to DM come from a low education background and low-income creating a lack of awareness to access health facilities and fear of health interventions.<sup>11,12</sup> This community also tends to have limited knowledge and information than urban communities affecting low awareness of health facilities, generating higher complications. Lack of knowledge and information about DM aligns with an unhealthy lifestyle because they think their behavior is reasonable and

will not impact their health.<sup>13</sup>

By empowering the community, DM control in rural communities is supposed to work. The community is consistently assisted and trained to control and prevent DM.<sup>14</sup> The community consists of community leaders, village cadres, and communities with DM. The trained village cadres will educate and do health checks. Cadres can inform the community, provide advice and motivation, invite people to have a lifestyle, and assist psychologically with the fear or anxiety.<sup>11</sup> Sidokarto, Godean Subdistrict, has most of the population residing in rural areas, with many DM patients. Most residents tend to ignore their diet when attending events from close relatives.<sup>15</sup> The higher prevalence of DM is, the more complicated the concern should be. It takes a unique strategy for dominant rural communities, symbolizing mutual help between communities (cooperation). The community empowerment model is one possible strategy that encourages

each individual to play an active role and increase independence in controlling DM.<sup>16</sup> Therefore, this study aims to form a new community of DM and gain knowledge to prevent DM and its complications.

## METHODS

The method used was qualitative with an action research design to design. Data collection was carried out by interviewing techniques, focused group discussion (FGD), and literature review. The participants represented the information needed and fit the purpose of study, selected using a purposive technique. This research was held in Sleman Regency from January to June 2021. The number of participants was twenty-nine, consisting of one doctor, one head of the Puskesmas, one nurse, one village head, fifteen community leaders, and ten village cadres.

The strategy for recruiting participants in this study was through routine activities carried out by the Village Head. All of these participants came from rural areas. The selection of participants was carried out randomly, while the selection of Community Leaders was carried out by direct appointment of Village Heads from each kelurahan (there were fifteen villages). Doctors, Heads of Puskesmas, and Nurses are selected based on their working area from the Puskesmas.

The method of collecting qualitative research data included: 1) observing posbindu activities, 2) interviewing the person in charge of non-communicable disease (NCD) in Sleman Regency, district government, village government, and cadres, and 3) FGD with the cadres. Qualitative data analysis from FGDs, interviews, and observations used guidelines from Huberman and Miles.<sup>17</sup> The measuring instrument used to evaluate the study was a questionnaire adapted from previous research. The questionnaire contained the cadre's knowledge of DM.<sup>18</sup> This questionnaire was distributed before and during the study.<sup>16</sup> Questionnaires were used to evaluate volunteer cadres after prevention and treatment DM training. All participants received detailed information and gave written consent before the FGD and interview.

The researchers guaranteed the validity

and credibility of the resulting model. Data Triangulation and method triangulation of methods is carried out to ensure that the resulting model is in accordance with the wishes of the community. On the other side, Investigators conduct member checks to ensure that all procedures are carried out in accordance with qualitative study guideline. The analysis technique used was the N-Vivo software. The study obtained ethics approval before beginning the research from the Health Research Ethics Committee Universitas 'Aisyiyah Yogyakarta, on March 27, 2021 (Number: 1383/KEP-UNISA/III/2021).

## RESULTS

### Community empowerment-based DM control model

The "Gendhis Jawi" program is a community empowerment program that requires community participation and involvement. "Gendhis Jawi" is a community empowerment program that focuses on promotive and preventive activities for controlling DM.

This program was developed by involving the active role of cadres, patients, families, doctors, nurses and heads of hamlets, village heads, and heads of health centers to behave in a healthy life in controlling DM. This program is designed based on the results of previous study that has been done previously. The activities of the "Gendhis Jawi" program consist of: Health education on the prevention of DM and its complications, blood glucose examination, and group gymnastics. Community empowerment programs will be successful if the community gets involved, as stated by the following participant.

*"Insya Allah, a similar program will be held, and people here will participate."* (A Cadre)

Community empowerment can also involve the cadres, as stated by the participant below.

*"... later we can find cadres for Posyandu to help with the diabetes control program."* (Village Head)

The cadres consist of Posyandu health cadres and community leaders or village officials, as supported below.

*"... later the health cadres will be added from the sub-districts ..."* (Village Head)

Health cadres are voluntary as supported by the following statement.

*"Insya Allah, we can find other volunteers as per usual ..."* (A Cadre from Sorolaten)

Health cadres have time to devote themselves to society, as stated below.

*"...The 12 cadres will be divided into Gendhis Jawi. If they want to volunteer, we do not have to find new cadres ... but if they are incapable, we must spare time and energy to find new ones, right?"* (Public Figure)

### Cadres as health partners

Cadres, as health partners, collaborate with related agencies such as health centers to provide initial handling of problems related to DM in the community. They also can conduct initial health screening, as stated by the participant below.

*"If we look at a skinny man or woman, we will ask them to get their blood sugar checked and diet."* (A Cadre)

*"Village officials and heads can join health cadres. The patients also can too. They are more comfortable asking the cadres about the symptoms and solutions though WhatsApp..."* (Village Head)

Health cadres can provide basic health services such as periodic examinations for DM patients, as supported by the following statement.

*"The cadres do the blood sugar checking."* (A Cadre)

Also, health cadres can provide health education for patients with DM, as stated below.

*"The cadres can help and reduce but not cure. Well, it is possible if they know the procedures to reduce the pain in the body ..."* (Public Figure)

### Types of health service in the sub-district officials

Types of health services that patients with DM can access include periodic basic health checks and health consultations conducted by trained cadres. They also can check their weight, abdominal circumference, and blood pressure, as stated by the participant below:

*"Height, weight and waist circumference measurements."* (Technical Guidelines for Posbindu Integrated Guidance Post for Cadres)

*“Blood pressure checks are conducted every month ...” (Posbindu Integrated Guidance Post Technical Guidance for Cadres)*

DM patients can also check their blood sugar while fasting, as revealed below.

*“Cadres do blood sugar checking.” (A Cadre)*

DM patients can do health consultations with cadres regarding the health problems, as supported by the following participant's statement.

*“Village officials and heads can join health cadres. The patients also can too. They are more comfortable asking the cadres about the symptoms and solutions though WhatsApp...” (Village Head)*

Besides health consultations, patients with DM receive assistance from cadres and gain new knowledge from education facilitated by them.

*“My Sorolaten residents were once chosen then canceled. The next opportunity must have a reliable speaker to provide an explanation and coach the DM patients or Gendhis Jawi ...” (Public Figure)*

### **Family's role to enhance DM control success**

Family as the closest persons to DM patients, can assist their eating patterns, as supported by the following participant.

*“People with certain conditions may get well or worse. But we can help by assisting them.” (Village Head)*

Also, family's involvement should hopefully enhance the patients' life quality.

*“By involving the family, we hope everything will be better.”*

## **DISCUSSION**

Diabetes Mellitus (DM) control in rural areas is complex problem. Rural communities tend to have low income, low education backgrounds, and inadequate resources (human resources, advice, and infrastructure) related to inadequate DM control.<sup>14</sup> Low education background means lack of knowledge about DM prognosis and its complications. Fast and precise treatment and early detection can overcome various complications of DM if patients with DM have a high awareness.<sup>19</sup>

A DM control model can increase the

sensitivity or awareness of DM patients by empowering the community to prevent the high prevalence of DM. The group consists of cadres from the integrated health centers and community leaders.<sup>20</sup> They conduct preventive and promotive programs voluntarily by doing basic health checks and providing free health consultations.<sup>21</sup> Trained cadres will hopefully increase the patients with DM awareness. Cadres can also provide psychological support who experience burnout because patients with DM need this support to increase control of DM and its complications.<sup>22</sup> Basic health checks regularly monitor the treatments.<sup>23</sup> The cadres' basic health checks consist of measuring body weight and height, checking blood pressure and blood sugar.<sup>24</sup>

Weight and height are used to determine BMI (Body Mass Index). Monitoring BMI is crucial for people with diabetes. Patients with DM with obese or overweight BMI results indicate that they are not obedient and prone to complications.<sup>23</sup> Checking the blood pressure for patients with DM is essential when they also suffer from hypertension. Hypertension can cause diabetic autonomic neuropathy caused by the consumption of antihypertensive drugs, increasing the risk of death and heart attack.<sup>25</sup> Blood sugar checks are a routine mandatory check for patients with DM to evaluate blood sugar control and treatment regimens. The cadres do basic health checks once a week. The results will provide health education to DM patients. Therefore, proper education will hopefully overcome the problems experienced by DM sufferers patients.<sup>26</sup>

The role of cadres and community leaders in empowering the community also consisted of many components. Besides family, cadres and community leaders often socialize with DM patients and have emotional closeness with them. Cadres should support health facilities according to their skills and abilities. They can make home visits, help mobilize patients with DM and provide information, promotions, and health education related to DM disease management. Cadres are partners for health workers, especially primary health services, to run preventive and promotive programs in the community.<sup>21</sup>

Emotional closeness allows cadres to

encourage the community to participate in DM control and prevention programs. Providing education and counseling is more acceptable. DM patients who live in remote areas have difficulties reaching health workers, and cadres will help them. They can do health checks to monitor the condition, conduct initial screening or provide solutions and first aid.<sup>22</sup> Apart from cadres and families, community leaders are also close to patients with DM. Community leaders consist of the village heads. They are supposed to maximize community empowerment. Community leaders can facilitate cadres in providing health services to patients with DM by making particular policies or strategies. Policies include finance, facilities and infrastructure.<sup>27</sup>

Family support has a significant impact on the self-management of DM patients and can improve patients with DM health status. Families can control patients with DM diet and take supportive actions such as providing emotional support or instrumental support such as helping to pay for health insurance. The family's involvement as the closest person is proven to increase the adherence to treatment of patients with DM. Families can remind patients with DM to take medicine and do routine health controls, which can significantly prevent long-term complications.<sup>28,29</sup>

The family can provide emotional support, help solve the problems, reduce the dynamic pressure, and support the treatment regimen. Family support can increase the self-acceptance of DM patients as valued and respected human beings.<sup>29</sup> The critical role of the family in controlling DM needs qualified knowledge. As the closest person to patients with DM, they need education regarding the prognosis of DM. Proper education can maintain the diet, ensure that DM patients get appropriate treatment regimens, and decide if they need help from health workers.<sup>30</sup>

Diabetes Mellitus (DM) control during the COVID-19 pandemic requires unique strategies. Health protocols challenge DM control to run preventive and promotive programs. Online discussion communities can be an alternative due to the pandemic. They can be a forum for patients with

DM to obtain and share information with fellow patients, cadres, community leaders, and health workers. Also, they provide mutual support for health problems.<sup>31</sup> Online discussion communities can run preventive and promotive DM control programs. Health workers who are members of the discussion group can utilize educational media such as videos, pamphlets, or articles. These media can attract DM patients to join discussion groups.<sup>32</sup>

During the COVID-19 pandemic, it was necessary to adjust the management of DM services to prevent complications from DM itself by utilizing health technology. The use of telehealth in DM service management needs to be developed as a solution to prevent and treat DM during the COVID-19 pandemic. There are four types of telehealth platforms currently available: live video conferencing/synchronous, asynchronous meetings, remote patient monitoring, and mobile health monitoring patient with DM.<sup>33</sup>

## CONCLUSION

Integrated healthcare center cadres and community leaders can help the community empowerment model control DM in rural areas. Cadres have the role of executing activities while community leaders act as policymakers. Besides cadres and community leaders, families can provide emotional, social, and financial support. In the current COVID-19 pandemic, the DM control program requires innovation to remain optimally. One of them is through an online discussion community.

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## AUTHOR CONTRIBUTION

Mahendro Prasetyo Kusumo has been involved in Literature search, data collection, analyzing the final data, writing discussion, research conclusions, research reports, and Manuscript preparation. Elsy

Maria Rosa participated in evaluating the writing format in accordance with the specified guideline.

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## CONFLICT OF INTERESTS

There is no conflict of interest in this research.

## ETHICAL APPROVAL

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## REFERENCES

1. Kementerian Kesehatan RI. Petunjuk Teknis Pos Pembinaan Terpadu Posbindu bagi Kader. 2019;1–60.
2. Kleinberger JW, Pollin TI, Medicine G. Opportunities and Future Prospects. 2016;1346(1):45–56.
3. Lin X, Xu Y, Pan X, Xu J, Ding Y, Sun X, et al. Global, regional, and national burden and trend of diabetes in 195 countries and territories: an analysis from 1990 to 2025. *Sci Rep*. 2020;10(1):1–11.
4. International Diabetes Federation. IDF Western Pacific Members. 2020.
5. Kementrian Kesehatan RI. Infodatin 2020 Diabetes Melitus. Kementrian Kesehatan Republik Indonesia 2020; 2020.
6. Dinas Kesehatan Daerah Istimewa Yogyakarta Tahun 2019. Yogyakarta; 2019. 165 p.
7. Dinas Kesehatan Kabupaten Sleman. Profil Kesehatan Kabupaten Sleman Tahun 2020. Dinas Kesehatan Sleman. 2020.
8. Alkhatib A, Tsang C, Tiss A, Baharun T, Arefanian H, Barake R, et al. Functional foods and lifestyle approaches for diabetes prevention and management. *Nutrients*. 2017;9(12):1–18.
9. Alsous M, Jalil MA, Odeh M, Kurdi R Al, Alnan M. Public knowledge, attitudes and practices toward diabetes mellitus: A cross-sectional study from Jordan. *PLoS One*. 2019;14(3):1–12.
10. Kolb H, Martin S. Environmental/lifestyle factors in the pathogenesis and prevention of type 2 diabetes. *BMC Med*. 2017;15(1):1–11.

11. Ligita T, Wicking K, Francis K, Harvey N, Nurjannah I. How people living with diabetes in Indonesia learn about their disease: A grounded theory study. *PLoS One*. 2019;14(2):1–19.
12. Tai S-Y, He J-S, Kuo C-T, Kawachi I. Urban–Rural Disparities in the Incidence of Diabetes-Related Complications in Taiwan: A Propensity Score Matching Analysis. *J Clin Med*. 2020;9(9):3012.
13. Aung WP, Htet AS, Bjertness E, Stigum H, Chongsuvivatwong V, Kjøllesdal MKR. Urban-rural differences in the prevalence of diabetes mellitus among 25–74 year-old adults of the Yangon Region, Myanmar: Two cross-sectional studies. *BMJ Open*. 2018;8(3):1–9.
14. Paz-Pacheco E, Sandoval MA, Ardena GJR, Paterno E, Juban N, Lantion-Ang FL, et al. Effectiveness of a community-based diabetes self-management education (DSME) program in a rural agricultural setting. *Prim Heal Care Res Dev*. 2017;18(1):35–49.
15. Kusumo MP, Hendartini J, Sufro ZM, Dewi FST. A Qualitative Study to Explore the Perception of Patients Towards Diet in Javanese Culture. *Enferm Clin*. 2020;30:183–7.
16. Kusumo MP, Hendartini J, Sufro ZM, Dewi FST. Theater performing art: A strategy to improve self-efficacy and social support in patient with type 2 diabetes mellitus (T2DM). *J Glob Pharma Technol*. 2020;12(6):70–6.
17. Creswell JW, Clark VLP. Designing and Conducting Mixed Methods Research. 2nd Editio. Vicki Knight, Lauren Habib, Ashley Dodd CA, editor. Thousand Oaks, California: SAGE Publications, Inc. 2455 Teller Road, Thousand Oaks California 91320; 2011.
18. Kusumo MP, Prabandari YS, Dewi FST. Measuring the Knowledge, Attitude and Practice of Patients With Diabetes Mellitus—The Design and Development Process. *Int Q Community Health Educ*. 2021;0272684X2110221.
19. Osarenmwinda MI, Erah PO, Eromhonsel PE. Incidence of Undiagnosed Diabetes Mellitus in Rural Community, Edo South, Benin City. *Indian J Pharm Pract*. 2020;13(3):232–9.
20. Goode PhD DF-CP, Bartlett PhD R-BR, Wallace PhD RFD. The Value of Diabetes Self-Management Programs for African Americans in Community-Based Settings: A Review of the Literature. *Int J Faith Community Nurs*. 2017;3(1):20.
21. Kuule Y, Dobson AE, Woldeyohannes D, Zolfo M, Najjemba R, Edwin BMR, et al. Community health volunteers in primary healthcare in rural Uganda: Factors

- influencing performance. *Front Public Heal*. 2017;5(MAR):1–8.
22. Woldie M, Feyissa GT, Admasu B, Hassen K, Mitchell K, Mayhew S, et al. Community health volunteers could help improve access to and use of essential health services by communities in LMICs: An umbrella review. *Health Policy Plan*. 2018;33(10):1128–43.
  23. Misra R, Fitch C, Roberts D, Wright D. Community-Based Diabetes Screening and Risk Assessment in Rural West Virginia. *J Diabetes Res*. 2016;2016.
  24. Kemenkes. Infodatin Hasi Diabetes Sedunia Tahun 2018. 2019;
  25. De Boer IH, Bangalore S, Benetos A, Davis AM, Michos ED, Muntner P, et al. Diabetes and hypertension: A position statement by the American diabetes association. *Diabetes Care*. 2017;40(9):1273–84.
  26. Frías-Ordoñez JS, Pérez-Gualdrón CE. Self-monitoring of blood glucose as control tool in the different management contexts for type 2 diabetes mellitus. What is its current role in non-insulin users? *Rev Fac Med*. 2019;67(3):293–303.
  27. Timpel P, Harst L, Reifegerste D, Weihrauch-Blüher S, Schwarz PEH. What should governments be doing to prevent diabetes throughout the life course? *Diabetologia*. 2019;62(10):1842–53.
  28. Pamungkas R, Chamroonsawasdi K, Vatanasomboon P. A Systematic Review: Family Support Integrated with Diabetes Self-Management among Uncontrolled Type II Diabetes Mellitus Patients. *Behav Sci (Basel)*. 2017;7(4):62.
  29. Pesantes MA, Del Valle A, Diez-Canseco F, Bernabé-Ortiz A, Portocarrero J, Trujillo A, et al. Family Support and Diabetes: Patient's Experiences From a Public Hospital in Peru. *Qual Health Res*. 2018;28(12):1871–82.
  30. Ravi S, Kumar S, Gopichandran V. Do supportive family behaviors promote diabetes self-management in resource limited urban settings? A cross sectional study. *BMC Public Health*. 2018;18(1):1–9.
  31. Reichert JR, Kristensen KL, Mukkamala RR, Vatrappu R. A supervised machine learning study of online discussion forums about type-2 diabetes. *2017 IEEE 19th Int Conf e-Health Networking, Appl Serv Heal 2017*. 2017;2017-Decem(December):1–7.
  32. Habibzadeh H, Sofiani A, Alilu L, Gillespie M. The effect of group discussion-based education on self-management of adults with type 2 diabetes mellitus compared with usual care: A randomized control trial. *Oman Med J*. 2017;32(6):499–506.
  33. Susilo DH, Kusbaryanto K, Kusumo MP. Diabetes Mellitus Management during the Coronavirus disease-19 Pandemic: Literature Review. *Open Access Maced J Med Sci*. 2021;9:541–8.



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