

Original Research**Community-Based Supportive Educative Improves Self-Care Management Of Type II Diabetes Mellitus In The Era Of The Covid-19 Pandemic****Emdat Suprayitno^{1*}, Elyk Dwi Mumpuningtias², Cory Nelia Damayanti³**^{1,2,3} Faculty of Health Sciences, Wiraraja University**ABSTRACT**

Background: Diabetes is the most serious, threatening and growing global health problem, leading to high morbidity and mortality and increasing health care costs. A patient's lack of understanding and self-help about the disease only exacerbates the situation. Community-based, supported learning is a skill that helps improve the patient experience. This study aims to determine the effect of a supportive community education program on self-management in patients with type 2 diabetes.

Methods: The design of this study is quasi-experimental. The population of this study was the patient with diabetes mellitus type II with the number of samples was 86, a simple randomized sample divided into two groups, 43 in the treatment group supporting community education activities, and 43 in the control group distributing leaflets on diabetes management. The Personal Care Behavioral Data Collection Tool uses the Diabetes Self-Management Summary (SDSCA). Results from studies were analyzed using the Wilcoxon test and the Mann-Whitney U test.

Results: According to the Wilcoxon signed rank test, the self-management score was 0.001 in the intervention group and $p = 0.014$ in the control group. Based on the Mann-Whitney test, the difference in self-help index between the experimental group and the control group after intervention was $p = 0.001$.

Conclusion: The results of this study demonstrate that supportive community-based educational activities are effective in increasing self-management opportunities in people with type 2 diabetes. This intervention can help increase independence in people with type 2 diabetes.

ARTICLE HISTORYReceived : April 14th, 2022Accepted : May 31th, 2022**KEYWORDS**

diabetes mellitus, selfcare, supportive educative;

CONTACT

Emdat Suprayitno

emdat@wiraraja.ac.idFaculty of Health Sciences,
Wiraraja University, Madura. Jl.
Raya Pamekasan - Sumenep
No.KM. 05, Panitian Utara, Patean,
Kec. Batuan, Kabupaten Sumenep,
Jawa Timur 69451 Indonesia.

Cite this as: Suprayitno, E., Mumpuningtias, E., & Damayanti, C. (2022). Community-Based Supportive Educative Improves Self-Care Management of Type II Diabetes Mellitus in the Era of the COVID-19 Pandemic. *Interest : Jurnal Ilmu Kesehatan*, 21-28. <https://doi.org/10.37341/interest.v0i0.445>

INTRODUCTION

Diabetes Mellitus is the most severe, threatening, and growing global health problem, which results in high rates of morbidity and mortality and increases the cost of health care. Indonesia is one of the top 10 countries with the highest number of DM

sufferers, and WHO predicts that in 2030 this number will increase (Sari, 2017). The increase in the prevalence of non-communicable diseases is related to unhealthy lifestyles, including smoking, consumption of alcoholic beverages, lack of physical activity, and fewer fruits and vegetables (Duarte et al., 2019).

The increasing prevalence of DM patients consistently shows that DM is a health problem that needs special attention in health services. Changes in the patient's lifestyle are necessary to reduce mortality and morbidity (Silalahi et al., 2021). The ability of diabetics to adhere to appropriate and successful self-management habits is closely related to morbidity and mortality and has a significant impact on productivity and quality of life (Rantung et al., 2015).

The SARSCoV2 coronavirus pandemic infects over 1 million people worldwide. Covid-19 affects almost all ages, but available data shows that the elderly and those with chronic diseases (co-morbid) are at risk of contracting the disease. More frequently and experience worse complications of the illness. Diabetes is the second most common co-morbid after hypertension, which is 8% of cases and with a mortality rate three times that of patients in general (Y. Li et al., 2020).

Research conducted in Hubei Province, China, shows that Covid-19 patients with a history of diabetes who are hospitalized require more medical intervention. Patients also have a high mortality rate, which is 7.8% compared to non-diabetic Covid-19 patients. However, the patient's risk of death tends to be lower when blood sugar levels are controlled. Covid-19 patients with diabetes and controlled blood sugar levels tend to require less medical intervention and experience fewer complications (J. Li et al., 2020).

Some factors that can influence an individual's self-management include age, education, knowledge, patient-physician relationship, and duration of diabetes (Guo et al., 2021). The prevalence of complications in patients with type 2 diabetes mellitus can increase and worsen due to the inability of the patient to manage the disease independently. In this case, self-management becomes very important in the treatment of diabetes mellitus. Self-care is one of the self-management of diabetes mellitus, and it is necessary to obtain adequate glycemic control (Mumpuningtias et al., 2022).

All humans need to take care of themselves and have the right to self-care independently (Kosiborod et al., 2018). According to Dorothea E. Orem (2001), Self-care is a human need where individuals try to maintain, maintain and improve the patient's quality of life for life, well-being, and healing from disease and avoid complications (Alligood & Fawcett, 2017).

Self-care in managing DM can overcome threatening health problems. Excellent and correct self-care in type 2 DM patients is very much needed to prevent complications. Self-care success is obtained from the participation of patients, families, and communities through health education/education information (Summers & Gibson, 2021). Education given to patients with type 2 DM is a process that facilitates the knowledge, skills, and abilities of patients with self-care. Various choices of educational methods given to patients are one of the ways used to achieve good learning to be absorbed and implemented by patients.

One of the methods used is a supportive educative method involving health cadres and nurses (Nejhaddadgar et al., 2019). The purpose of this study to know the effect of community-based supportive educative to self-care management of type II diabetes mellitus in the era of the covid-19 pandemic.

MATERIALS AND METHOD

This study uses a quasi-experimental pre and post-test design with a control group. The population in this study was all people with type II diabetes mellitus in Kertasada Kalianget, Sumenep district. The intervention was carried out for two months starting from May to June 2021. Post test has been done on June 29, 2021.

The sampling technique used was simple random sampling. The number of samples was 86 people divided into two groups, 43 people in the treatment group were given community-based supportive educative intervention, and 43 people in the control group were only given leaflets about diabetes mellitus care and were still given medical therapy from the puskesmas. During the first week, researchers conducted an intervention group that visited each respondent's home and received community-based supported learning. Researchers provide self-help support and health education for people with type 2 diabetes.

This intervention is performed once a month for two months. In the second week, health consultation was continued by drawing up medical protocols in the Poshiandu staff house. The health training was conducted by the cadres of the chieftain of Kertasad with the researchers, with the addition of the same material as on the first day. This intervention is performed once a month for two months. The self-management data collection tool uses the Diabetes Self-Management Activity Summary (SDSCA) questionnaire developed by Toobert, Hampson & Glasgow.

Translated and modified by Kusniawati 2011 with significance criterion r in the range $r = 0.2000.743$, table $r = 0.361$ and confidence value Cronbach's $\alpha = 0.812$. This study received a research letter Number: 025 /SP2H/PEN-DI/LPPM/UNIJA/V/2021

RESULTS

Distribution of Respondents Characteristic Based on Age, gender, Last education and Occupation.

Table 1. Respondents Characteristic Based on Age, gender, Last education and Occupation

Variabel	Frequency	Percentage
Age		
32-38 Years	18	20.9
39-45 Years	10	11.6
46-52 Years	18	20.9
53-59 Years	20	23.3
60-66 Years	14	16.3
67-76 Years	6	7.0
Gender		
Man	14	16.3
Woman	72	83.7
Last Education		
Uneducated	20	23.3
Elementary School	50	58.1
Senior High School	14	16.3
College	2	2.3

Variabel	Frequency	Percentage
Occupation		
Civil Servant	0	0
Teacher	0	0
Entrepreneur	12	14.0
Farmer	2	2.3
Unemployed	72	83.7
Total	86	100.0

Based on table 1 of the frequency distribution by age, it is known that most of the respondents who suffer from type II diabetes mellitus are aged 53-59 years, as many as 20 respondents (23.3%). The frequency distribution by gender, it is known that the majority of respondents who suffer from type II diabetes mellitus are women as many as 36 respondents (83.7%). The frequency distribution based on the last education, it is known that most of the respondents who suffer from type II diabetes mellitus, most of them are elementary school as many as 50 respondents (58.1%).

The frequency distribution based on occupation, it is known that the majority of respondents who suffer from type II diabetes mellitus are unemployed as many as 72 respondents (83.7%).

Table 2. Differences in the mean self-care scores before and after Community-based supportive educative interventions in the control group

Variable	Score	Mean	SD	Pvalue
Selfcare	Pre	54,67	10,01	0,180
	Post	54,81	9,92	

Based on table 2, the average self-care score of the control group before the caring-based supportive educative intervention was $54,67 \pm 10,01$ and the average self-care score after the caring-based supportive educative intervention was $54,81 \pm 9,92$. The results of the Wilcoxon signed rank test self-care score, $p=0,180$, means that there is no significant difference in self-care scores in the control group before and after Community-based supportive educative intervention in the control group.

Table 3. The difference in mean self-care scores before and after Community -based supportive educative interventions in the intervention group

Variable	Skor	Mean	SD	Pvalue
Selfcare	Pre	54,76	11,10	0,001
	Post	55,23	10,97	

Based on table 3, the average self-care score in the intervention group before the caring - based supportive educative intervention was $54,76 \pm 11,10$ and the average self-care score after the caring-based supportive educative intervention was $55,23 \pm 10,97$. The results of the Wilcoxon signed rank test self-care score that is $p=0.001$ means that there is a significant difference in self-care scores in the intervention group before and after Community-based supportive educative intervention in the intervention group.

Table 4. The difference in mean self-care scores before Community-based supportive educative intervention in the intervention group and the control group

Variabel	Kelompok	Mean	SD	Pvalue
Selfcare	Intervensi	55,23	10,97	0,001
	Kontrol	54,81	9,92	

Based on table 4 the average value of the self-care score for the treatment group before the caring-based supportive educative intervention was $54,81 \pm 9,92$ and the control group was $55,23 \pm 10,97$. The Mann Whitney test attitude score results, $p=0.001$, meant there is a significant difference in self-care scores in the treatment group and the control group with Community-based supportive educative intervention.

DISCUSSION

Based on the results of statistical test analysis using the Wilcoxon test and the Mann Whitney test, it is known that the significant value or sig (2-tailed) is $0.001 < 0.05$, meaning that there is a substantial effect of giving before and after providing community-based supportive educative treatment. On Self Care Management of Patients with Type II DM. The results of this study are supported by research conducted by Linda, Suryanto, Rizky (2021). The use of diabetes self-management education and support methods can increase the ability and understanding of patients and their families for independent care at home.

It can facilitate patients by increasing their knowledge, clinical skills, and skills related to independently caring for people with diabetes mellitus (Noviyanti et al., 2021). This will undoubtedly impact the quality of life of people with diabetes mellitus and reduce mortality. Habibah research found a significant influence on diabetes self-management education (DSME) with the audiovisual method on the self-care behavior of diabetes mellitus patients (Habibah et al., 2019).

Self-care in managing DM can overcome threatening health problems. Self-care management must be owned by a person with diabetes mellitus because diabetes mellitus is a disease that cannot be cured, but what can do is maintain or manage glucose levels in the blood under normal conditions. Excellent and correct self-care in type 2 DM patients is very much needed to prevent complications (Moghadam et al., 2018).

The success of self-care is obtained from the participation of patients, families, and communities through health education/education information. If people with diabetes mellitus own self-care management, it can help manage blood sugar levels because self-care is an independent treatment carried out by the individual himself in improving his health status (Montazami et al., 2021). Self-care management can help people with diabetes manage their blood glucose levels because the components of self-care management are physical activity or exercise, controlling blood glucose levels, eating the proper diet, and checking feet. If this is done in daily life, it is undoubtedly very helpful in managing blood glucose, preventing complications, and indirectly improving the quality of life (Dalal et al., 2020).

The selection of the proper method in implementing health education is essential in terms of who receives it, the availability of time, the availability of funds, and the

health promotion personnel (Brownson et al., 2018). Health promotion activities in hospitals should be carried out sustainably and achieve targets given that many of the diseases that one of the management through the provision of health education to patients. Supportive Education is educational support that provides energy to strengthen self-care behavior and encourage patients to use existing resources to overcome the health problems experienced (Regmi & Jones, 2020).

Supportive Education give in the form of guiding, directing, and teaching in health education for both families and patients so that they can carry out health care independently Community-based supportive educative is a good alternative in supporting the self-improvement of DM patients. Kim's 2016 research explains that this intervention is effective in improving the Management and Treatment of Chronic Diseases Among Vulnerable Populations (Kim et al., 2016).

However, this activity cannot be carried out only in one health education provision because the purpose of this intervention is to achieve behavioral changes in DM patients for the better (Ahrary et al., 2020). In this research, it has involved public health centre nurses, health cadres and chief of kertasada village.

CONCLUSIONS

It can be concluded that there was no difference in the mean scores for self-care before and after the supportive care-based educational intervention in the control group. Differences in mean self-care rates before and after supportive education interventions at the community level in intervention groups. At the community level, mean scores for self-management after supportive educational interventions differed between the intervention and control groups.

The results of this study indicate that providing supportive learning at the community level can influence self-management behaviors in people with type 2 diabetes. In this study, it is recommended to apply this intervention to type 2 diabetes patients to increase the independence of self-care, and it is expected that additional research will be conducted through a more diverse and long-term modified intervention.

ACKNOWLEDGEMENT

The authors would like to thank the participants of this study and research institute and community service Wiraraja University

REFERENCES

- Ahrary, Z., Khosravan, S., Alami, A., & Najafi Nesheli, M. (2020). The effects of a supportive-educational intervention on women with type 2 diabetes and diabetic peripheral neuropathy: a randomized controlled trial. *Clinical Rehabilitation*, 34(6), 794–802. <https://doi.org/10.1177/0269215520914067>
- Alligood, M. R., & Fawcett, J. (2017). The theory of the art of nursing and the practice of human care quality. *Visions: The Journal of Rogerian Nursing Science*, 23(1), 4–13.
- Brownson, R. C., Fielding, J. E., & Green, L. W. (2018). Building capacity for evidence-based public health: reconciling the pulls of practice and the push of research. *Annual Review of Public Health*, 39, 27. <https://doi.org/10.1146/annurev-publhealth-040617-014746>

- Dalal, J., Williams, J. S., Walker, R. J., Campbell, J. A., Davis, K. S., & Egede, L. E. (2020). Association between dissatisfaction with care and diabetes self-care behaviors, glycemic management, and quality of life of adults with type 2 diabetes mellitus. *The Diabetes Educator*, 46(4), 370–377. <https://doi.org/https://doi.org/10.1177/0145721720922953>
- Duarte, A. P. P., Rodrigues, P. R. M., Ferreira, M. G., Cunha, D. B., Moreira, N. F., Sichieri, R., & Muraro, A. P. (2019). Socio-economic and demographic characteristics associated with risk behaviour patterns for chronic non-communicable diseases in Brazil: data from the National Health Survey, 2013. *Public Health Nutrition*, 22(11), 2083–2091.
- Guo, S. H.-M., Hsing, H.-C., Lin, J.-L., & Lee, C.-C. (2021). Relationships between mobile ehealth literacy, diabetes self-care, and glycemic outcomes in Taiwanese patients with type 2 diabetes: Cross-sectional study. *JMIR MHealth and UHealth*, 9(2), e18404. <https://doi.org/https://doi.org/10.36763/healthcare.v8i2.53>
- Habibah, U., Ezdha, A. U. A., Harmaini, F., & Fitri, D. E. (2019). Pengaruh diabetes self management education (DSME) dengan metode audiovisual terhadap self care behavior pasien diabetes melitus. *HEALTH CARE: JURNAL KESEHATAN*, 8(2), 23–28.
- Kim, K., Choi, J. S., Choi, E., Nieman, C. L., Joo, J. H., Lin, F. R., Gitlin, L. N., & Han, H.-R. (2016). Effects of community-based health worker interventions to improve chronic disease management and care among vulnerable populations: a systematic review. *American Journal of Public Health*, 106(4), e3–e28. <https://doi.org/https://doi.org/10.2105/AJPH.2015.302987>
- Kosiborod, M., Gomes, M. B., Nicolucci, A., Pocock, S., Rathmann, W., Shestakova, M. V., Watada, H., Shimomura, I., Chen, H., & Cid-Ruzafa, J. (2018). Vascular complications in patients with type 2 diabetes: prevalence and associated factors in 38 countries (the DISCOVER study program). *Cardiovascular Diabetology*, 17(1), 1–13. <https://doi.org/https://doi.org/10.1186/s12933-018-0787-8>
- Li, J., Wang, X., Chen, J., Zuo, X., Zhang, H., & Deng, A. (2020). COVID-19 infection may cause ketosis and ketoacidosis. *Diabetes, Obesity and Metabolism*, 22(10), 1935–1941.
- Li, Y., Zhou, W., Yang, L., & You, R. (2020). Physiological and pathological regulation of ACE2, the SARS-CoV-2 receptor. *Pharmacological Research*, 157, 104833. <https://doi.org/https://doi.org/10.1016/j.phrs.2020.104833>
- Moghadam, S. T., Ms, S. S. N., & Ms, S. Y. (2018). The effect of self-care education on emotional intelligence and HbA1c level in patients with type 2 diabetes mellitus: a randomized controlled clinical trial. *International Journal of Community Based Nursing and Midwifery*, 6(1), 39.

- Montazami, M., Khalifehzadeh-Esfahani, A., & Keshvari, M. (2021). Investigating the effect of family-centered self-care program based on home visits regarding dietary and medication regimen adherence of discharged patients with acute coronary syndrome. *Iranian Journal of Nursing and Midwifery Research*, 26(2), 113. <https://doi.org/https://doi.org/10.1016/j.dsx.2018.08.016>
- Mumpungintias, E. D., Suprayitno, E., & Damayanti, C. N. (2022). Caring-Based Supportive Educative Enhance Prevention Ability Of Diabetic Ulcers In Patients With Type II Diabetes. *Interest: Jurnal Ilmu Kesehatan*, 198–206.
- Nejhaddadgar, N., Darabi, F., Rohban, A., & Solhi, M. (2019). The effectiveness of self-management program for people with type 2 diabetes mellitus based on PRECEDE-PROCEDE model. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 13(1), 440–443.
- Noviyanti, Li. Wi., Suryanto, S., & Rahman, R. T. (2021). Peningkatan Perilaku Perawatan Diri Pasien melalui Diabetes Self Management Education and Support. *Media Karya Kesehatan*, 4(1). <https://doi.org/https://doi.org/10.24198/mkk.v4i1.30747.g15500>
- Rantung, J., Yetti, K., & Herawati, T. (2015). Hubungan self-care dengan kualitas hidup pasien diabetes mellitus (DM) di persatuan diabetes indonesia (Persadia) Cabang Cimahi. *Jurnal Skolastik Keperawatan*, 1(01), 38–51. <https://doi.org/https://doi.org/10.35974/jsk.v1i01.17>
- Regmi, K., & Jones, L. (2020). A systematic review of the factors—enablers and barriers—affecting e-learning in health sciences education. *BMC Medical Education*, 20(1), 1–18.
- Sari, N. P. W. P. (2017). Nursing Agency Untuk Meningkatkan Kepatuhan, Self-Care Agency (SCA) Dan Aktivitas Perawatan Diri Pada Penderita Diabetes Mellitus (DM). *Jurnal Ners LENTERA*, 5(1), 77–95.
- Silalahi, L. E., Prabawati, D., & Hastono, S. P. (2021). Efektivitas Edukasi Self-Care Terhadap Perilaku Manajemen Diri pada Pasien Diabetes Melitus di Wilayah Puskesmas Sukapura Jakarta. *MPPKI (Media Publikasi Promosi Kesehatan Indonesia): The Indonesian Journal of Health Promotion*, 4(1), 15–22.
- Summers-Gibson, L. (2021). The Relationships Between Diabetes Self-Care, Diabetes Time Management, and Diabetes Distress in Women With Type 2 Diabetes Mellitus. *The Science of Diabetes Self-Management and Care*, 26350106211014440. <https://doi.org/https://doi.org/10.1177/26350106211014438>