



The Effect Of The Covid-19 Pandemic On Self-Management Of Patients With Diabetes Mellitus Type 2: Literature Review

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ABSTRACT

During the COVID-19 pandemic, patients' mobility is severely restricted. They also adjust to the condition of their illness and have to think about the fear of contracting COVID-19. Diabetes mellitus is also one of the most common comorbidities found in COVID-19 patients. Therefore, it is necessary to know more about the influence or impact of the COVID-19 Pandemic on the self-management of patient with Type 2 Diabetes Mellitus. Melitus Type 2. This literature review uses 3 databases: Pubmed, Proquest, and Ebsco, which were published from 2019 to 2021 with the keywords "Effect of the COVID-19 Pandemic" "Patients" "Diabetes Type 2" "Self-Management" and "Covid-19". A total of 438 article were obtained, including 5 duplicate articles. The final results obtained five articles that meet the review requirements. Based on the literature study that has been analyzed, it can be concluded that the COVID-19 pandemic has a significant negative effect on the self-management of Type 2 DM patients. The COVID-19 pandemic and its outward impact have an indirect effect on the fragility of the health system and care management in Type 2 DM patients. There are many patients who avoid treatment for fear of contracting COVID-19. The results of the study showed that the results of the glycemic examination in Type 2 DM patients showed uncontrolled values. In Type 2 DM patients, there are lifestyle changes, such as diet, physical activity, and self-management during the COVID-19 pandemic and lockdown. The results showed that the lockdown had a negative effect on the health status of type 2 DM patients, especially in women

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ABSTRAK

Pandemi Covid-19 berdampak pada self-management pasien Diabeter Melitus Type 2. Ruang gerak pasien selama Pandemi Covid-19 sangat terbatas. Mereka juga menyesuaikan dengan kondisi penyakitnya dan harus memikirkan takut tertularnya Covid-19. Diabetes melitus juga merupakan salah satu komorbid yang paling banyak ditemukan pada pasien Covid-19. Oleh karena itu perlu diketahui lebih tentang pengaruh atau dampak Pandemi Covid-19 terhadap self-management pasien dengan penyakit Diabetes Melitus Type 2. Tujuan tulisan ini adalah untuk melakukan telaah literatur tentang pengaruh atau dampak Pandemi Covid-19 terhadap self-management pasien dengan penyakit Diabetes Melitus Type 2. Literature Review ini menggunakan 3 database: Pubmed, Proquest, dan Ebsco yang dipublikasikan dari tahun 2019 sampai 2021 dengan kata kunci keyword "Pengaruh Pandemi Covid-19" "Pasien" "Diabetes Type 2" "Self-Management" "Covid-19". Didapatkan Total 438 artikel, 5 artikel duplikat. Hasil akhir diperoleh 5 artikel yang memenuhi syarat review. Berdasarkan

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studi literatur yang telah dianalisis dapat disimpulkan bahwa Pandemi Covid-19 berpengaruh signifikan negatif terhadap self-management pasien DM Typ2. Pandemi Covid-19 dan dampaknya yang meluar terhadap memberikan efek tidak langsung terhadap kerapuhan sistem kesejatan dan manajemen perawatan pada pasien DM Type 2. Ada banyak pasien yang menghindari pengobatan karena takut tertular Covid-19. Hasil kajian menunjukkan bahwa hasil pemeriksaan glycemc pada pasien DM Type 2 menunjukkan nilai yang tidak terkontrol. Pada Pasien DM Type 2, ada perubahan gaya hidup, seperti pola makan, aktivitas fisik, dan self-management selama Pandemi Covid-19 dan lockdown. Hasil penelitian menunjukkan bahwa lockdown memiliki pengaruh yang negatif terhadap status kesehatan pasien DM Type 2, terutama pada perempuan

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INTRODUCTION

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is a novel coronavirus that has never been identified before in humans. The World Health Organization (WHO) designated COVID-19 as a Public Health Emergency of International Concern (PHEIC) on January 31, 2020 and on March 11, 2020, WHO declared COVID-19 a pandemic (Ministry of Health, 2020).

Data obtained as of November 14, 2021, reached 251,788,329 cases, with 5,077,907 deaths (Covid-19 Handling Task Force, 2021). Diabetes Mellitus (DM) is one of the risk factors that can increase the severity of COVID-19 infection. In China, 7.3% of the death rate is caused by diabetics diagnosed with COVID-19 (China CDC weekly, 2020). In Italy, it turns out that 36% of deaths in COVID-19 patients are related to diabetes (Onder et al., 2020).

According to the International Diabetes Federation (IDF) (2019), Indonesia ranks seventh in the world for the prevalence of diabetics, with an estimated number of diabetics at 10.7 million (Yuen et al., 2019). Diabetes Mellitus (DM) is a public health problem and has received a lot of attention. Diabetes Mellitus is a chronic disease that occurs when the pancreas cannot produce adequate insulin or when the body cannot effectively use the insulin it produces. This results in an increase in the concentration of glucose in the blood known as hyperglycemia (Burhan et al., 2020).

Diabetes Mellitus (DM) is a chronic disease; therefore, the role of self-management is very important in the treatment and prevention of complications due to DM. Self-management needs to be understood as a process that not only develops over time but also develops in relation to the type of illness a person experiences and specific problems related to their health (Moser et al., 2008). The self-management skills needed to control blood sugar are diet, medication, exercise, monitoring sugar levels, and foot care. The results of the research from Putri et al (2013) showed that more than half of the respondents (64.9%) performed the five aspects of self-management well. Almost all

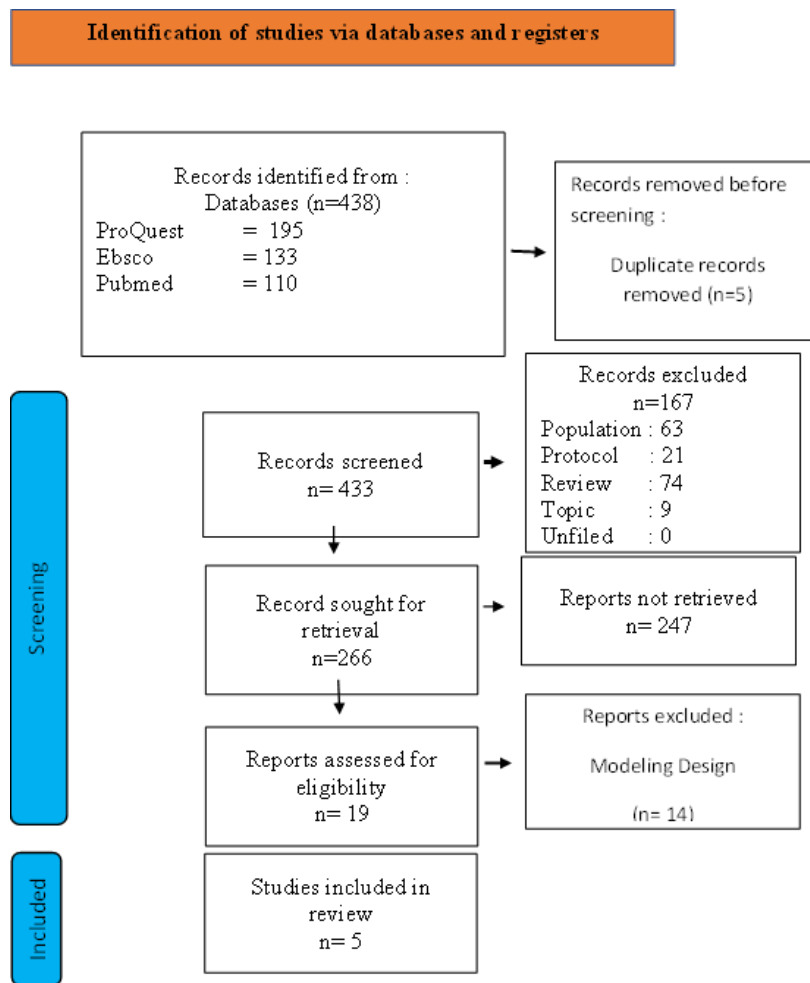
respondents (94.7%) took medication well. More than half of the respondents did diet (69.1%), exercise (61.7%), and foot care (77.7%) well. However, only 25.5% of the respondents did good blood sugar monitoring. The results of this study can be used as a reference for nurses to provide counseling about the importance of monitoring blood sugar.

Currently, the Covid-19 pandemic is sweeping the world. The Covid-19 Pandemic condition has an impact on the self-management of Type 2 Diabetes Mellitus patients. The space for patients during the Covid-19 Pandemic is very limited, due to the implementation of social distancing, the implementation of Large-Scale Social Restrictions (PSBB) policies, and lockdowns. They also adjust to the condition of their illness and have to think about the fear of contracting Covid-19. Diabetes mellitus is also one of the most common comorbidities found in Covid-19 patients. Based on the description above, researchers are interested in conducting a literature study related to the effect of the Covid-19 pandemic on self-management of patients with Type 2 Diabetes Mellitus type 2 diabetes mellitus

METHOD

The literature review was obtained from 3 database sources: Pubmed, Proquest, and Ebsco, published from 2019 to 2021. A total of 438 articles were obtained, including 5 duplicate articles. The final results obtained 5 articles that meet the review requirements and through the Prisma checklist. The next stage is through the screening of inclusion and exclusion criteria, quality assessment, and data extraction. The analysis was carried out for the characteristics of inclusion in this study: the year of publication 2019–2021, in English, a complete text or full text, type 2 DM disease, and with the keywords "Effect of the COVID-19 Pandemic" "Patients" "Diabetes Type 2" "Self-Management" "Covid-19".

Figure 1. Identification of studies via databases and registers



RESULTS

The literature search results assessed five articles shown in Table 1

Table 1. Summary of Articles reviewed

No	Reseachar and Year	Title	Setting	Method	Sample Size dan Kriteria Eklusi dan Inklusi	Result
1.	Hediye Uli & Birgul Vural Dogru (2022)	<i>The effect of the COVID-19 pandemic on self-management in patients with type 2 diabetics</i>	Turkey	This study is a quantitative method, descriptive cross-sectional design.	The sample in this study were 378 patients with Type 2 DM who received treatment at an endocrinology clinic at a government hospital. The inclusion criteria in this study were respondents who agreed to be respondents. The inclusion criteria were not filling out the questionnaire	The ototal omean Diabetes oSelf-Management oQuestionnaire o(DSMQ) oscore of oindividuals owith otype o2 odiabetes owho oparticipated oin othe ostudy oduring othe oCOVID-19 opandemic owas o5.25 o± o1.04. oTheir omean ototal oanxiety oscore owas o0.32 o± o1.56, oand otheir omean ototal ostress oscore owas o7.06 o± o1.62. oMale, ooever o65 oyears oold, omarried oand odiagnosed owith odiabetes ofor o6-11 oyears, oincreased osmoking, oCOVID-19 opandemic, oreduced ophysical oactivity o(not owalking) oand osupport

					completely.	obtained from health workers, and increased anxiety and stress levels were found to be a risk factor influencing diabetes self-management.
						The Covid-19 pandemic has a significant negative effect on the self-management of oTyp2 oDM opatients.
2.	Margareth F. Zupa, et al (2022)	<i>Changes in Self-management During the COVID-19 Pandemic Among Adults with Type 2 Diabetes at a Federally Qualified Health Center</i>	Spain and England	This research is a quantitative method with a telephone survey method.	The sample in this study were 72 respondents who were attending self-management education at government health centers.	The results showed that the mean age of the respondents was 54.2 (SD 10.2) years, 62% were female, and most (57%) had less than a high school degree. oHbA1c was 9.2% (SD 1.6), and 56% were taking insulin. Five of the reported patients have tested positive for oCOVID-19, and seven are living with someone who has tested positive. Of the 33 respondents who worked outside the home before oCOVID-19, 61% have lost their jobs or are now working less. When asked how diabetes management behaved during the pandemic, 53% reported less physical activity, while 25% reported more. Although 43% reported finding it more difficult to obtain healthy foods, only 18% percent reported eating less healthy foods, while 38% reported eating more healthy foods. Most (80%) reported no change in how often they took their medication. 61% of respondents reported increased difficulty accessing medical care. The 41% of respondents felt more worried about managing their diabetes because of the changes related to the pandemic, and many felt more isolated (49%) and stressed (51%).
3.	Eszter P Vamos & Kamlesh Khunti (2021)	<i>Indirect effects of the COVID-19 pandemic on people with type 2 diabetes: time to urgently move into a recovery phase</i>	London	This research is a qualitative method.	The sample in this study was 161181 type 2 DM patients. No inclusion and exclusion criteria were used in this study. Because the data for 161181 patients were taken from 6 local health centers to see changes in behavior towards DM before and after the Covid-19 lockdown.	The Covid-19 pandemic and its widespread impact have an indirect effect on the fragility of the health system and self-care management in Type 2 DM patients. There are many patients who avoid treatment for fear of contracting Covid-19.

4.	Claudie Eberle & Stefanie Sticking (2022)	<i>Impact of COVID-19 lockdown on glycemic control in patients with type 1 and type 2 diabetes mellitus: a systematic review</i>	Germany	This research is a literature study.	The sample in this study were 25 patients with Type 1 DM and 8 patients with Type 2 DM. The inclusion criteria are patients who are affected by Covid-19, then affect the glycemic parameter. The exclusion criteria are documents that are not relevant to the topic being studied and do not involve paper proceedings.	The results of the study showed that the results of the glycemic examination in Type 2 DM patients showed uncontrolled values.
5.	Hamid Farhane, et al (2021)	<i>COVID-19 pandemic: Effects of national Lockdown on the State of health of Patients with type 2 diabetes mellitus in a Moroccan population</i>	Maroco	This research is a quantitative method. The analysis used is statistical analysis and Paired t test.	The sample in this study were 121 patients with type 2 diabetes who were taken from diabetes Diagnosis and Treatment Center of El Jadida city. Inclusion criteria: willing to be a research respondent and fill in the data completely. Exclusion criteria: incomplete data.	Lockdown has led to a new normal. In Type 2 DM patients, there are lifestyle changes, such as diet, physical activity, and self-management. The results showed that the lockdown had a negative effect on the health status of Type 2 DM patients, especially in women.

DISCUSSION

The Hediye Ulti & Birgul Vural Dogru study (2022) showed that the total mean Diabetes Self-Management Questionnaire (DSMQ) score of individuals with type 2 diabetes who participated in the study during the COVID-19 pandemic was 5.25 ± 1.04. Their mean total anxiety score was 0.32 ± 1.56, and their mean total stress score was 7.06 ± 1.62. Male, over 65 years old, married and diagnosed with diabetes for 6–11 years, increased smoking, COVID-19 pandemic, reduced physical activity (not walking), support obtained from health workers, and increased anxiety and stress levels were found to be risk factors influencing diabetes self-management. The COVID-19 pandemic has a significant negative effect on the self-management of Type 2 DM patients.

Research by Margaret O.F. Zupa, et al. (2022) showed that the mean age of the respondents was 54.2 (SD 10.2) years, 62% were female, and most (57%) had less than a high school degree. HbA1c was 9.2% (standard deviation 1.6), and 56% were on insulin. Five of the reported patients have tested positive for COVID-19, and seven are living with someone who has tested positive. Of the 33 respondents who worked outside the home before COVID-19, 61% have lost their jobs or are now working less. When asked how diabetes management behaved during the pandemic, 53% reported less physical activity, while 25% reported more. Although 43% reported finding it more difficult to obtain healthy foods, only 18% reported eating fewer healthy foods, while 38% reported eating more healthy foods. Most (80%) reported

no change in how often they took their medication. 61% of respondents reported increased difficulty accessing medical care. 41% of respondents felt more worried about managing their diabetes because of the changes related to the pandemic, and many felt more isolated (49%) and stressed (51%).

Research by Eszter P. Vamos & Kamlesh Khunti (2021) shows that the COVID-19 pandemic and its widespread impact have an indirect effect on the fragility of the health system and self-care management in Type 2 DM patients. There are many patients who avoid treatment for fear of contracting COVID-19.

The study by Claudie Eberle & Stefanie Sticking (2022) showed that the results of the glycemic examination in patients with Type 2 DM showed uncontrolled values. In general, glycemic parameters in patients with T1D signs increased significantly during the COVID-19 lockdown. Over all, n = 18 (72%) T1D studies showed clear, significant improvements in glycemic outcome. The meta-analysis showed a mean difference in HbA1c of 0.05% (95% CI 0.31 to 0.21) due to the "lockdown effect" and in time in range (TIR) of +0.375% (95% CI 2.56 to 4.92). In contrast, lockdown causes worsening of glycemic values in patients with T2D. Overall, n = 4 (50%) publications observed a marked decrease in microalbuminuria. Through lockdown, a mean difference in HbA1c of +0.14 (95% CI 0.13-0.40) was shown. Furthermore, n = 3 (75%) studies reported non-significant weight loss ranging from +0.3 kg to +0.95 kg. And the results of research conducted by Romakin and Mohammadnezhad (2019) said that there are several factors that can trigger poor glycemic

control, one of which is poor patient compliance with predetermined treatment and management plans, and poor patient attitudes, such as lack of self-motivation to take care of their own health, with too much dependence on the provision of health services. In addition, there is a lack of or limited knowledge of patients, especially about diabetes, complications, and treatment goals; the influence of culture and patient beliefs about traditional diabetes treatment; and a lack of family support (Romakin and Mohammadnezhad, 2019).

Research by Farhane et al. (2021) shows that lockdown has led to a pattern of life with a new normal. In Type 2 DM patients, there are lifestyle changes, such as diet, physical activity, and self-management. The results showed that the lockdown had a negative effect on the health status of type 2 DM patients, especially in women. This means that the longer and tighter the lockdown is carried out, the worse the health of Type 2 DM patients will be due to limited space for movement and stress.

The five studies above are supported by several other studies. Ikhwan et al. (2022) in their research found that the stress level of people with type 2 diabetes mellitus was in the moderate category (77.9%). The level of stress based on indicators due to emotional burden due to COVID-19 is in the medium category (71.1%), because the health workers are in the medium category (59.7%), because the treatment is in the moderate category (51%) and because interpersonal relationships are in the moderate category (59.1%). It was concluded that the stress level category of people with type 2 diabetes mellitus in rural areas during the COVID-19 pandemic in carrying out self-management was in the medium category. Diabetes self-management behaviors are needed to achieve optimal glycemic control, reduce the risk of complications, and improve health outcomes. The ability to carry out self-management needed by DM patients is diet management, measuring blood sugar levels, medication, physical activity, and exercise, as well as managing stress (McFlane et al., 2021).

The COVID-19 pandemic adds to diabetic patients' self-management challenges. One of the inhibiting factors faced by Type 2 DM patients during COVID-19 is the lack of self-management (Mukona and Zwinavashe, 2020). During the current COVID-19 pandemic, strategies are set to reduce the spread of the virus by social distancing and lockdowns that create social boundaries and emotional stress that can have a negative impact on the comprehensive management of type 2 DM patients, including metabolic control, self-care behavior, and self-care management. (Silva-Tinoco et al., 2020). According to researchers, social restrictions in the current COVID-19 pandemic era cause various obstacles in the implementation of self-care management that can affect blood sugar levels in people with type 2 diabetes.

Although previous studies have reported socio-demographic, behavioral, psychological, and cultural barriers to diabetes self-management, little is known about perceived barriers to diabetes self-management among patients during isolation after their recovery from COVID-19. Shi et al. (2021) in their study showed that the perceived problems with diabetes self-management described by diabetic patients indicated a lack of environmental resources and support strategies to meet their needs. Efforts to remove important barriers to helping diabetic patients improve their quality of life and health outcomes Some efforts that can be made to

overcome these obstacles include routine online monitoring of health workers for Type 2 DM patients. In addition, self-monitoring blood sugar (SMGD) is an acceptable alternative for plasma glucose estimation during the current pandemic.

For insulin patients with poor glycemic control or recurrent hypoglycemia, SMBG is recommended at least 4 times/day, i.e., during fasting, before lunch, before dinner, and before bedtime. The availability of glucose strips can be a challenge in the current COVID-19 pandemic. Taking help from an online pharmacy shop and placing an order long before the stock is running low can be the best solution in this case. In their research, McFarlane et al. (2021) showed that maintaining good glycemic control is an effective approach for preventing the transmission of COVID-19 in diabetic patients.

However, in Zimbabwe, as in many other countries, the social restrictions and lockdowns imposed to curb the spread of the Sars-Cov-2 virus have posed challenges to both the institutional and self-management of DM. Many people with diabetes have difficulty accessing medicine, health care, fresh food, and being physically active because of confinement. It is very important that health workers (especially nurses and doctors in Zimbabwe) are involved in disseminating appropriate and accurate information to facilitate self-care for people with DM in the midst of the COVID-19 pandemic. In countries with a high prevalence of diabetes, such as India, the COVID-19 pandemic has challenged the physician-centered approach to DM treatment based primarily on routine clinic visits. The prevalence of DM in Zimbabwe is 9.7% and DM ranks 6th among the leading causes of death after accounting for 3.02% of the total deaths in Zimbabwe in 2018. It is also worrying that more than 60% of DM cases in most low-income countries, including Zimbabwe, are not diagnosed. Therefore, most of the population is more at risk for complications of diabetes and infection with the Sars-Cov-2 virus.

LIMITATION OF THIS STUDY

The total mean Diabetes Self-Management Questionnaire (DSMQ) score of participants with type 2 diabetes who took part in the study during the COVID-19 pandemic was 5.25 ± 1.04, according to the Hediye Uli & Birgul Vural Dogru study (2022). Their average overall stress score was 7.06 and their average total anxiety score was 0.32. Male gender, age over 65, marital status, diabetes diagnosed between 6 and 11 years prior to diagnosis, increased smoking, COVID-19 pandemic, decreased physical activity (not walking), support from healthcare professionals, and elevated levels of anxiety and stress were all found to be risk factors affecting diabetes self-management. The COVID-19 epidemic significantly impairs Type 2 DM patients' ability to control their condition on their own.

According to research by Margaret F. Zupa et al. (2022), the respondents' median age was 54.2 (SD 10.2) years, 62 percent of them were female, and the majority (57 percent) had only a high school diploma or less. There were 56% on insulin, and the HbA1c level was 9.2% (standard deviation: 1.6). Seven of the reported patients—five of whom tested positively for COVID-19—live with someone who has. Sixty-one percent of the 33 respondents who worked outside the

home prior to the COVID-19 had lost their jobs or were working less. When asked how diabetes management changed during the pandemic, 25% reported increased physical activity, whereas 53% reported decreased physical activity. Only 18% of respondents said they were eating fewer healthy meals, while 38% said they were eating more. However, 43% said it was harder for them to find healthy foods. The majority (80%) stated that they had not changed how frequently they took their prescription. 61 percent of respondents said it was getting harder to get medical treatment. Due to the changes brought on by the pandemic, 41% of respondents reported feeling more anxious about managing their diabetes, and 49% reported feeling more lonely and stressed (51%).

Eszter P. Vamos and Kamlesh Khunti's research (2021) demonstrates that the COVID-19 pandemic's extensive effects have an indirect impact on the health system's vulnerability and Type 2 DM patients' ability to control their own care. Many individuals put off getting therapy because of concern that they might catch COVID-19.

According to Claudie Eberle and Stefanie Sticking's study (2022), patients with Type 2 DM had uncontrolled glucose assessment outcomes. Glycemic markers generally rose dramatically during the COVID-19 lockout in patients with T1D symptoms. The overall glycemic outcome of $n = 18$ (72%) T1D studies showed a clear, significant improvement. The meta-analysis demonstrated a mean difference in time in range (TIR) of +3.75 percent and in HbA1c of 0.05 percent (95 percent CI 0.31 to 0.21) due to the "lockdown effect" (95 percent CI 2.56 to 4.92). Lockdown, on the other hand, leads to worsened glucose readings in T2D patients. Overall, $n = 4$ (50%) articles found that the microphone control glycerol level had significantly decreased. After lockdown, there was a mean difference in HbA1c of +0.14 (95 percent CI 0.13-0.40). Furthermore, non-significant weight loss ranging from +0.3 kg to +0.95 kg was recorded in $n = 3$ (75% of the investigations). And the findings of research by Romakin and Mohammadnezhad (2019) indicated that a number of factors, including poor patient compliance with predetermined treatment and management plans and poor patient attitudes, such as a lack of self-motivation to take care of their own health with an excessive reliance on the provision of healthcare services, can cause poor glycemic control. In addition, patients may lack or have limited awareness of diabetes, its complications, and treatment objectives. They may also have misconceptions about traditional diabetes treatments due to culture and patient beliefs, and they may not have the support of their families (Romakin and Mohammadnezhad, 2019).

A new normal has emerged as a result of lockdown, according to research by Farhane et al. (2021). Patients with Type 2 DM undergo lifestyle adjustments, including those related to food, exercise, and self-management. According to the findings, type 2 DM patients' health status was negatively impacted by the lockout, particularly among women. This suggests that Type 2 DM patients' health will deteriorate the longer and tighter the lockdown is in place due to a lack of space for movement and stress.

Numerous other studies back up the five studies mentioned above. In their study, Ikhwan et al. (2022) discovered that people with type 2 diabetes mellitus had moderate levels of stress (77.9 percent). Based on markers for emotional burden from COVID-19, the degree of stress is in the medium category (71.1%), with the health professionals in the medium category (59.7%), the treatment in the moderate category (51%), and interpersonal connections in the moderate category (59.1 percent). It was

determined that patients with type 2 diabetes who lived in rural areas during the COVID-19 pandemic experienced medium levels of stress when managing their condition. In order to attain ideal glycemic control, lower the risk of complications, and enhance health outcomes, diabetes self-management activities are required. The capacity for self-management required by DM patients includes stress management, blood sugar monitoring, medication, physical activity, and exercise (McFlane et al., 2021).

The COVID-19 epidemic makes it more difficult for diabetic people to manage their condition. Lack of self-management is one of the obstacles Type 2 DM patients confront during COVID-19 (Mukona and Zwinavashe, 2020). In the midst of the current COVID-19 pandemic, strategies are in place to stop the virus from spreading by establishing social boundaries and imposing lockdowns that cause emotional stress that can negatively affect the comprehensive management of type 2 DM patients, including metabolic control, self-care behavior, and self-care management. Silva-Tinoco et al (2020) claim that social constraints in the COVID-19 pandemic era provide a variety of barriers to the implementation of self-care management that can affect type 2 diabetics' blood sugar levels.

While socio-demographic, behavioral, psychological, and cultural challenges to diabetes self-management have been documented in earlier research, little is known regarding perceived barriers to diabetes self-management among patients while they are isolated following their recovery from COVID-19. In their study, Shi et al. (2021) showed that diabetic patients' perceptions of challenges with diabetes self-management pointed to a lack of environmental resources and support techniques to suit their demands. An essential obstacle that needs to be removed in order to assist individuals with diabetes in improving their quality of life and health outcomes. Routine nline monitoring of medical personnel for patients with Type 2 DM is one strategy that can be used to get around these challenges. Furthermore, self-monitoring blood sugar (SMGD) is a reliable substitute for estimating plasma glucose during the present epidemic.

SMBG is advised at least four times per day, i.e., during fasting, before lunch, before supper, and before bed, for insulin patients with poor glycemic control or recurrent hypoglycemia. It can be difficult to find glucose strips in the current COVID-19 pandemic. The best course of action in this situation may be to seek assistance from an online pharmacy store and place an order well in advance of the supply being low. In their study, McFarlane et al. (2021) demonstrated that maintaining adequate glycemic control is an efficient strategy for shielding diabetic individuals from the spread of COVID-19.

However, the social limitations and lockdowns implemented to stop the spread of the Sars-Cov-2 virus have presented difficulties for both institutional and self-management of DM in Zimbabwe, as they have in many other nations. Due to confinement, a lot of diabetics have trouble getting medication, healthcare, fresh food, and exercise. It is crucial that healthcare professionals, notably nurses and doctors in Zimbabwe, take part in the dissemination of pertinent and correct information to help people with diabetes mellitus (DM) take care of themselves during the COVID-19 epidemic. The COVID-19 pandemic has put into question the physician-centered

strategy for DM treatment, which relies mostly on routine clinic visits in nations with a high prevalence of diabetes, like India. 9.7 percent of Zimbabweans have diabetes, and it is the sixth most common cause of death in Zimbabwe, accounting for 3.02 percent of all fatalities in 2018. It is especially concerning since in the majority of low-income nations, including Zimbabwe, more than 60% of DM cases are undiagnosed. As a result, the majority of the population is more likely to develop diabetes problems and contract the Sars-Cov-2 virus.

CONCLUSION

Based on the literature study that has been analyzed, it can be concluded that the COVID-19 pandemic has a significant negative effect on the self-management of Type 2 DM patients. There are many patients who avoid treatment for fear of contracting COVID-19. The results of the study showed that the results of the glycemic examination in Type 2 DM patients showed uncontrolled values. In Type 2 DM patients, there are lifestyle changes, such as diet, physical activity, and self-management during the COVID-19 pandemic and lockdown. The results showed that the lockdown had a negative effect on the health status of type 2 DM patients, especially in women.

The implication for nursing practice is that innovation is needed to overcome the obstacles and limitations of space due to the lockdown in encouraging Type 2 DM patients to carry out self-management. Online communication can be a realistic alternative in order to continue to provide treatment and encouragement to self-manage. Self-care management implemented during the pandemic is seen from the experience of countries with high COVID-19 rates, namely in the role of health education through mobile, web, and computer applications, text messages, and self-monitoring of blood glucose.

ETHICAL CONSIDERATION

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Conflict of Interest Statement

◊ This review has no conflicts of interest

REFERENCES

Burhan, Erlina, Agus Dwi Susanto, Sally Aman Nasution, Eka Ginanjar, Ceva Wicaksono Pitoyo, Adityo Susilo, Isman Firdaus, Anwar Santoso, Dafsah Arifa Juzar, Syafri Kamsul Arif, Navy G. .. Lolong Wulung, Dita Adityaningsih, Ari Fahrial Syam, Menaldi Rasmin I, and Catharine Mayung Sambo. 2020. Pedoman Tatalaksana Covid-19 Edisi 3 Tim Editor Perhimpunan Dokter Paru Indonesia (PDPI) Perhimpunan Dokter Spesialis Kardiovaskular Indonesia (PERKI) Perhimpunan Dokter Spesialis Penyakit Dalam Indonesia (PAPDI) Perhimpunan Dokter Anestesiologi dan Terapi.

Claudie Eberle & Stefanie Sticking. (2022). *Impact of COVID-19 lockdown on glycemic control in patients with type 1 and type 2 diabetes mellitus: a systematic review*. *Diabetol Metab Syndr*. 2021 Sep 7;13(1):95. doi: 10.1186/s13098-021-00705-9.

Eszter P Vamos & Kamlesh Khunti. (2021). Indirect effects of the COVID-19 pandemic on people with type 2 diabetes: time to urgently move into a recovery phase. *BMJ Journal* (31), <http://dx.doi.org/10.1136/bmjqs-2021-014079>

Hamid Farhane, et al. 2021. COVID-19 pandemic: Effects of national Lockdown on the State of health of Patients with type 2 diabetes mellitus in a Moroccan population. *Prim Care Diabetes*. 2021 Oct;15(5):772-777. doi: 10.1016/j.pcd.2021.06.007. Epub 2021 Jun 21.

Hediye Ulte & Birgul Vural Dogru (2022) The effect of the COVID-19 pandemic on self-management in patients with type 2 diabetes. *Prim Care Diabetes* 2021 Oct; 15(5): 799–805. Published online 2021 Jul 19. doi: [10.1016/j.pcd.2021.07.009](https://doi.org/10.1016/j.pcd.2021.07.009)

Ikhwan, et al. (2018). Hubungan Kadar Gula Darah Dengan Tingkat Stres Pada Penderita Diabetes Mellitus Tipe 2. *Jikp Jurnal Ilmiah Kesehatan Pencerah* Volume 7 Nomor 1 Bulan Juli Tahun 2018

Margareth F. Zupa, et al. (2022). Changes in Self-management During the COVID-19 Pandemic Among Adults with Type 2 Diabetes at a Federally Qualified Health Center. *J Immigr Minor Health*. 2022 Mar 17 : 1 4. doi: [10.1007/s10903-022-01351-7](https://doi.org/10.1007/s10903-022-01351-7) [Epub ahead of print

McFlane et al. (2021). The effects of COVID -19 on self-management behaviours and service experiences in type 2 diabetes mellitus. *Practical Diabetes* (38), 15-19. <https://doi.org/10.1002/pdi.2356>

Mukona dan Zwinavashe.(2020). Self- management of diabetes mellitus during the Covid-19 pandemic: Recommendations for a resource limited setting. *Diabetes Metab Syndr*. 2020 November-December; 14(6): 1575–1578. doi: 10.1016/j.dsx.2020.08.022

Moser, A., Vander, B. H., Widdershoven, G., & Spreuwenberg, C. (2008). Selfmanagement of type 2 diabetes mellitus: A qualitative investigation from the perspective of participants in a nurse-led, shared-care programme in the Netherlands. *Biomed Central Public Health* (8), 91.

Onder, G., Rezza, G., & Brusaferro, S. (2020). Case-Fatality Rate and Characteristics of Patients Dying in Relation to COVID-19 in Italy. *JAMA - Journal of the American Medical Association*, 323(18), 1775–1776. <https://doi.org/10.1001/jama.2020.4683>

Putri, Dwi Siwi Ratriani, Kurniawan Yudianto, Titis Kurniawan. (2013). Perilaku Self-Management Pasien Diabetes Melitus (DM). *Jurnal Keperawatan Padjajaran* (1), 30-38. DOI:[10.24198/jkp.v1n1.4](https://doi.org/10.24198/jkp.v1n1.4)

Romakin, Pablo, Masoud Mohammadnezhad. (2019). Patient-related factors associated with poor glycaemic control among patients with type 2 diabetes mellitus. *Australian Journal of General Practice* 48(8):557-563 DOI:[10.31128/AJGP-02-19-4859](https://doi.org/10.31128/AJGP-02-19-4859)

Satuan Tugas Penanganan Covid-19. (2021). Data Covid-19. <http://covid-19.go.id>

Shi, et al. (2021). Barriers to Self-Management of Type 2 Diabetes During COVID-19 Medical Isolation: A Qualitative Study. *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy* 2020:13 3713–3725. DOI: 10.2147/DMSO.S268481

- Silwa-Tinoco, et al. (2021). Effect in self-care behavior and difficulties in coping with diabetes during the COVID-19 pandemic. *Revista Mexicana de Endocrinología Metabolismo y Nutrición* 2021(8):13-9DOI:10.24875/RME.20000063
- Yuen, L., Saeedi, P., Riaz, M., Karuranga, S., Divakar, H., Levitt, N., Yang, X., & Simmons, D. (2019). IDF Diabetes Atlas: Projections of the prevalence of hyperglycaemia in pregnancy in 2019 and beyond: Results from the International Diabetes Federation Diabetes Atlas, 9th edition. *Diabetes Research and Clinical Practice*, 157, 107841. <https://doi.org/10.1016/j.diabres.2019.107841>

