

Analysis of Family Independence towards Covid-19 Prevention in Diabetes Mellitus Patients in Antang Work Area, Makassar City

¹Irma Erpiani, ²Muhammad Alwy Arifin, ³Darmawansyah, ⁴Indar, ⁵Rahmatiah,
⁶Syamsiar S. Russeng, ⁷Chairunnisa AR

¹Master Program in the Department of Health Policy Administration, Faculty of Public Health, Hasanuddin University, Indonesia. irmaerpiani23@gmail.com

^{2,3,4}Department of Health Policy Administration, Faculty of Public Health, Hasanuddin University, Indonesia

⁵Faculty of Economics and Business, Hasanuddin University, Indonesia

⁶Department of Occupational Health and Safety, Faculty of Public Health, Hasanuddin University, Indonesia

⁷Faculty of Public Health, University of Mulawarman, Samarindah, Indonesia

Abstract

Family health independence includes: being able to recognize various health problems, being able to decide on appropriate nursing actions, being able to carry out proper daily care at home, being able to support and improve the health of all family members, being able to take advantage of health services. Diabetes mellitus is the seventh leading cause of death in the world and the leading cause of complications from other diseases such as heart attacks, strokes, kidney failure, blindness, and lower limb amputations. Antang Health Center is the first place with the highest DM cases among 14 Community Health Center in Makassar City. This study aims to determine the role of family independence in preventing covid-19 in people with diabetes mellitus during the covid-19 pandemic. Qualitative research with descriptive analysis approach. Interviews were conducted with 1 key informant and 8 regular informants and 1 additional informant. Data collection techniques using in-depth interview techniques, observation techniques and documentation techniques. The validity of the data using triangulation, namely triangulation of data sources, triangulation of theories, and triangulation of methods. The results showed that family independence related to family independence care for DM sufferers has carried out its role as a good family in caring for patients very well. Support for people with diabetes mellitus for preventing the potential for transmission of Covid-19 is good, the role of the family is very important for people with diabetes, both in terms of attention and physical support. The role of the family as a promotive action to prevent Covid-19 in DM patients, the knowledge of DM patients on preventing the potential for Covid-19 transmission is considered good.

Keywords: Diabetes Mellitus, Family Independence, Covid-19.

INTRODUCTION

The 2019-2020 coronavirus pandemic was reported to have spread to Indonesia on March 2, 2020. COVID-19 spread to Indonesia when a dance instructor and his mother were infected from a Japanese citizen [1]. By April 9, the pandemic had spread to all provinces in Indonesia after Gorontalo confirmed its first case, with Jakarta, West Java and East Java

being the worst hit provinces. So far, as of April 16, 2020, Indonesia has recorded 496 deaths, more than any other Southeast Asian country. The death rate is also one of the highest countries in the world [2].

The current coronavirus disease pandemic, also known as COVID-19, has had a broad impact in the social, economic and health fields. COVID-19 can attack almost all ages, where

the elderly and people with a history of chronic disease are at risk for worse complications from this disease. People with comorbidities are one of the groups most vulnerable to being exposed to the COVID-19 virus. Patients with this congenital or comorbid disease are known to underlie the acceleration and severity of COVID-19 symptoms, often leading to death. Research has shown that from a number of patients with COVID-19 who died, a large number were related to comorbid factors [3].

Before the COVID-19 pandemic, people with diabetes mellitus (DM) worldwide reached 422 million people in 2016 (WHO, 2016) and in 2019 increased to 463 million people [4]. This figure illustrates that during the COVID-19 pandemic, there will be many people with diabetes mellitus who need attention because diabetes mellitus is considered to be closely related to the severity and death of COVID-19 patients [5].

COVID-19 patients who have more than one comorbid may experience an increase in severity and death because more organs are damaged, this is supported by the theory that ACE2, which is the SARS-Cov 2 receptor, can be found in many organs, namely the pancreas, heart, kidneys, lungs, intestines, stomach, bladder and testes [6].

Another cause of the severity of comorbid DM is thought to be because DM patients are more susceptible to infection. The susceptibility of DM patients to COVID-19 infection is due to; (1) an increase in ACE2 in patients with diabetes mellitus so that more viruses attach and replicate. (2) Immune dysfunction in diabetes mellitus causes a cytokine storm that causes the severity and death of COVID-19 (Muniyappa & Gubbi, 2020). Therefore it is important to control sugar levels in DM patients with COVID-19 [6].

To overcome the problems that arise, which are related to the limited access to information and understanding of efforts to prevent Covid-19 for people with diabetes mellitus, an active role from the family is needed. Families are expected to be able to educate, provide information and instill confidence so that

people with diabetes mellitus are able to have awareness, gain knowledge and be able to apply recommendations related to COVID-19 prevention efforts such as washing hands, wearing masks, keeping distance, avoiding crowds, reducing mobility. Public knowledge, especially in preventing the transmission of the SARS-CoV-2 virus, is very useful in suppressing the transmission of the virus [7].

Methods

The research used in this research is a qualitative research with a descriptive analysis approach. This type of research is used to analyze family independence in preventing COVID-19 in DM patients in the Antang Health Center work area, Makassar City. This research was conducted by direct observation and in-depth interviews with informants and also equipped with documentation. The research uses data analysis techniques in 3 (three) stages, namely data reduction, data presentation and conclusion drawing. To obtain a high level of truth when approached from various points of view, the researcher uses triangulation, the triangulation carried out is triangulation of data sources, theoretical triangulation, and technical triangulation.

Results and Discussion

The larva-free rate (ABJ) is calculated to determine Informants in this study were informants who were selected as informants who could provide information according to research, namely the key informants were general practitioners, additional informants of patients and patients' families, supporting informants for PTM Program Holders and Perkesmas.

Communication

The Role of the Family as Care in the Prevention of Covid-19

Family Independence is an effort to take care of health independently by the family by using the tools that exist within the family itself, how the family cares for people with diabetes during the

Covid-19 pandemic. According to the results of interviews conducted with informants stated that family care for DM sufferers is good, and informants provide care with specific actions. Here's an excerpt from the interview:

"The diet is maintained, at 10 o'clock and above it is forbidden to eat rice noodles, eh, whether it's 10 o'clock and above I don't let noodles eat rice, both morning and evening, ee at the latest he eats it's isya, yes that's it, continue to eat sweets, I reduce it too Eh, if you don't cook enough brown sugar, it's like granulated sugar, that's how it is. In this pandemic season, that's all I suggest to take care of your diet, health too. That's ji. Because the average person who brings Firus is from the family, now mother can't walk this way, so we must have self-awareness, to protect ourselves from the virus."

(RH, 35 years)

"What I usually do for my mom who suffers from DM is like adjusting her eating time so it's not too late and regular, and I manage to reduce the number of portions she eats, I always remind her not to stress and think a lot, check my mom's sugar level regularly at 6 am, every 2 days, and routinely take the medicine prescribed by the doctor, when I go anywhere my mother always has to wear a mask and if there is no water outside, use a hand sanitizer."

(VC, 26 years old)

"I set my father's diet, I gave him healthy food, like food that wasn't too oily, I took less salt, then I gave him a vitamin C supplement, then I adjusted the sugar level by checking 2 times a day, fasting sugar with sugar after eating I use a sugar test kit, only when I go out I tell you to wear a mask and I tell you to bring a hand sanitizer"

(YS, 26 years old)

The Role of The Family as a Support

Support for DM sufferers for preventing the potential for transmission of Covid-19 is considered good, this is known from the health protocols that have been applied in daily life such as wearing masks, washing hands,

maintaining distance and limiting gatherings or gatherings with other family members. It is recommended for the head of the Community Health Center in increasing the participation of health workers in providing education for families and for DM sufferers to support the quality of life of DM patients during the Covid19 pandemic and for DM patients to be able to apply prokes when they are outside the home and maintain the health condition of their families in order to avoid them. potential transmission of Covid 19. The following are the results of the informant's statement:

"I think it's important for family support, because people with a history of DM are more susceptible to getting sick, especially Covid. It spreads quickly, so family support is really important to protect families with DM and to avoid COVID-19,"

(VC 26, years)

"I think it is very important, because diabetes requires long-term treatment, it will be difficult to do it alone, especially during this time of covid, so we as children must have a high awareness of the health of others, psychologically with attention, and the role of the family to help inspire people with diabetes to live a healthy lifestyle".

(YS, 26 years old)

"It's very important and it's really needed, deck, especially in a situation like this my grandfather can't go out alone and get dirty himself, so it really needs both children and family to help in any circumstances, especially during a pandemic like this, it's normal if my grandfather forgets to use it. If we don't have a mask or hand sanitizer, we remind you, then my grandfather must always be entertained so that his blood level doesn't rise and his blood pressure rises. Especially during this pandemic, so you have to be very careful about taking care of my grandfather."

(SG 37, years old)

The Role of the Family as a Promotive Action

People who are diabetic. This disease caused by spikes in blood sugar makes the risk of

complications from corona virus infection getting worse. The government has, among others, launched a mass vaccination and health protocol, namely 5M as an effort to prevent the transmission of COVID-19. 5M stands for wearing masks, washing hands, keeping distance, avoiding crowds and maintaining immunity. Community compliance in practicing 5M is one of the requirements to reduce the incidence of COVID-19 in Indonesia. Thus, it is necessary to pay attention to the factors that affect community compliance in practicing 5M so that the incidence of COVID-19 in Indonesia can be reduced.

"Covid prevention procedures include vaccinating, wearing masks, washing hands. Stay away from crowds and keep your distance. Moreover, my mother has DM, so as a child, I have to be diligent in reminding my mother, if I forget about it".

(VC 26 years)

I know, but it's the usual ji that I know, wearing a mask, washing hands and keeping a distance, especially for DM people, prevention procedures must be tightened, especially if it is accompanied by comorbidities, that's when my father meets people out there"

(YS, 26 years old)

Discussion

The Role of Family as Care

The role of family care for people with diabetes mellitus in preventing Covid-19 is very important because the family has a strategic role in dealing with Covid-19. Families in situations like this are the first and foremost defense system for the country in preventing the spread of Covid-19 transmission. This is important considering that each family functions as an introduction to the larger society, and as a liaison between individuals and the larger social structure. It is the role attached to the family that needs to be optimized as a preventive strategy in dealing with Covid-19 [8].

During the COVID-19 pandemic, families with DM disease problems are one of the vulnerable

families that require infection control efforts. Corona virus is a group of viruses that can cause disease in animals or humans. Corona viruses are known to have several types that can cause respiratory tract infections in humans ranging from the common cold to more serious ones such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). A new type of corona virus that was found to cause the disease Covid-19 (WHO, 2019). This new type of virus was previously unknown until it finally started to become the first outbreak in Wuhan, China in December 2019. Covid-19 is now a pandemic that occurs in almost all countries in the world (WHO, 2019).

From the research I did for family care for people with Diabetes Mellitus, it was good, because some respondents said that from the feeding and treatment given to patients, they had fulfilled what was said by doctors and family care was given to sufferers, starting with diet and timing. food and whatever food is given has been given well, by reducing oily food, food that is too salty and food that is too sweet, as well as physical activities carried out by sufferers such as cleaning the house, exercising for about 20 minutes and adding vitamins and herbal medicines for treatment provided to prevent the occurrence of infection with Covid-19. In addition to this, the family also provides simple treatment which is a hereditary method carried out by the community, namely consuming blended dragon fruit juice, which is believed to be able to reduce or keep patients from high sugar levels.

This study is in line with [9] research which states that the impact of family care provided by the patient's family or health worker greatly affects the patient's health, such as the officer or family carrying out treatment by controlling the patient's health condition, or giving herbal drinks to the patient as an alternative. medicine in reducing or maintaining a stable health condition and is also believed to be a cure for DM suffered by patients and also consuming drugs that have been prescribed by doctors [9].

Optimal handling of DM, especially during the Covid-19 pandemic, is emphasized through the

management of modifiable factors, especially carrying out a healthy lifestyle, which includes efforts to achieve and maintain normal nutritional status to prevent obesity, apply a balanced diet with principles of nutrition, and perform physical activity with exercise regularly according to age. The compliance of DM sufferers in implementing a healthy lifestyle is influenced by knowledge, as well as the support from the environment, especially the family. Dietary regulation in DM patients is aimed at reducing sugar and fat intake, which will reduce glucose intake in the body, so that energy use in the body will take stored energy reserves. If the glucose used is converted into energy, it will lower glucose levels in the blood [10].

The Role of The Family as a Support

Support for people with Diabetes Mellitus in an effort to prevent potential transmission of Covid 19 must still be given by always reminding to maintain health protocols, limiting activities outside the home such as attending meetings or social activities, consuming low-glucose foods, exercising lightly every day and taking medication regularly. In an effort to treat people with Diabetes Mellitus, of course, it cannot be separated from the support of the family to continue to remind about consultations with Community Health Center officers [11].

The role of the family has a comprehensive effect on the health of people with diabetes in maintaining their health condition during this pandemic, where if one family has health problems, other family members do not rule out the possibility of having the same health problems, as well as providing health education, if one family members understand and are able to provide examples of how to apply good health protocols, then other families will also follow suit [11].

Therefore, from the research I did, all the informants explained that family support was needed because the treatment of DM sufferers requires a long term which is indeed needed with good family support, such as providing good service to DM sufferers in preventing the

severity of patients who have been carried out by family. Based on this, it is done by maintaining a healthy diet, clean and healthy lifestyle, both maintaining the psyche of the patient so that it does not experience severity or keeping the patient's sugar level stable and for health worker services for direct education during the pandemic, but patient visits at the Community Health Center keep doing well by following the health protocol.

This is in line with the research of Herus Santoso who said that support for people with diabetes mellitus for preventing the potential for Covid-19 transmission is good, because families of people with diabetes mellitus and PTM officers continue to carry out prolanis and posbindu programs with visits to the homes of people with diabetes [12]. to check blood sugar levels, if they do not check once a month, and health workers also recommend referrals in taking medication for Diabetes Mellitus patients if the availability of drugs at the Community Health Center runs out. so that not only people with Diabetes Mellitus who take care of themselves but their families also help in this prevention effort.

The Role of the Family as a Promotive Act

Covid-19 is a disease that is currently a global problem because of its massive transmission. Diabetes mellitus is a disease that is very susceptible to exposure to or at risk of contracting Covid-19 which occurs in many communities. The application of strict health protocols is an effort to prevent the transmission of Covid-19. The family has an important role in providing knowledge, awareness and improving health behavior for family members [13].

In the health protocol guidelines issued by the Indonesian Ministry of Health (2020) and the Covid-19 Task Force (2020) it has been stated that these vulnerable groups in particular and the community in general are not recommended to carry out unnecessary activities outside the home. In addition, if it is not too serious not to go to health services. This is because current health services are not a safe place to visit. There are many symptoms that appear from

patients who are indicated to be infected with the Covid-19 virus, but it is not yet fully known how the transmission pattern to implement health protocols by maintaining body immunity is believed to be able to prevent wider spread.

Comorbid patients are not recommended to leave the house, especially to health services which are still not safe for the elderly if they are not in an emergency, even though the level of handwashing compliance is high among health workers during a pandemic [14]. Since the number of positive cases of Covid-19 has increased, many health care facilities have limited visits and outpatient services. So that comorbid sufferers also cannot monitor the progress of their disease on a regular basis [15].

Efforts to improve health cannot be separated from the role of education about health itself. Through education, information can be conveyed to provide an overview of health, the impact of a cause of health problems and preventive ways to improve health. Patients with chronic diseases have experience with complaints, symptoms and habits that affect their disease. This can encourage changes in lifestyle, behavior and the environment that can risk affecting a person's quality of life [16].

In the health protocol guidelines, there are several points for controlling and preventing the spread, including through educational activities about washing hands with soap or hand sanitizer, maintaining distance, regularly disinfecting surfaces, rooms and equipment, as well as enforcing discipline on community behavior that is at risk of transmission. and contracting COVID-19 such as crowding, not wearing masks, smoking in public places and facilities and so on. This policy needs to be implemented considering that digital media is at risk of spreading inaccurate information about Covid-19 and its spread [17].

This research is in line with the research of [18] who said that the results of the study showed that the high level of knowledge both before and after being given education was caused by factors of age, gender, disease history and sources of information about Covid-19 and its prevention through electronic and digital

media. In addition, socialization by the local government to implement and comply with health protocols through applicable policies also helps increase respondents' knowledge about the importance of complying with health protocols. Based on the results of the study, it can be concluded that there is an effect of providing Education on the Application of Health Protocols as an Effort to Prevent the Spread of Covid19 in comorbid patients in the Semarang City Health Center Work Area. Thus education about Covid-19 really supports the implementation of health protocols in the community [19].

Limitations of the Research

The respondent's residence is not close together and many patients refuse to visit because of the increasing impact of Covid-19. It was carried out during the pandemic so that they could not have long-term contact with DM patients and during the study the researchers were also infected with Covid-19, so they had to stop the research until they were declared negative from Covid-19.

Conclusion

1. Family independence related to family independence care for DM sufferers has carried out its role as a good family in taking care of patients very well. There are also some families who provide herbal concoctions. and provide foods that can increase the immunity of DM sufferers such as consuming brown rice, fish, vegetables, and fruit, such as citrus fruits, dragon fruit and avocados to reduce sugar levels in the body plus consuming Vitamin C and Vitamin D. There are several families who provide attention to the routine activities performed by the patient.

2. Support for people with Diabetes Mellitus for preventing the potential for Covid-19 transmission is good, the role of the family is very important for people with DM, both in terms of attention and physical support, because diabetes treatment takes a long time, for prevention of covid for people with

diabetes. self-awareness, every activity outside the home, must immediately take a shower and remove all clothes worn. and health workers even though they do not carry out prolanis and posbindu programs by visiting the homes of people with diabetes mellitus. But they provide education to stay active at home, such as exercising properly and diligently to check blood sugar levels, and health workers also recommend referrals in taking medication for Diabetes Mellitus patients if the availability of drugs at the Community Health Center runs out.

3. The role of the family as a promotive action to prevent COVID-19 in DM sufferers, the knowledge of DM patients on preventing the potential for Covid-19 transmission is considered good, this is known from the health protocols that have been implemented in daily life such as wearing masks, washing hands, keeping a distance and limiting gatherings or gatherings with other family members, besides that people with DM also consume traditional ingredients to increase immunity during this pandemic.

4. It is hoped that the government and especially health workers will continue to provide continuous education to the public about Covid-19. It is hoped that it will be able to give special attention to the public regarding matters related to Diabetes Mellitus. So that it is easier for people to control their own health.

References

- [1] Oh, J., Lee, J. K., Schwarz, D., Ratcliffe, H. L., Markuns, J. F., & Hirschhorn, L. R. (2020). National response to COVID-19 in the Republic of Korea and lessons learned for other countries. *Health Systems & Reform*, 6(1), e1753464.
- [2] Ilmiyah, S., & Setiawan, A. R. (2020). Students' Worksheet for Distance Learning Based on Scientific Literacy in the Topic Coronavirus Disease 2019 (COVID-19). <https://doi.org/10.31237/osf.io/fpg4j>
- [3] Satria, R. M. A., Tutupoho, R. V., & Chalidyanto, D. (2020). Analisis Faktor Risiko Kematian dengan Penyakit Komorbid Covid-19. *Jurnal Keperawatan Silampari*, 4(1), 48-55.
- [4] IDF. (2019). IDF Diabetes Atlas. International. In International Diabetes Federation
- [5] Rajpal, A., Rahimi, L., & Ismail-Beigi, F. (2020). Factors leading to high morbidity and mortality of COVID-19 in patients with type 2 diabetes. *Journal of diabetes*, 12(12), 895-908.
- [6] Wang, Q., Qiu, Y., Li, J. Y., Zhou, Z. J., Liao, C. H., & Ge, X. Y. (2020). A unique protease cleavage site predicted in the spike protein of the novel pneumonia coronavirus (2019-nCoV) potentially related to viral transmissibility. *Virologica Sinica*, 35(3), 337-339.
- [7] Law, S., Leung, A. W., & Xu, C. (2020). Severe acute respiratory syndrome (SARS) and coronavirus disease-2019 (COVID-19): From causes to preventions in Hong Kong. *International Journal of Infectious Diseases*, 94, 156-163.
- [8] Santika, I. W. E. (2020). Pendidikan karakter pada pembelajaran daring. *Indonesian Values and Character Education Journal*, 3(1), 8-19.
- [9] Pambuko, Z. B., Suherman, S., Sari, M. L., Praditama, D. A., Nur'Aini, K. A., & Pratiwi, T. (2022). Preventing the spread of COVID-19: Participation in the mass vaccination movement in Magelang Regency. *Community Empowerment*, 7(1), 134-139.
- [10] Ardiani, Y. M., Setiawan, D., & Nugraha, H. (2021, July). A Study of Interactive Playground for Kindergarten in Cempaka Putih. In *IOP Conference Series: Earth and Environmental Science* (Vol. 794, No. 1, p. 012180). IOP Publishing.
- [11] Bakkara, R., Santoso, H., Nababan, D., Sirait, A., & Bangun, H. A. (2022). Hubungan pengetahuan sikap dan dukungan keluarga penderita dm-ii terhadap pencegahan potensi penularan COVID-19 di wilayah kerja puskesmas Kesatria kota Pematangsiantar tahun 2021. *Journal of Healthcare Technology and Medicine*, 7(2), 853-867.
- [12] Hartotok, H., Absori, A., Dimiyati, K., Santoso, H., & Budiono, A. (2021). Stunting Prevention Policy as a Form of Child Health Rights Legal Protection. *Open Access Macedonian Journal of Medical Sciences*, 9(E), 1218-1223.

- [13] Asih, S. W., & Wahyuni, S. (2021). Family Health Education sebagai Pencegahan Penularan Covid-19 pada Keluarga Dengan Komorbid Diabetes Mellitus. *Jl-KES (Jurnal Ilmu Kesehatan)*, 4(2), 60-65.
- [14] Moore, J. T., Ricaldi, J. N., Rose, C. E., Fuld, J., Parise, M., Kang, G. J., ... & Honein, M. A. (2020). Disparities in incidence of COVID-19 among underrepresented racial/ethnic groups in counties identified as hotspots during June 5–18, 2020—22 states, February–June 2020. *Morbidity and Mortality Weekly Report*, 69(33), 1122.
- [15] Younie, S., Mitchell, C., Bisson, M. J., Crosby, S., Kukona, A., & Laird, K. (2020). Improving young children's handwashing behaviour and understanding of germs: The impact of A Germ's Journey educational resources in schools and public spaces. *Plos one*, 15(11), e0242134.
- [16] Alwehedy, A. A & Elhameed, DA (2014). Effect of lifestyle intervention program on controlling among older adults. *Journal of education and practice*. [http://www. iiste. org](http://www.iiste.org).
- [17] Mulyanti, B., Purnama, W., & Pawinanto, R. E. (2020). Distance learning in vocational high schools during the covid-19 pandemic in West Java province, Indonesia. *Indonesian Journal of Science and Technology*, 271-282.
- [18] Eka, J. P., Fauzia, W., & Jamaluddin, M. (2021). Edukasi Penerapan Protokol Kesehatan Sebagai Upaya Pencegahan Penyebaran Covid-19 Pada Penderita Komorbid. *Jurnal Ilmiah Media Husada*, 10(1).
- [19] Utama, J. E. P. (2021). Edukasi Penerapan Protokol Kesehatan Sebagai Upaya Pencegahan Penyebaran Covid-19 Pada Penderita Komorbid. *Jurnal Ilmiah Kesehatan Media Husada*, 10(1), 34-41.