



CORRELATION BETWEEN FAMILY SUPPORT AND ADHERENCE TO ROUTINE CONTROLLING TREATMENT IN PATIENTS WITH TYPE 1 DIABETES MELLITUS I IN MERAUKE

Ratnawati¹, Santalia Banne Tondok^{2*}, Nurmah Rachman³, Wibowo Hanafi Ari Susanto⁴, Qorih Nur⁵

¹RSUD Merauke, Papua

^{2,3,5} Nursing Professional Education Study Program, Department of Nursing, Health Polytechnic Ministry of Health, Jayapura Papua

⁴Diploma III Nursing Academy Nabire, Health Polytechnic Ministry of Health, Papua
Corresponding Autor's email: sta.vicky@gmail.com

ABSTRACT

Objective: To determine the correlations between family support and adherence to routine control of type 1 diabetes mellitus patients at the Internal Polyclinic of Merauke Hospital. **Methods:** The design of the research is cross-sectional. The number of samples was 45 people with type 1 diabetes mellitus with inclusion and exclusion criteria. This study's data analysis used an alternative chi-square test. After all, the number of samples was small. **Results:** The results showed a relationship between family support and adherence to common control in patients with type 1 diabetes mellitus at the Internal Polyclinic of Merauke Hospital with a p-value = 0.001 ($p < 0.05$). It can be seen that 45 respondents received good family support, as many as 36 respondents (80 %), while those who obeyed routine control 38 respondents (84.4 %). Family support can improve compliance with controlling patients with type 1 DM routinely at the Internal Polyclinic of Merauke Hospital. **Conclusion:** There is a significant correlation between family support and compliance with routine control in patients with type 1 diabetes mellitus at the Internal Polyclinic of Merauke hospital.

Keywords

Family support, Routine control compliance, Type 1 diabetes mellitus.

INTRODUCTION

Diabetes mellitus or known as sugar disease, is a non-communicable disease that is chronic or serious that can threaten the safety of the patient's life caused of the ineffectiveness of the pancreatic organs that are unable to produce enough insulin so that the patient needs systemic and regular treatment (WHO 2016).

According to WHO (2020) explaining that the number of people with diabetes mellitus in the world has increased

in period 1 (2019 – 2020) year from 422 million to 463 million. Diabetes mellitus patients in Indonesia number 10.8 million people. In Papua, the number of diabetes mellitus patients is 110 thousand people, with a prevalence of 1.1% where Papua is among the provinces with the lowest number of diabetes mellitus patients after NTT and Maluku (Badan Litbangkes 2019); at Merauke regency, the number of diabetes mellitus patients is 3,499 (Dinkes Kabupaten Merauke 2020). Meanwhile, at Merauke

Hospital itself, especially at the Interna Polyclinic, the number of visits for diabetes mellitus patients in 2020 was 2,684 visits (Rekam Medis RSUD Merauke, 2020)

Patients with type 1 DM receiving the treatment must have compliance created by the instructions between the health worker and the patient so that the patient understands the treatment plan and the impact of the treatment and approves the treatment program given (Kemenkes RI 2011). In this case, routine controlling adherence to the treatment of type 1 diabetes mellitus disease is indispensable. The purpose of diabetes treatment is to allow patients to maintain a good metabolism and prevent other complications (Rintala, et al., 2013).

Autoimmunity, type 1 diabetes mellitus, is described as the destruction of insulin. Program treatment of diabetes mellitus is given throughout the life of DM type 1 sufferers, such as regularly taking medications, regular insulin injections every day, monitoring blood sugar, eating an appropriate diet, doing eye care, and exercising to keep health optimal (Bailey, et al., 2012), so that in the treatment process patients often experience saturation and despair so that the treatment becomes ineffective and can cause non-compliance whether intentionally or unintentionally (DiMatteo and Haskard-Zolnieriek KB 2012; DiMatteo MR. 2004b) influenced by several factors (Aljasem et, al., 2001; Cohen & Christensen 2012; DiMatteo MR. 2004a, 2004b; Fortmann & Gallo 2011)

The role of the family is very necessary for this stage to be able to improve patient compliance in the treatment of type 1 DM because the family has an important role in people with diabetes mellitus, namely providing motivation and enthusiasm for undergoing treatment or being supportive (Anggina & P 2010) the greater the support provided, the greater the patient's compliance with control with routine (Nurleli 2016) so as to minimize

complications due to diabetes mellitus (Hamarno, et, al., 2016)

This research has never been conducted in Papua, especially in Merauke city, especially in type 1 DM patients regarding the correlation of family support with routine controlling compliance of type 1 diabetes mellitus patients at Polik Interna RSUD Merauke.

METHODS

This research was conducted in June-July 2021 by purposive sampling using a cross-sectional design.

Sample

This study was conducted by purposive sampling using a cross-sectional design conducted in May 2021. The number of DM type 1 patients at Merauke Regional Hospital amounted to 51 patients using exclude criteria such as patients who did not have a family / were not at home with their families and were not willing to be respondents, a sample of 45 respondents was obtained. Type 1 DM respondents were low DM cases found when compared to type 2. Data analysis using the chi-square test.

Instrumen

Instrumen used this study as a family support instrument consisting of 12 question items and 3 family support domains: informational, instrumental, emotional, and self-esteem. The scoring in this questionnaire uses 4 scales worth 1 – 4. Values of 1 (never), 2 (sometimes), 3 (often), and 4 (always). The total score is highest at 48, and the lowest is 12. (Lutvi Choirunnisa, 2018). The instruments used have been tested valid and reliable and declared valid (0.48) and reliable (0.95) (Choirunnisa 2019).

The Routine Control Compliance Instrument was measured using secondary data on the status of medical records of type 1 diabetes mellitus patients at the Internal Polyk of Merauke Regional Hospital. A score of 1 (non-compliance) for visits of people with type 1 diabetes mellitus for 3 consecutive months did not come every

month to carry out control. On the other hand, score 2 (compliant) for visits of people with type 1 diabetes mellitus for 3 consecutive months came routinely to carry out control.

The research has an ethical clearance agreement that has been issued from Poltekkes Kemenkes Jayapura with the number: 054/KEPK-J/V/2021.

RESULTS

Table 1. Frequency Distribution of Respondents' Characteristics.

No.	Category	f (%)
1	Age	
	35 – 45	22 (48.9)
	46 – 56	23 (51.1)
	Mean ± SD	44.31± 5.973
2	Gender	
	Male	14 (31.1)
	Woman	31 (68.9)
3	Education	
	Junior High School	3 (6.7)
	Senior High School	34 (75.6)
	University	8 (17.8)
4	Employment	
	Employment	17 (37.8)
	Not Employment	28 (62.2)
5	Marital Status	
	Married	38 (84.4)
	Unmarried	5 (11.1)
	Divorce	2 (4.4)
6	Status of Residence	
	House of Representatives	42 (93.3)
	Not at home	3 (6.7)
7	Family income	
	≥ IDR 3,000,000	29 (64.4)
	< IDR 3,000,000	16 (35.6)

Table 1. Showed that the characteristics of people with type 1 diabetes mellitus were 23 respondents (51.1 %) aged 45-56 years, as many as 31 respondents (68.9 %) of the female sex, 34 respondents (75.6 %) were high school educated, 28 respondents (62.2 %) were not working, 38 respondents (84.4 %) with married status, 42 respondents (93.3 %) living in the same house with family and

29 respondents (64.4 %) with a family income of > Rp. 3,000,000.

Table 2. Frequency Distribution Family Support Frequency Respondents

No	Family Support	f (%)
1	Good	36 (80)
2	Enough	9 (20)

Table 2. Explained that as many as 36 people (80.0%) of respondents had good family support.

Table 3. Frequency Distribution of Routine Controlling Compliance Respondents

No	Routine Controlling	f (%)
1	Disobedient	7 (15.6)
2	Obedient	38 (84.4)

Table 3. shows that as many as 38 people (84.4 %) of respondents adhered to routine controlling treatment.

Table 4. Frequency Distribution of Family Support Domain in Respondents with Type 1 Diabetes Mellitus at the Internal Polyclinic of Merauke Hospital

No	Family Support	f	%
1	Informational Support		
	a. Good	36	80
	b. Enough	9	20
2	Instrumental Support		
	a. Good	38	84.4
	b. Enough	7	15.6
3	Emotional Support and Self-Esteem		
	a. Good	40	88.9
	b. Enough	5	11.1

Table 4. shows that the majority of respondents with type 1 diabetes mellitus have good family support, where the domains of emotional support and self-esteem are the most widely given support by families, as many as 40 people (88.9%).

Table 5. Correlation of Family Support With Routine Controlling Treatment

<i>Family Support</i> <i>t</i>	Compliance Level <i>Routine Controlling</i>		p-value
	Disobedient	Obedient	
Good	2 (5.6 %)	34 (94.4 %)	0.001
Enough	5 (55.6 %)	4 (44.4 %)	

Table 5. Showing respondents with good family support and obediently doing routine controlling were 34 people (94.4%), while respondents with good family support but did not comply with routine controlling were 2 people (5.6%). Respondents with sufficient family support and obediently doing routine controlling were 4 people (44.4%), while respondents with sufficient family support and not obediently doing routine controlling were 5 people (55.6%). The statistical test results using chi-square Test through SPSS obtained a p-value = 0.001. The amount of p-value in this study is < 0.05, so it can be said that there is a meaningful correlation between family support and compliance with routine control in people with type 1 diabetes mellitus at the Internal polyclinic of Merauke Hospital.

DISCUSSION

Family support is the provision of direct information and real assistance in the form of attention given by those closest to them in the form of presence and motivation that can provide emotional comfort so that it has a positive effect on the recipient (Sarafino, E. P., & Smith 2011). Family support makes the family function well to help their family members to improve family health and closeness (Friedman L 2014). In this case, family support is also a motivation that encourages patients to do routine controlling in accordance with the rules recommended by health workers (Utami & Raudatussalamah 2017). Family support can improve compliance and foster optimism and self-esteem, which can promote effective coping in dealing with stress from illness.

In this study, most of the respondents with type 1 diabetes mellitus had good family support, namely 36 respondents (80%). This is in line with research conducted by (Choirunnisa 2019) which explained that family support is a factor that affects the compliance of DM patients in carrying out routine controlling treatment at the Puskesmas in Surabaya. In contrast to the research conducted by (Gustianto et al. 2020), which showed that most diabetic patients have insufficient family support, so they are not obedient in carrying out control at the Banjarsari Inpatient Health Center, Metro City. This is due to the lack of motivation from the family to help their family members who have health problems, especially diabetes mellitus.

Family support consists of three domains that affect compliance in routine controlling. In this study, the domain of emotional support and self-esteem was higher than others, namely 40 respondents (88.9 %). It is due to the expression of empathy for concern and attention from the family towards people with type 1 diabetes mellitus, where sufferers need lifelong care, so providing motivation can improve their health degree. The form of this support is that the family accompanies when doing routine controlling, gives attention when sick, and still loves and pays attention to the patient's condition when they are sick. The family understands and understands that the pain experienced is a disaster.

This research is in line with research conducted by Uswatul Khasanah (2018) which explains that family emotional support is one of the important factors in motivating DM sufferers to obediently control the management of the five pillars of diabetes mellitus; with emotional support, sufferers will feel happy, comfortable and feel valuable in the family because family members provide attention and affection that increases the patient's self-confidence diabetes mellitus.

In contrast to the research conducted by (Prawirasatra et, al., 2017) which showed insufficient family support, many diabetic Mellitus patients who did not comply made visits to carry out the 4 pillars of diabetes mellitus management at the Rowosari Health Center. This is due to the lack of family motivation and the non-optimistic attitude of people with diabetes mellitus regarding the success of diabetes mellitus treatment.

The informational support provided by the family to people with type 1 diabetes mellitus was categorized as good, namely, 36 respondents (80 %). In this case, the family always provides good advice and information to the respondents; namely, the family informs about the results of the examination and treatment from the doctor and reminds them to control, take medication, do physical exercise/exercise and eat regularly. In addition, the family is reminded to avoid behaviours that can aggravate diabetes mellitus, such as smoking and drinking alcoholic beverages, and ask nurses and doctors about the patient's health progress while carrying out routine control (Wijayanti 2015).

Instrumental support was also categorized as good, namely 38 respondents (84.4 %). The purpose of this type of support is to ease the burden for family members who experience health problems through the help of facilities; namely, the family provides time and facilities for medical purposes in the form of costs or means of transportation; the family also plays an active role in every therapy and the care of their family members when they are sick. In addition, the family is also willing to pay for treatment and treatment costs (Damayanti & Kurniawan 2014). In this case, most respondents have a family income of > Three million Rupiah, so that part of their income can be used for medical and transportation costs when needed. Also, all respondents in this study used BPJS, a national health insurance card, so that the

necessary facilities, treatment facilities, and equipment could be obtained if family members need treatment and treatment one day.

Overall, family support for patients with type 1 DM at the internal polyclinic of Merauke Hospital received good family support, namely 36 respondents (80%). However, some respondents had sufficient family support, namely as many as 9 respondents (20%), because respondents did not live in the same house with their families, so families were only sometimes reminded to control and take medicine regularly. In addition, there were no transportation costs, and other family members were busy with work, so they could not accompany them during control.

Family support in this good category can be interpreted as a family having a good ability and will to help the needs of respondents with diabetes mellitus (Retnowati & Satyabakti 2015) Compliance is a form of one's behaviour from a response that approves of every recommendation and treatment plan (Kozier 2010) assessed as an Action that has the objective of improving well-being, recovery and rehabilitation, following the guidelines according to the rules (Moura, et, al., 2021).

Control compliance is a patient's adherence to the treatment prescribed by health workers. Patients obedient to treatment always carry out treatment at the health service at least once every 1 month. Patients are said to be non-compliant with treatment to health services if they do not a complete treatment for 2 months ((Kemenkes RI 2016). However, the compliance criterion in this study was the visit of the sufferer for 3 consecutive months to come routinely to carry out the control. Meanwhile, the criteria only comply if the patient's visit for 3 months comes in a row to control routinely.

According to Niven (2000), the factors influencing compliance are sufferer/individual factors, family support, social support and health worker support.

Based on the research results, as many as 38 respondents (84.4 %) of people with diabetes mellitus obeyed to carry out routine control, namely checking blood sugar levels, counselling about diabetes mellitus, dietary arrangements and taking drugs. These four things are a package of activities carried out during control at the Internal polyclinic of Merauke Regional Hospital.

Routine controlling can determine blood sugar levels in their body, consultation about what foods should be consumed so that the diet is maintained, good activities for people with diabetes mellitus, and providing regular and controlled therapy. Thus the objectives of diabetes mellitus treatment which include increasing knowledge about diabetes mellitus disease, controlled sugar levels, and complications not occurring, can be achieved (Hamarno et al. 2016).

There are some respondents who do not obey routine control because they feel that their body is healthy, and they tend to control only when complaints are felt due to increased blood sugar levels. It is due to a need for more awareness about the importance of exercising control regularly and a low education level (Ningrum 2018)

The control of DM treatment is expected to maintain their health condition (Ismansyah 2020). So that blood sugar levels can be well controlled, preventing complications of diabetes mellitus such as ulcus diabetes (Rusnoto, Chandiq, and Winarto 2017). In this study, most of the respondents with good family support would comply with routine control, namely 34 (94.4%).

The chi-square test analysis results show a meaningful relationship between family support and compliance with routine control, evidenced by a p-value < 0.05 ($p = 0.001$). So it can be interpreted that good family support will increase people's compliance with type 1 diabetes mellitus in carrying out routine controlling at the Internal polyclinic of Merauke Regional Hospital, so this study has benefits as a control evaluation material in the treatment of type 1 diabetes mellitus which requires regular and regular treatment.

The results of this study are in line with the research of (Lao, Lestari, and

Rumampuk 2013), who explained that the greater the family support, the better the compliance in carrying out routine controlling treatment of diabetes mellitus and the better the health status of respondents. In contrast to the research conducted by (Nugroho, Warlisti and Bakri 2018)) which said that family support does not affect adherence to regular treatment controls. It is because the family does not give motivation and attention to people with diabetes mellitus to comply with regular treatment. (Rosdiana et al., 2016) mentioned that the role of optimal Family support can increase patient compliance in routine control so that the goal of treatment of diabetes mellitus can be achieved.

CONCLUSIONS

Family support strongly correlates with the adherence to routine controlling treatment of DM type 1 at the Internal polyclinic of Merauke Regional Hospital. Therefore, the research can be used as material for evaluating DM treatment at the Internal polyclinic of Merauke Hospital and educating families on the importance of family support which has an impact on adherence to treatment of people with type 1 DM. For further researchers, this can be done using qualitative methods or mix-methods.

REFERENCES

- Aljasem LI, Peyrot M, Wissow L, Rubin RR. 2001. "The Impact of Barriers and Self-Efficacy on Self-Care Behaviors in Type 2 Diabetes." *Diabetes Educ.* 27:393–404.
- Anggina, L. ..., and Hamzah A. & P. 2010. "Hubungan Antara Dukungan Sosial Keluarga Dengan Kepatuhan Pasien Diabetes Dalam Melaksanakan Program Diet d Poli Penyakit Dalam RSUD Cibabat Cimahi." *Jurnal Penelitian Kesehatan Suara Forikes* 1:1–9.
- Badan Litbangkes, Kemenkes RI. 2019. *Infodatin. Tetap Produktif, Cegah Dan Atasi Diabetes Melitus*. Jakarta : Kemenkes RI.

- Bailey GR, Barner JC, Weems JK, Leckbee G, Solis R, Montemayor D, Pope ND. 2012. "Assessing Barriers to Medication Adherence in Underserved Patients with Diabetes in Texas." *Diabetes Educ* 38(2):271–79. doi: doi: 10.1177/0145721711436134. Epub 2012 Feb 7. PMID: 22316643.
- Choirunnisa, L. 2019. "Hubungan Dukungan Keluarga Dengan Kepatuhan Melakukan Kontrol Rutin Pada Penderita Diabetes Melitus Di Surabaya." Skripsi. Pendidikan Ners. Universitas Airlangga.
- Cohen J, Christensen K, Feldmen L. 2012. "Disease Management and Medication Compliance." *Popul Health Manag* 15:20–28.
- Damayanti, Sisca, and Titis Kurniawan. 2014. "Dukungan Keluarga Pada Pasien Diabetes Melitus Tipe 2 Dalam Menjalankan Self-Management Diabetes Family Support of Patients Type 2 Diabetes Mellitus in Performing Diabetes Self-Management." *Jurnal Keperawatan Padjajaran* 2(1):43–50.
- DiMatteo, M. Robin, and Martin LR Haskard-Zolnier KB. 2012. "Improving Patient Adherence: A Three-Factor Model to Guide Practice." *Health Psychol Rev* 6(1):74–91.
- DiMatteo MR. 2004a. "Social Support and Patient Adherence to Medical Treatment: A Meta-Analysis. *Health Psychol.*" 23:207–218.
- DiMatteo MR. 2004b. "Variations in Patients' Adherence to Medical Recommendations: A Quantitative Review of 50 Years of Research." *Med Care* 42(3):200–209. doi: doi: 10.1097/01.mlr.0000114908.90348.f9. PMID: 15076819.
- Dinkes Kabupaten Merauke. 2020. *Laporan Kasus Diabetes Mellitus Di Kabupaten Jayapura*. Kabupaten Merauke.
- Fortmann AL, Gallo LC, Philis-Tsimikas A. 2011. "Glycemic Control among Latinos with Type 2 Diabetes: The Role of Social-Environmental Support Resources." *Health Psychol.* 30:251–258.
- Friedman L, M. 2014. *Buku Ajar Keperawatan Keluarga Riset, Teori & Praktik (5th Ed)*. Jakarta : EGC.
- Gustianto, Vionita, Djakfar Sadik, Yovita Tri Gusti, Program Studi, Diii Kebidanan, Stikes Adila, Bandar Lampung, Kesehatan Masyarakat, and Fakultas Kesehatan. 2020. "Hubungan Dukungan Keluarga Dalam Program Prolanis Dengan Kepatuhan Minum Obat Pasien Diabetes Melitus Tipe 2 Di Puskesmas Rawat Inap Banjarsari Kota Metro Tahun 2019." *Jurnal Ilmu Kesehatan Indonesia (JIKMI) ISSN* 1(1):2.
- Hamarno, R., M. Nurdiansyah Z, and Toyibah Afnani. 2016. "Correlation on the Compliance Control with the Chronic Complication among Diabetes Mellitus Type 2 at the Janti Com." *Ejournal.Umm.Ac.Id* 7(2):126–34.
- Ismansyah. 2020. "Hubungan Kepatuhan Kontrol Denagan Kadar Gula Darah Sewaktu Pada Pasien DM Tipe 2." *Mahakam Nursing Journal* 2(8):363–72.
- Kemenkes RI. 2011. "No Title."
- Kemenkes RI. 2016. *Permenkes RI. Standar Pelayanan Minimal Bidang Kesehatan*. Jakarta : Kemenkes RI.
- Khasanah, Uswatul. 2018. "Hubungan Dukungan Keluarga Terhadap Kepatuhan Penatalaksanaan Pengelolaan Diabetes Mellitus Pada Lansia Klub Prolanis Di Puskesmas Kecamatan Ciracas Jakarta Timur." *Indonesian Journal of Nursing Sciences and Practice* 1(2):70–82.
- Kozier. 2010. *Buku Ajar Praktik Keperawatan Klinis. Edisi 5*. Jakarta : EGC.
- Lao, Joice M., Sri Indah Lestari, and Maria Vonny H. Rumampuk. 2013. "Hubungan Dukungan Keluarga Dengan Kepatuhan Berobat Pada Penderita Diabetes Melitus Tipe 2 Di Poli Endokrin BLU RSU Prof. Dr. R. D. Kandou Manado."
- Moura, Bernardo, Diogo Guedes Vidal, and Margarita Ferreira. 2021. "Adherence of People with Type 1 Diabetes to Self-

- Care Activities.” *J. Nurs.Health* 11(3):1–11.
- Ningrum, Deskasari Kurniyawati. 2018. “Kepatuhan Minum Obat Pada Penderita Diabetes Melitus Tipe II.” *Higeia Journal of Public Health* 1(3):84–94.
- Niven, N. 2000. *Psikologi Kesehatan Edisi Kedua*. Jakarta : EGC.
- Nugroho, I. V. Warlisti, and S. Bakri. 2018. “Hubungan Dukungan Keluarga Dengan Kepatuhan Kunjungan Berobat Dan Kadar Glukosa Darah Puasa Penderita DM Tipe 2 Di Puskesmas Kendal 1.” *Jurnal Kedokteran Diponegoro* 7(4):1731–43. doi: <https://doi.org/10.14710/dmj.v7i4.22266>.
- Nur Rosdiana, Suwaldi Martodiharjo, Tri M. Andayani, Lukman Hakim. 2016. “Gambaran Kepatuhan Pengobatan Pasien Diabetes Melitus Tipe 2 Di Puskesmas Daerah Istimewa Yogyakarta.”
- Nurleli, Nurleli. 2016. “Dukungan Keluarga Dengan Kepatuhan Pasien Diabetes Melitus Dalam Menjalani Pengobatan Di Blud Rsuza Banda Aceh.” *Idea Nursing Journal* 7(2):47–54.
- Prawirasatra, Wahyu Adhitya, Firdaus Wahyudi, and Arwinda Nugraheni. 2017. “Hubungan Dukungan Keluarga Terhadap Kepatuhan Pasien Dalam Menjalankan 4 Pilar Pengelolaan Diabetes Melitus Tipe 2 Di Puskesmas Rowosari.” *Diponegoro Medical Journal (Jurnal Kedokteran Diponegoro)* 6(2):1341–60.
- Rekam Medis RSUD Merauke. 2020. *Profil RSUD Merauke*. Kabupaten Merauke.
- Retnowati, Nilla, and Prijono Satyabakti. 2015. “Hubungan Dukungan Keluarga Dengan Kualitas Hidup Penderita Diabetes Melitus Di Puskesmas Tanah Kalikedinding.” *Jurnal Berkala Epidemiologi* 3(1):57–68.
- Rintala TM, Jaatinen P, Paavilainen E, Astedt-Kurki P. 2013. “Interrelation between Adult Persons with Diabetes and Their Family: A Systematic Review of the Literature.” *J Fam Nurs* 19(1):3–28. doi: doi: 10.1177/1074840712471899. Epub 2013 Jan 3. PMID: 23288886.
- Rusnoto, Nur Chandiq, and Winarto. 2017. “Pengetahuan Dan Kepatuhan Kontrol Gula Darah Sebagai Pencegahan Ulkus Diabetikum.” *Universitas Muhammadiyah Magelang* 513–20.
- Sarafino, E. P., & Smith, T. W. 2011. *Health Psychology*. New Jersey: Willey.
- Utami, Rahayu Sri, and Raudatussalamah Raudatussalamah. 2017. “Hubungan Dukungan Sosial Keluarga Dengan Kepatuhan Berobat Penderita Hipertensi Di Puskesmas Tualang.” *Jurnal Psikologi* 12(2):91. doi: 10.24014/jp.v12i2.3235.
- WHO. 2016. *Global Report on Diabetes : World Helath Organization*. Switzerland : World Helath Organization.
- WHO. 2020. *Diabetes*. Switzerland : World Helath Organization.
- Wijayanti, Yuanita. 2015. “Dukungan Keluarga Bagi Penderita Diabetes Melitus Tipe 2.” Tesis. Fakultas Psikologi. Universitas Kristen Satya Wacana Salatiga.