

A Review: Quality of Life of Patient with Type 2 Diabetes Mellitus in Indonesia

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Abstract

Background: Decreased quality of life has a very significant relationship to morbidity and mortality as well as to the life expectancy in type 2 DM patients. Patients with type 2 diabetes mellitus have risk factors for macrovascular complications (heart, brain and blood vessels) and microvascular (eyes and kidneys) complications. One that causes decline in people's quality of life today is disease. The importance of improving the quality of life of patients with type 2 diabetes is because quality of life is closely correlated with response to therapy, disease progression and even death from diabetes.

Objective: To provide an update picture of the quality of life of patients with type 2 diabetes mellitus in Indonesia.

Research Methods: Research articles are also searched through electronic databases including PubMed, Science Direct and Google Scholar published in the last 10 years from January 2011 to December 2021.

Results: Based on 9 research articles that were examined with regard to the description of the personal satisfaction of patients with type 2 diabetes mellitus in Indonesia, it was found that 6 articles showed a high quality of life, while the other 3 articles showed a low quality.

Conclusion: Based on a literature study that was conducted, the quality of life of type 2 Diabetes Mellitus patients in Indonesia can be classified as high. However, some parts of the results were still in the low category with a value range of 60-70%. Thus it is still necessary to monitor the patient's quality of life in order to achieve the short-term and long-term goals of the treatment of type 2 diabetes mellitus.

Keyword: Type 2 diabetes mellitus, quality of life, questionnaire, indonesia

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I. Introduction

Diabetes mellitus (DM) is a group of metabolic diseases characterized by hyperglycemia that occurs due to defects in insulin secretion, insulin action or both¹. Diabetes mellitus (DM) is a group of metabolic disorders characterized by hyperglycemia and disorders of carbohydrate, fat, and protein metabolism². Based on the cause, DM can be classified into 4 groups, namely type 1 DM, type 2 DM, gestational DM, and other types of DM. Type 2 diabetes mellitus occurs because the pancreas produces insulin in small amounts or experiences insulin resistance³.

The International Diabetes Federation (IDF) estimates that there are at least 463 million people aged 20-79 years in the world suffering from diabetes in 2019 or equivalent to a prevalence rate of 9.3% of the total population at the same age. The add is anticipated to increment to 578 million up 2020 furthermore 700 million in 2045⁴. Indonesia is ranked seventh for the most DM sufferers in the world with a total of 8.5 million sufferers⁵. The WHO predicts an increase in the number of type 2 DM patients in Indonesia from 8.4 million in 2000 to around 21.3 million in 2023. Prediction from the international Diabetes Federation (IDF) also explained that in 2013-2017 there was an expansion in the quantity of DM patients from 10.3 million to 16.7 million of every 2045⁶

Type 2 diabetes can be diagnosed after several years of complaints felt by patients. Generally, it will be considered if there are typical complaints in the form of polyuria, polydipsia, polyphagia and unexplained weight loss. Other accompanying complaints are weakness, tingling, itching, blurred eyes, and erectile dysfunction in men, and vulvar pruritus in women⁶. Patients with type 2 diabetes mellitus have risk factors for microvascular complications such as eye and kidney and macrovascular such as heart and blood vessel disease two to four times higher than people without diabetes, have a higher risk of hypertension and dyslipidemia than normal people. Blood vessel abnormalities can occur before diabetes is diagnosed, because of insulin resistance at the time of prediabetes⁷. Diabetes mellitus requires long-term treatment so that the effectiveness and side effects of treatment can affect the quality of life⁸. Patients with diabetes mellitus tend to experience complications that can affect their quality of life⁹. One of the goals of diabetes mellitus treatment therapy is to

work on the patient's personal satisfaction. Failure to treat diabetes mellitus can also lead to a decrease in the patient's quality of life¹⁰.

Personal satisfaction is a singular's impression of the person's situation throughout everyday life, in the social setting, and in social setting, and the individual lives what's more its relationship to the objectives, assumptions, norms, set and worries of a person¹¹. Problems that include quality of life are very broad and complex including problems of physical health, psychological status, level of freedom, social relationships, and the environment in which they are located¹². According to Faswita's 2019 research, the personal satisfaction of individuals with type 2 diabetes mellitus is mostly (4.3%) in the sufficient category and 95.8% in the less category. The descriptions of the quality of life of people with type 2 diabetes mellitus are as follows: disturbed physical health with as many as 13 people (54.2%), disturbed psychological health with as many as 15 people (62.5%), and disturbed social relationships with as many as 16 people (66.6%)¹³. Based on the research of Jesika Asry et al 2021, it shows that the quality of life of patients with type 2 diabetes mellitus has a higher quality of life in the environmental domain than in the physical, psychological and social relationship domains¹⁴. The results of previous research conducted by Ma'ruf & Palupa 2021 found that type 2 diabetes mellitus patients felt physically disturbed in their quality of life, namely in terms of activity, medical therapy, rest and pain¹⁵.

The personal satisfaction of patients with type 2 diabetes mellitus can decrease further due to the complications that accompany it¹⁶. When linked with health, both of them have a very close relationship, when a person has good health it will affect the improvement of quality of life of that person, one that causes a decline in the personal satisfaction of today's society is disease¹⁷. Decreased quality of life have a great relationship significantly to morbidity and mortality and thus affect the life expectancy of DM patients, the lower the quality of a person's life, the higher the risk of illness and even death¹⁸.

The desire to get a high quality of life affects the length of a person's life and the fact is that patients really need to continue to live their lives with a satisfactory quality¹⁸. The importance of improving the personal satisfaction of patients with type 2 diabetes is because quality of life is closely correlated with response to therapy, disease progression and even death from diabetes¹⁸. Measurement of quality of life is also important for improving the relationship between health workers and patients and evaluating health services, both for research purposes and in policy formulation¹⁹. So with the review of this article, it is hoped that it can help provide an updated picture of the quality of life of patients with type 2 diabetes mellitus in Indonesia.

II. Methods

This research was conducted by searching for research articles published in journals through the PubMed, Science Direct and Google Scholar databases with search keywords: "Quality of life", "Diabetes Mellitus type 2", "Indonesia". The inclusion criteria were research related to the QoL of Type 2 diabetes mellitus patients treated in health services in Indonesia, articles published in English and Indonesian in the period 2011-2021, articles using generic questionnaires to assess the quality of life of patients with type 2 diabetes mellitus such as questionnaires. Euro Quality of Life 5 Dimension 5 level (EQ5D5L), Word Health organization Quality of Life (WHOQOL-OLD), Diabetes Quality of Life-Brief Clinical Inventory (DQL-BCI), European Quality of Life Five (EQ-5D), Word Health organization Quality of Life BREF(WHOQOL- BREF), Diabetes Quality of Life Clinical Trial Questionnaire (DQLCTQ), 36- Item Short Form Survey (SF-36), Quality of Life Likert Scale, Quality of Life Instrument for Indian Diabetes Patient (QOLID). The exclusion criteria were research related to the quality of life of patients with type 2 diabetes mellitus, review/systematic/meta-analysis articles, expert opinion articles, short communication articles.

The number of initial articles obtained from the three databases was recorded at 10,366 articles. Furthermore, the authors conducted a screening based on the inclusion and exclusion criteria in these articles. From a total of 10,366 articles, the authors excluded 10,357 articles.

- a. Excluded by title / abstract: 5,327 articles did not provide information on the research design, did not use Indonesian and English, Review. Thus produced 5,039 remaining articles.
- b. Excluded by full text: 3,657 articles had results and discussion that did not clearly state the characteristics of respondents, Patients with other diseases, and thus produced 1,382 remaining articles
- c. Excluded from data analysis: 1,373 articles did not use a questionnaire and editorial, and thus produced 9 remaining articles.

Researchers conducted a critical appraisal of the articles used. Based on this format, the eight articles that have been obtained are suitable for use in this literature review because of the nine articles obtained. The results of the selection of study articles are depicted in a Flow Diagram.

III. Result and Discussion

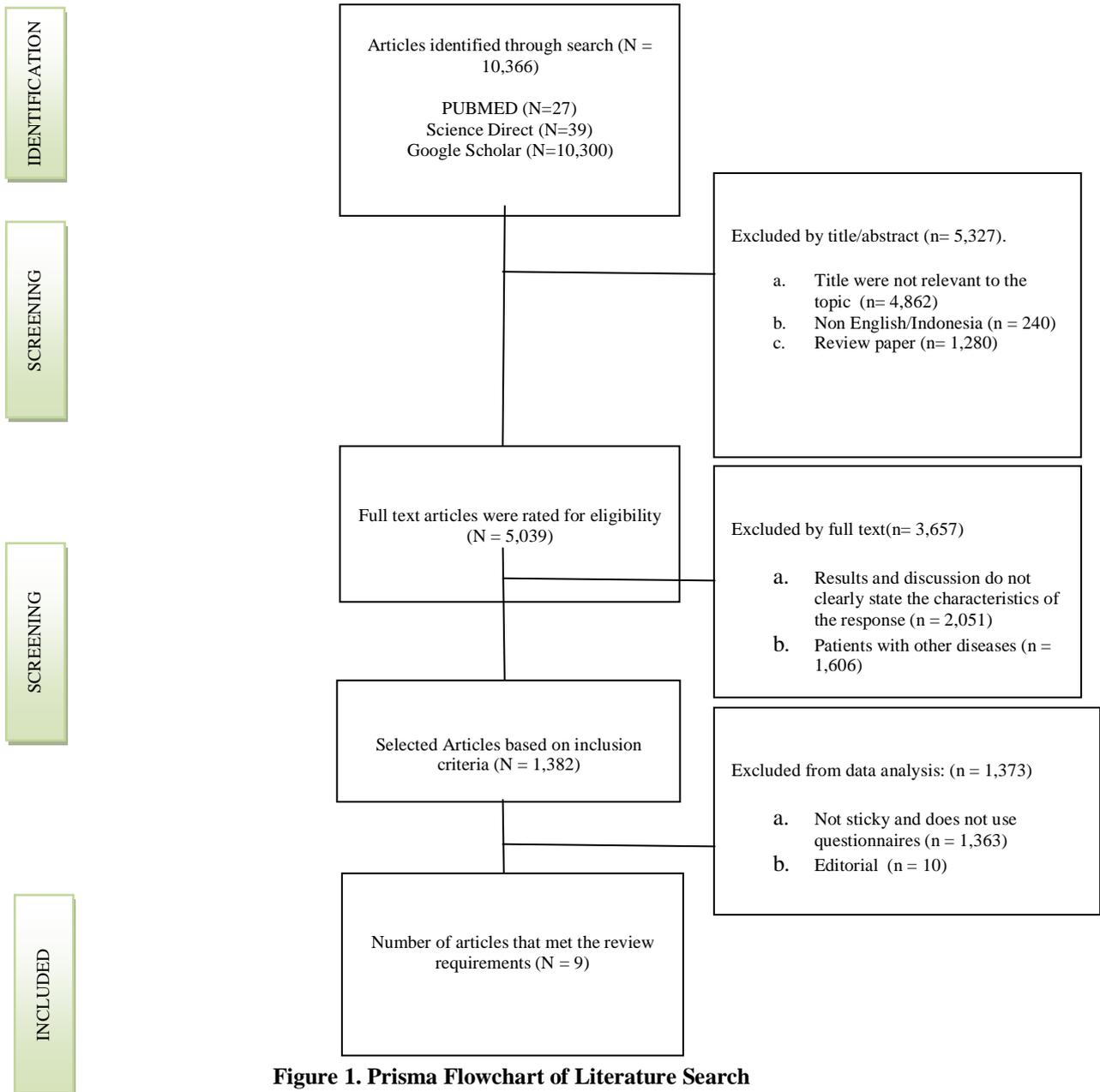


Figure 1. Prisma Flowchart of Literature Search

Table 1. Parameters of quality of life of patients with type 2 diabetes mellitus.

| Reference | Parameter | Quality of Life | |
|-----------|--|----------------------|-------------------|
| | | High | Low |
| [20] | Euro Quality of Life 5 Dimension 5 Level (EQ5D5L) | | Low |
| [21] | World Health Organization Quality of Life (WHOQOL-OLD) | High : 55,4 % | Low : 44,2 % |
| [22] | Diabetes Quality of Life-Brief Clinical Inventory (DQL-BCI) | High | |
| [23] | European Quality of Life-Five (EQ-5D) | High | |
| [24] | WHOQOL-BREF (World Health Organization Quality Of Life BREF) | High | |
| [25] | Diabetes Quality of Life For Clinical Trial Questionnaire (DQLCTQ) | High | |
| [18] | 36-Item Short Form Survey SF- 36 | | Low 75.4% |
| [26] | Quality of Life Likert Scale | High : 40 % | Low : 60 % |
| [19] | Quality of Life Instrument for Indian Diabetes Patient (QOLID) | High : 56.18% | |

High Quality of Life of Patients with Type 2 Diabetes Mellitus

In total there are 6 studies that conclude that the quality of life of patients with type 2 diabetes mellitus is high. According to research conducted by Nur Ariyani et al, 2020 at the Cipayung District Health Center using a World Health Organization Quality of Life (WHOQOL-OLD) questionnaire, it is reported that the personal satisfaction of 55.4% of type 2 diabetes mellitus patients were high because the results of this study showed around 76% in pre-elderly and elderly do not experience depression. In this study, the quality of life of patients is influenced by the activities of the pre-elderly and the elderly to always control blood sugar levels on a regular basis to reduce the risk of complications so that the quality of life of the pre-elderly and elderly is maintained properly²¹. A comparable report was additionally directed by Noviyantini et al., 2020, at the Depok Sleman Public Health Center, Yogyakarta using the Diabetes Quality of Life-Brief Clinical Inventory (DQL-BCI) questionnaire reporting that the quality of life of people with type 2 diabetes was relatively high. The majority of patients in this study did not have comorbidities so that it became a contributing factor to the high quality of life of patients. Patients with type 2 diabetes mellitus have a good quality of life also due to the balanced condition of the Psychological aspect-well-being. In this aspect there is a relationship between social aspects, environmental aspects, physical and psychological health aspects²². Another study as conducted at DR.H.Moch Ansari Saleh Hospital, Banjarmasin using a European Quality of Life Five (EQ-5D) questionnaire consisting of 5 dimensions (ability to walk/movement ability, self-care, activities that can be done, pain/discomfort, anxiety/depression) each dimension has 1 question with 3 levels of assessment. Type 2 diabetes mellitus patients can improve their quality of life with brief counseling and standard drug information services when drug delivery by pharmacists is equally effective²³. In line with this research, Wicaksono & Fajriyah, 2018, at the Kudungwuni 2 Health Center, Pekalongan Regency utilizing the World Health Organization Quality of Life-Brief (WHOQOL-BREEF) poll which is the shortest and simplest personal satisfaction instrument consisting of 24 items and 4 domains combined namely the domains of physical health, psychological health, social relationships, and the environment. It is reported that 87.1% type 2 diabetes patients have a good quality of life. However, in this study, the patient's quality of life was influenced by the patient's activity in participating in prolanis club activities at the Health Center²⁴. Moreover, another research was directed by Wahyuni et al., 2014, at the West Java State Hospital using a Quality of Life Instrument for Indian Diabetes Patient (QOLID) questionnaire. This instrument consists of 8 domains, namely role limitations due to physical health, physical ability, general health, treatment satisfaction, symptom frequency, financial problems, psychological health and dietary satisfaction. It is reported that the majority of patients with type 2 diabetes mellitus (56.2%) had high quality of life scores. The largest percentage of respondents who have a high quality of life value are respondents in the elderly age group (65.9%). The aftereffects of this review indicate that the high personal satisfaction in the elderly is caused by individuals in old age who have passed the time to make changes in their lives so that they tend to evaluate their lives more positively¹⁹. Another study conducted by Arifin et al., 2019, at a Yogyakarta Private Hospital using the DQLCTQ) showed that type 2 DM patients had a good quality of life. However, this study also confirmed that complications such as high blood pressure can worsen the personal satisfaction of patients with type 2 diabetes mellitus²⁵.

Low Quality of Life of Patients with Type 2 Diabetes Mellitus

In total there are 3 studies that assess the low quality of life of patients with Type 2DM. Based on research led by Fajriansyah et al 2020, at the Tamalanrea health center in Makassar city, using the Euro Quality of Life 5 Dimension 5 Level (EQ5D5L) questionnaire which consists of 5 dimensions (mobility dimension, self-care dimension, usual activity dimension, pain/discomfort dimension, and the anxiety/depression dimensions) each of the 5 dimensions is divided into 5 levels of perceived problems (level 1 is no problem, level 2 shows little problem, level 3 is moderate problem, level 4 is severe problem, level 5 is extreme problem). It is reported that more than 60% of patients with type 2 DM had a low quality of life. Generally, it is caused by complications and patients experience pain or discomfort as well as high levels of anxiety and depression²⁰. In line with Teli's research, 2017 at the Kupang city health center using a 36-Item Short Form Survey (SF-36) questionnaire, a form survey that will produce 8 health profile scales (physical function, body pain, role limiting due to physical problems, role limiting due to emotional problems, mental health, social functioning, energy, and general health) or a person's quality of life that is related to a person's health status. It is reported that patients with type 2 diabetes mellitus have a low quality of life. Almost all patients experienced complications, the complications that occurred were mostly hypertension, heart disease and stroke. This complication causes an increase in complaints experienced by patients, both physical and psychological and emotional complaints that also affect physical activity. Most patients complain of pain in the legs and other body parts which have an impact on decreasing the quality of physical activity¹⁸. Similar to the research by Kirana & Budiman, 2016, which was conducted at the Moch Public Health Center, Ramdhan Bandung using a Likert Scale Quality of Life questionnaire, it is reported that the majority of type 2 DM patients (60%) had a low quality of life. However, diabetics who display low quality of life in this study are generally due to low psychological well-being. This

aspect relates to a sense of well-being, satisfaction with life, and whether or not the individual is able to adapt to the various demands of life by suffering from diabetes. This shows that people with diabetes feel less satisfied with the life they have lived. They feel that suffering from incurable diabetes is very burdensome for their lives²⁶.

Working on the personal satisfaction is the goal of short-term diabetes therapy. If short-term therapy is met, it will eliminate DM complaints, improve quality of life, and reduce the risk of acute complications. If long-term diabetes therapy is met, it will prevent and retard the progression of microangiopathic and macroangiopathic complications. To achieve this goal, it is necessary to control blood glucose, blood pressure, body weight, and lipid profile, through comprehensive patient management¹.

IV. Conclusion

Based on 9 research articles that were examined with regard to the description of the personal satisfaction of patients with type 2 diabetes mellitus in Indonesia, it was found that 6 articles showed a high quality of life, while the other 3 articles showed a low quality of life. Based on a literature study that was conducted, the quality of life of type 2 Diabetes Mellitus patients in Indonesia can be classified as high. However, some parts of the results were still in the low category with a value range of 60-70%. Thus it is still necessary to monitor the patient's quality of life in order to achieve the short-term and long-term goals of the treatment of type 2 diabetes mellitus.

References

- [1] PERKENI, Guidelines for the Management and Prevention of Type 2 Diabetes Mellitus in Indonesia, " *Endocrinol Society, Indonesia*, pp. 2019; 1-117
- [2] BG. Wells, JT Dipiro. TL Schwinghammer, and c, V. Dipiro, *Pharmacotherapy Handbook*. 2015
- [3] American Diabetes Association, "Classification and diagnosis of diabetes: Standards of Medical Care in Diabetes-2020," *Diabetes Care*, vol. 43, no. January, pp. S14–S31, 2020, doi: 10.2337/dc20-S002.
- [4] Ministry of Health of the Republic of Indonesia, "Stay Productive, Prevent and Overcome Diabetes Mellitus," *Data center and information from the Indonesian Ministry of Health*. 2020
- [5] IDF, 2013, *IDF Diabetes Atlas Sixth Edition*, International Diabetes Federation.
- [6] Minister of Health of the Republic of Indonesia. National Guidelines for Medical Services for the Management of Adult Type 2 Diabetes Mellitus. 2020
- [7] Decroli, Eva. Type 2 Diabetes Mellitus. Faculty of Medicine Andalas University, Padang. 2019
- [8] D. Perwitasari, W. Adikusuma, S. Rikifani, W. Supadmi, and A. Kaptein. "Quality of Life and Adherence of Diabetic Patients in Different Treatment Regimens," *Indones. J. Clin. Pharm.*, 2014; vol. 3, no. 4, pp. 107–113, doi: 10.15416/ijcp.2014.3.4.107.
- [9] Alfian, R., Susanto, Y., Khadzah, S. *Quality of Life of Hypertensive Patients with Comorbidities in Cardiology Clinic at Ratu Zalecha Martapura Hospital*, *Journal of Pharmascienci*. 2017; 04(02), 210-218
- [10] R. Alfian and P. M. A. Putra. "Validation and Reliability Test of the Medication Adherence Report Scale (MARS) Questionnaire on Diabetes Mellitus Patients " *Jurnal Ilmiah Ibnu Sina*, 2017; 2 (2), 176-183.
- [11] S. A. Price and L. M. Wilson. Quality of Life in Cervical Cancer Patients undergoing Radiotherapy Treatment " *Phatophysiology: Clinical concepts of disease processes*," 2012; vol. 1, no. (02), pp. 123–129.
- [12] D. E. Jacob and Sandjaya, "Factors influencing the quality of life of the people of Karubaga district sub district Tolikara Papua province," *J. Nas. Ilmu Kesehatan*, 2018; vol. 1, no. (69), pp. 1–16.
- [13] W. Faswita, "Overview of the Quality of Life of Patients with Type II Diabetes Mellitus. *Overview of Self-Esteem of Diabetes Mellitus Patients Who Have Diabetic Ulcers In Wound Care Homes Bandung*, 2019; vol. 2, no. (1), pp. 131–138, [Online]. Available: 748-Article Text-2741-1-10-20190718.pdf.
- [14] Asry, JP, Wulan, JK, Grace, DK , 2021. Relationship between Type 2 Diabetes Mellitus and Quality of Life of Patients at Pancaran Kasih Hospital, Manado. *Journal of Public Health*," 2021; vol. 10, no. (8), pp. 64–69.
- [15] D. Lestari and M. Palupi, "Relationship between Stress Levels and Quality of Life for Diabetes Mellitus Patients in the Surakarta General Hospital Work Area. *National Health Information Seminar (SIKESNAS)*," 2020; vol. 20.(35), pp. 400–410. <https://ojs.udb.ac.id/index.php/sikenas/article/view/1279>.
- [16] S. B. Santoso, D. A. Perwitasari, I. N. Faridah, and A. . Kaptein, "Relationship between quality of life and patient's perception of type 2 diabetes mellitus with complications". *Pharmaciana*, 2017; vol. 7, no. (1), p. 33, doi: 10.12928/pharmaciana.v7i1.4699.
- [17] Herdianti, "Determinants of Quality of Life in Type 2 DM Patients in Ajjapange Hospital. " 2017; vol. 2, no. February, pp. 74–80.
- [18] M. Teli, "Quality of Life Type 2 Diabetes Mellitus At Public Health Center Kupang City Quality of Life of Type 2 Diabetes Mellitus Patients in Public Health Centers in Kupang City," *J. Nursing Kupang*," *J. Keperawatan Kupang*, 2017; vol. 15, no.(1), pp. 119–134.
- [19] Y. Wahyuni, N. N, and A. Anna, "Quality of Life based on Characteristics of Type 2 Diabetes Mellitus Patients. *Journal of Nursing Padjadjaran*, 2014; vol. v2, no. n(1), pp. 25–34, doi: 10.24198/jkp.v2n1.4.
- [20] F. Fajriansyah, K. Lestari, A. Iskandarsyah, and I. M. Puspitasari, "Measurement of the Quality of Life of Patients with Chronic Disease Management Program Type 2 Diabetes Mellitus at the Tamalanrea Health Center Makassar," *Maj. Pharmacy.*," 2020; vol. 4, no. Suppl (1), pp. 225–232, doi: 10.24198/mfarmasetika.v4i0.25886.
- [21] N. Apriyan, A. Kridawati, and T. B. W. Rahardjo, "Relationship between Type 2 Diabetes Mellitus and Quality of Life for the pre-Elderly and Elderly in the Prolanis Group. *Journal for Healthy Communities (JUKMAS)*," 2020; vol. 4, no. (2), pp. 144–158, doi: 10.52643/jukmas.v4i2.1028.
- [22] Noviyanti. Putu *et al.*, "Quality of Life of Prolanis Type 2 Diabetes Participants in Yogyakarta." *JPPNI* . 2019; Vol.04/No.(02)/August-November
- [23] M. R. Pahlevi and V. Rahem, A., & Metasartika, "Improvement of Quality of Life for Type 2 Diabetes Mellitus Patients in RSUD Dr. H . Moch. Ansari Saleh Banjarmasin With Brief Counseling Intervention," *J. Ilm.lucky*," 2018; vol. 4, no. (1), pp. 53–58, [Online]. Available: http://jurnal.akfarsam.ac.id/index.php/jim_akfarsam/article/view/143.

- [24] S. Wicaksono and N. N. Fajriyah, "Relationship between Activeness in Prolanis Club and Improving Quality of Life with Type 2 Diabetics," *J. Ilm. health.*, 2018; vol. XI, no. (I), pp. 273–286.
- [25] B. Arifin *et al.*, "Health-related quality of life in Indonesian type 2 diabetes mellitus outpatients measured with the Bahasa version of EQ-5D," *Qual. Life Res.*, 2019; vol. 28, no. (5), pp. 1179–1190, doi: 10.1007/s11136-019-02105-z.
- [26] I. S. Kirana and A. Budiman, "Quality of Life of Type II Diabetes Mellitus Patients Participants in Prolanis at Moch. Ramdhan Bandung," *Pros.Psikol.*, 2016; no.(2), pp.424–429, [Online]. Available: <http://repository.unisba.ac.id:8080/xmlui/handle/123456789/21524>.

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