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Relationship of the Knowledge Level with the Quality of Life of Diabetes Mellitus Patients at Pasar Merah Public Health Center Medan in 2023

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ABSTRACT

Diabetes mellitus can affect almost all groups of people around the world, the number of diabetes mellitus patients according to data from the International Diabetes Federation (IDF) in 2021, 1 in 10 adults aged 20 to 79 years worldwide will suffer from diabetes. In addition, diabetes causes the death of 6.7 million people or one every five seconds. In the world, China has the highest number of adults with diabetes. 140.87 million people in China had diabetes in 2021. This study aims to determine the relationship between the level of knowledge of people with diabetes mellitus and their quality of life. This study uses a quantitative or analytical research design with a cross-sectional approach. The data used is a questionnaire. Univariate and bivariate analysis using chi square statistical test. The chi square test obtained a P value of 0.021, which is ($p<0.05$), so that it can be stated, namely H0 is rejected while H1 is accepted, which indicates that there is a meaningful relationship between the level of knowledge and quality of life in patients with diabetes mellitus, and in the spearmen test, a correlation of sig (2 tailed) 0.006 is obtained, namely ($p<0.05$), which means that a significant correlation is obtained between the two variables tested.

Keywords: *Diabetes Mellitus, Knowledge Level, Quality of Life, Red Market Health Center*

1. INTRODUCTION

Diabetes mellitus can affect almost all groups of people around the world, the number of diabetes mellitus patients according to data from the International Diabetes Federation (IDF) in 2021, 1 in 10 adults aged 20 to 79 years worldwide will suffer from diabetes. In the world, China has the highest number of adults with diabetes. 140.87 million people in China had diabetes in 2021. Furthermore, 74.19 million people were recorded suffering from diabetes in India, 32.96 million in Pakistan, and 32.22 million in the United States (Pahlevi, 2021).

Between 2013 and 2018, the incidence of diabetes in Indonesia increased by 2%. In Indonesia, there are 1,017,290 cases of diabetes in all ages with 132,565 cases in Central Java (Widyastuti & Wijayanti, 2021). Surakarta ranks second in the number of diabetes cases with 8,129 cases, of which 7,979 are people with type 2 diabetes mellitus.

North Sumatra has a prevalence of 1.8% and ranks 12th in the contribution of diabetes diagnosis according to Riskesdas 2018. Deli Serdang Regency has the highest number of 2.9% followed by Medan Regency 2.7%, Pematang Siantar 2.2%, Asahan 2.1% and Gunungsitoli with 679 cases or 1.89% to rank first in diabetes in the Nias Islands (Laowo, 2022).

The prevalence of people with diabetes mellitus according to the Health Profile of North Sumatra Province in 2019 Medan City has the highest number of first at 95,240 patients, and those who receive health services are 32,504 patients or 34.13% (Office., 2018).

According to previous research conducted by Siti Ulfa and Siti Khoiroh at the Pasundan Health Center, Samarinda City. It shows that knowledge is important to shape a person's behavior, where enough information is related to a good quality of life, while lack of knowledge is the main cause of poor quality of life (Ulfa & Muflihatin, 2022).

Diabetes is a non-communicable disease that occurs when the pancreas is unable to produce enough insulin or when the body is unable to absorb insulin produced by the pancreas. Therefore, diabetics experience hyperglycemia or an increase in blood sugar which is due to when the pancreas is unable to produce enough insulin or when the body

is unable to absorb insulin produced by the pancreas. Therefore, diabetics experience hyperglycemia or an increase in blood sugar (Hestiana, 2017).

Diabetes is a chronic disease where blood sugar levels are above normal, namely above 200 mg/dL and 126 mg/dL in fasting conditions. Patients are usually unaware of the disease and know when it causes complications, therefore diabetes is often referred to as a silent killer (Hestiana, 2017).

The classification of diabetes mellitus based on the American Diabetes Association (ADA) in 2022 is categorized as follows:

1. Type 1 diabetes, This type of diabetes is caused by absolute insulin deficiency which is included in latent autoimmune diabetes in adults due to the destruction of autoimmune β cells (ADA, 2022).

2.Type 2 diabetes Insulin resistance and a progressive decrease in beta cell insulin production are the main causes of type 2 diabetes (ADA, 2022). Other types of diabetes Other forms of diabetes include exocrine pancreatic disease (such as pancreatitis and cystic fibrosis), monogenic diabetes syndrome (such as diabetes in childhood and neonatal), and diabetes caused by HIV/AIDS or after organ donation (ADA, 2022).

2. Gestational diabetes mellitus

Diabetes that is detected in the second or third trimester of pregnancy and does not clearly indicate the presence of pre-existing diabetes is known as gestational diabetes (ADA, 2022).

Diabetes is caused by many genetic and environmental factors, as well as other disorders that impact insulin glucose tolerance, metabolic abnormalities related to insulin secretion, mitochondrial abnormalities, and other conditions. Diabetes can be caused by exocrine pancreatitis, in which most of the pancreatic islands are damaged. Hormones that act as insulin antagonists have the potential to cause diabetes (Lestari & Al, 2021).

Diabetes has triggers or risk factors that contribute to the disease. Risk factor management can help prevent diabetes and reduce mortality (Indonesia., 2020).

Risk factors for diabetes consist of: 1. Race, ethnicity, age, gender, family history of diabetes mellitus, and a history of giving birth to a newborn baby weighing more than 4,000 grams are risk factors that cannot be changed (Indonesia., 2020). 2. Lack of exercise, overweight, abdominal central obesity, dyslipidemia, unhealthy, unbalanced calorie-rich diet, impaired glucose tolerance (TGT 140-199 mg/dL) or fasting glucose disorder (GDP > 140 mg/dL), and smoking are modifiable risk factors (Ministry of Health of the Republic of Indonesia, 2020). There are several circumstances that play a role in the occurrence of diabetes mellitus, namely: 1. Insulin resistance 2. Pancreatic β cell dysfunction Type 2 diabetes mellitus is caused by the inability or failure of insulin target cells to react to insulin as it should. This disorder is commonly referred to as "insulin resistance". Patients with type 2 diabetes mellitus do not experience excessive loss of Langerhans β cells, but experience excessive liver glucose production. Patients with type 2 diabetes mellitus only show a deficit in insulin activity that is relative, not absolute (Fatimah, 2015).

Insulin secretion does not replace insulin resistance in the early stages of type 2 diabetes because β cells secrete less insulin at this stage. Pancreatic β cells suffer more severe damage if not handled properly. Slowly occurring cell damage β the pancreas often leads to insulin insufficiency, which ultimately requires the patient to take exogenous insulin. People with type 2 diabetes often have two conditions, namely insulin deficiency and insulin resistance (Fatimah, 2015).

Common symptoms that are often encountered in diabetics are increased thirst (polydipsia), increased appetite (polyphagia), the presence of glucose in the urine (glycosuria), and increased urine volume (polyuria). Hypertonicity of intracellular and extracellular fluids is due to increased glucose levels, in addition to weight loss due to the use of muscles and fats for energy and loss of body fluids, low use of CHO leads to fatigue and tissue loss despite normal or increased food intake. Other symptoms include cramping, constipation, and infectious infections. decreased vision, infectious diseases, and candidiasis.

Examinations that can be carried out include:

a) Postprandial Examined 2 hours after consumption of food/drink with an interpretation value of > 130 mg/dl (Rahmasari, D., & Wahyuni, 2019).

b) Hemoglobin glycosylate is performed to measure blood sugar levels after 140 days with an Hb1C value of > 6.1% (Rahmasari, D., & Wahyuni, 2019).

c) Oral glucose tolerance test is performed after the patient is fasted, then add water mixed with 75 grams of granulated sugar and test for 24 hours. Normal blood sugar levels two hours after drinking fluids should be less than 140 mg/dL (Rahmasari, D., & Wahyuni, 2019).

d) Blood glucose test with a finger stick Examined by the patient's finger pierced with a needle, after which the blood is attached to the strip and inserted into the blood glucose meter chamber. This test can be used to monitor blood sugar levels at home (Rahmasari, D., & Wahyuni, 2019).

According to PERKENI's 2021 guidelines, in addition to controlling the eating pad and exercise routine (healthy lifestyle), pharmaceutical therapy can be used. There are two forms of treatment used in pharmacological therapy: oral and injectable. 1. Oral Antihyperglycemia Drugs Based on how they work and oral antihyperglycemia drugs, they include:

a. Lnsulin Secretion Boosters (lnsulin Sensitizers)

Sulfonylurea, This group of drugs mainly causes an increase in insulin production from pancreatic beta cells. Side effects of the drug increase weight loss and hypoglycemia. In elderly patients with liver and kidney insufficiency, the use of sulfonylureas must be done with caution.

Glinid, A class of drugs glinides that work like sulfonylureas, glinides are a class of drugs that aim to increase insulin secretion during the initial phase of drug action. This group of drugs includes the benzoic acid derivative Repaglinid and the phenylalanine derivative Nateglinid. When taken orally, this drug can be absorbed quickly and immediately eliminated by the liver. Post prandial hyperglycemia can be treated with this class of drugs. However, side effects of drugs can cause hyperglycemia.

b. Insulin Sensitizers. Metformin, this class of drugs mainly decreases liver glucose synthesis, or gluconeogenesis, and can increase peripheral tissue glucose uptake. For most people with diabetes, metformin is the first-line drug. Side effects can include gastrointestinal problems such as symptoms of indigestion.

Thiazolidindione (TZD), Thiazolidinediones is a peroxisome proliferator-activated receptor gamma (PPAR-gamma) agonist, an essential receptor that is found only in liver, fat, and muscle cells. This group decreases insulin resistance by increasing the regulation of glucose transport protein levels and peripheral tissue glucose levels. Thiazolidinediones should not be used in patients with heart failure because they can worsen edema and fluid retention by increasing fluid retention. Pioglitazone is included in this category of drugs.

c. Alpha Glucosidase Inhibitor, This drug works mainly by delaying the absorption of glucose in the small intestine, thereby lowering blood glucose levels after meals. Gas accumulation in the intestines, which often causes farting, is one of the possible adverse effects. to reduce side effects when starting with low doses. One of the drugs in this group is acarbose.

d. Inhibitor of the enzyme Dipeptidyl Peptidose 4, A very common serine protein in the body is dipeptidyl peptidase-4 (DPP-4). From the N-terminal of the two peptides containing alanine or proline, this enzyme halves the amino acid. Drugs such as vildagliptin, linagliptin, sitagliptin, saxagliptin, and alogliptin fall into this category.

e. SGLT-2 Sodium Glucose Co-Transporter Inhibitor This drug works by preventing the proximal tubules from absorbing glucose and increasing urinary glucose excretion. Blood Pressure and Decline heavy The body improves with this drug. Side effects of using this drug include urinary tract and genital infections. There is a possibility that this drug causes ketoacidosis, so be careful.

These medications include injections for the treatment of hyperglycemia such as insulin, GLP-1 RA, or a mixture of both.

a. Insulin, Insulin is used in the following circumstances: HbA1c > 7.5% and already taking one or two antihyperglycemic drugs, HbA1c > 9%, Weight loss, Hyperglycemia with ketoacidosis, Hyperglycemia crisis, Failure to use the right dose of OHO drug combination, Stress heavy (stroke, infectionsystemic acute myocardial infarction, major surgery), Meal planning is not effective for managing diabetes during pregnancy or gestational diabetes

Severe dysfunction of the liver or kidneys, Allergy or ontrainindication to OHO drugs, Perioperative conditions according to indications.

b. Use of GLP-1 RA in Diabetes, to increase GLP-1 levels in the blood and lower blood sugar, GLP-1 RA drugs are administered subcutaneously. Drugs in this category are divided into two categories according to how they work: drugs with short and long durations. Long-acting GLP-1 RA, such as liraglutide and lixisenatide, should be administered once a day, while short-acting GLP-1 RA, such as exenatide, has a half-life of less than 24 hours. Once a week: semaglutide, dulaglutide and exenatide LAR.

3.Combination therapy, the use of two drugs with different mechanisms of action, single or in fixed doses, is required during combination therapy with oral antihyperglycemic agents. If one of the two glucose-lowering drugs does not reach the blood sugar target, a combination of the two may be given at the same time as insulin under certain circumstances. The combination of the three drugs can be given orally to patients who are unable to use insulin for clinical reasons. A combination of three oral hypoglycemic drugs can be used as a treatment.

Complications of Diabetes Mellitus. Damage to blood vessels is a major long-term complication. People with diabetes are more likely to suffer from cardiovascular disease, and coronary heart disease accounts for about 75% of deaths caused by diabetes. Other major vascular diseases include stroke and peripheral vascular disease (Syahputra, 2020).

Microvascular complications caused by diabetes include damage to the eyes, kidneys, and nerves. Diabetic retinopathy is damage to the retinal blood vessels in the eye, which can eventually result in blindness and gradual vision loss. Diabetic nephropathy, another name for kidney damage, can lead to persistent kidney disease, scarring, and protein loss. Dialysis or kidney transplantation may be necessary in certain cases (Syahputra, 2020).

Diabetic neuropathy is nerve damage that is generally the main complication of diabetes. Symptoms can include tingling, pain, numbness, and other painful sensations that can cause skin damage. Diabetic foot (such as diabetic foot ulcers) can develop, be difficult to treat, and sometimes require amputation. Muscle shrinkage and painful weakness are other symptoms of proximal diabetic neuropathy (Syahputra, 2020).

Knowledge arises from "KNOWING" and is experienced when an individual observes a particular thing. Sight, hearing, taste, smell, and touch are the five senses that humans have. The majority of human knowledge is collected

through the eyes and hearing (Sari, 2016). Understanding or information obtained through experience is referred to as knowledge (Prayoga & Colleagues., 2022).

Health knowledge is very important because it creates a positive mindset and a mindset that makes it possible to live a healthy life. Because knowledge measurement provides accurate data and information, it is also necessary to consider the measurement of a person's knowledge (Mardhiati, 2022).

According to Notoatmojo (2007) quoted (Jusuf & Raharja, 2019) there are six levels of knowledge, including:

1. Know, Knowing, is knowing broad and detailed concepts, knowing procedures and understanding structures and devices. 2. Understanding, which can be interpreted as understanding. 3. Application is the ability to apply abstraction in a specific context. 4. Analysis Analysis is a communicative explanation of the elements of a simple part or component. 5. Synthesis has the ability to combine components or elements in such a way that they become a single unit. 6. Evaluation is the ability to determine the cost or value of materials and communication for the intended purpose (Notoatmojo, 2007) .

Knowledge get influenced by some factor those that affect knowledge include: 1. Education has an impact on learning; The better a person's education, the easier it is for them to absorb information.

2. Mass media/information Information obtained from formal and informal education can produce greater change and knowledge in the short term.

3. Socio-cultural and economic Tradition of the habits that a person follows without considering whether what they do is right or wrong. 4. Environment Because there is a reciprocal relationship that will be interpreted as knowledge, the environment has a significant influence on the entry of the knowledge process. 5. Experience, Experience is the only way to know the truth, whether the knowledge comes from someone's experience or someone else's experience. 6. Age: A person's perspective and understanding changes with age. Age will shape a person's perspective and understanding. How to Measure Knowledge, Research Participants or respondents can provide information for questionnaires or interviews used to measure knowledge. The Diabetes Understanding Questionnaire or DKQ is a questionnaire designed to measure participants' understanding of diabetes mellitus. There are 24 question items in the DKQ questionnaire. The categories of measuring knowledge about diabetes mellitus are: high category (score 19 – 24), low category (score ≤ 18).

Patients' knowledge of diabetes plays a very important role in helping them manage their disease independently so that more and more people with diabetes can be more aware of it and change their behavior and manage the state of the disease helping them live longer, have better health and have a better quality of life (Perdana, I., & Saraswati, 2020).

Many factors can increase the chances of developing diabetes. One of them is the knowledge provided to patients. The level of patient knowledge about diabetes and the five pillars of diabetes management is particularly beneficial for patients receiving long-term diabetes mellitus treatment, as it helps them to better understand the available treatment options. Patients will get the best option for themselves if they are aware of the risk of diabetes complications and have healthy eating habits, regular exercise, and blood sugar level control. Check your blood sugar and make sure the environment is clean to avoid other things that can cause wounds (Rahayu, N., 2020).

Based on Romitha's research, 2019 showed a statistically significant relationship between diabetes knowledge and blood sugar levels in patients with type 2 diabetes, with less knowledge correlated with higher blood sugar levels. Hyperglycemia occurs due to the inability of respondents to control blood sugar levels due to a lack of knowledge about diabetes. Happiness that can be felt and produced from a sense of satisfaction or dissatisfaction in daily life is called quality of life. A person's outlook on life in accordance with the cultural system and values related to goals, expectations, and standards of life is another definition of quality of life (Khasanah, 2022).

A high level of well-being is an indicator of quality of life. However, because the determination of quality of life is not based on one factor alone, many factors must be considered. You need to consider your age, gender, education level, marital status, and any remaining medical conditions. This factor is a risk factor that determines a person's quality of life in the future if there is a change or disturbance in one of the points above that can reduce the quality of life.

Factors that affect the quality of life are quoted from, including: 1.Gender, Gender inequality can affect a person's life (Purwansyah, 2019). Generally, the male sex has superior qualities to the female gender. This is because men are more sensitive to circumstances than women. The duration of diabetes is related to a person's level of anxiety, which can lead to problems and a lower quality of life. Age: As you age, your body slows down and you may have health problems that can reduce your quality of life. 4. Complications: Complications in type 2 diabetes patients can worsen their condition, affect daily activities and functions, and consequently decrease the quality of life of sufferers. 5. Education Level The quality of a person's life can be attributed to their level of education. This is because the more education there is, the easier it is to understand the patient's condition and continue to seek treatment and information if the disease is serious. 6. Socioeconomic status: A person's socioeconomic status can affect their quality of life, as it correlates with their financial status. 7. Nursing, A person's attempt to care for himself or herself or to help others is known as nursing. The quality of life of people suffering from chronic pain is directly related to treatment; The earlier you start treatment, the better the quality of life. 8. Self-Stigma can lead to fear, behavior changes, and in the worst case, dangerous consequences that can lower the quality of life. Measurement of QoL in patients with DM on quality of life of patients - patients with Diabetes Quality of Life (DQoL) according to Jacobson et al. 1988 in patients

with diabetes mellitus, DQoL assesses satisfaction, mood and excessive anxiety or fear. This tool measures a person's satisfaction with various aspects of their life, such as their social interests and future and the extent of the impact of diabetes on their lives (Farahdina, 2014).

This questionnaire survey consisted of four parameters: satisfaction with treatment (15 questions), effectiveness of treatment (20 questions), concerns about the future effects of diabetes (4 questions), and concerns about social and occupational problems (7 questions). The instrument also consists of overall health questions to assess the general health included in the tool. The total quality of life score (DQoL) – the four-dimensional average score – ranges from 0 to 100, with 0 indicating the lowest possible quality of life and 100 indicating the highest DQoL. There are five answer options, as well as several Likert scale options, namely very satisfied, quite satisfied, good, quite dissatisfied, dissatisfied (Farahdina, 2014).

According to some studies, age, gender, education level, socioeconomic status, marital status, medical factors (stress and complications), and psychology all affect the quality of life of patients with diabetes. Factors such as excessive anxiety or fear in a person can have a negative effect on the quality of life of people with diabetes.

The desire to live with a high quality of life affects longevity, so patients must continue to live a fulfilling life. The impact on psychology on a person is very important in determining the quality of his life. Because a person's quality of life is so closely related to their response to therapy, disease progression, and even death from diabetes, improving the quality of life of patients – patients with type 2 diabetes, is essential. Previous studies have shown that a person's health reception independently predicts morbidity and mortality in patients – patients with renal insufficiency, 60% of whom have diabetes mellitus. A person's quality of life is related to the risk of disease - illness and death (Teli, 2017).

2. METHOD

This study uses a quantitative or analytical research design with a cross-sectional approach. The sample in this study is diabetic mellitus patients who are in the working area of the Pasar Merah Health Center. To determine the number of samples in this study is to use the Slovin formula, where based on the initial survey data of people with diabetes mellitus, there were 200 patients. This sampling technique is carried out using the purposive sampling method using consideration of inclusion and exclusion criteria. The research was conducted by distributing questionnaires to respondents. The data processed by the SPSS (Statistical Package for Social Science) program was used to process raw data obtained from questionnaire results and direct observation through observation sheets. The data analysis in this study uses univariate analysis to determine the frequency of each independent variable and dependent variable. Bivariate analysis was used to determine how the relationship of diabetes mellitus-bound variables with independent variables (knowledge and quality of life) was used using the chi square test.

3. RESULTS AND DISCUSSION

Table 1. Analysis of Independent Variables of Knowledge Level of DM Patients.

Level of Knowledge	Frequency (n)	Percentage (%)
Less	43	64,2
Enough	18	26,9
Good	6	9,0
Total	67	100

Based on table 1, the level of knowledge showed that out of 67 respondents, 43 people (64.2%) had less knowledge, 18 people (26.7%) had sufficient knowledge, and 6 people (9.0%) had high knowledge from the field of less knowledge

Table 2. Analysis of Independent Variables of Quality of Life of DM Patients

Quality of Life	Frequency (n)	Percentage (%)
Low	26	38,8
Good	41	61,2
Total	67	100

Based on table 2, the quality of life of 67 respondents was good, as many as 41 respondents or around (61.2%) had a good quality of life, and 26 respondents or about (38.8%) had a low quality of life

Table 3. The Relationship Between Knowledge Level and Quality of Life of DM Patients

Quality of Life	Low	Good
Less	22	21
Enough	3	15
Good	1	**5**
Total	41	26

Based on table 3, the level of knowledge was less than 43 respondents with a low quality of life of 22 respondents and a good quality of life of 21 respondents, the level of knowledge was sufficient from 18 respondents with a low quality of life of 3 respondents and a good quality of life of 15 respondents, the level of knowledge of 6 respondents with a low quality of life of 1 respondent and a good quality of life of 5 respondents.

Discussion

Based on the level of knowledge of people with diabetes mellitus in this study, 67 respondents were divided into 3 categories with the interpretation of the score score of less < 55%, sufficient 56 – 75%, good 76 – 100%. The level of knowledge was lacking for 43 respondents (64.1%), sufficient for 18 respondents (27.0%), and good for 6 respondents (8.9%). This study is in line with what was conducted by Pemayun & Saraswati (2020) many factors that can affect the increase in DM cases. One of them is the knowledge of the sufferer. The level of knowledge of patients about DM regarding the five pillars in the management of DM is very helpful for patients throughout their lives in carrying out DM treatment and it is hoped that the better the patient understands the disease, the more they understand how to behave in handling their disease.6 Another study conducted by Ahmad (2019) stated that knowledge has an important role for individuals diagnosed with diabetes mellitus. A literature says that the right knowledge can provide direction to individuals in making a goal, as well as anticipating and responding to the conditions they experience.7 Knowledge is very important for people with diabetes mellitus to manage and reduce complications and prevent those that can aggravate the disease (Ahmad, 2019).

Based on the quality of life of people with diabetes mellitus in this study, out of 67 respondents, the data obtained in this study were found to be both 41 respondents (61.2%) and low 26 respondents (38.8%). This is in line with research conducted by Khasanah (2022) showing that a good quality of life for diabetics will make those surveyed feel more prosperous in their daily lives.8 Another study conducted by Asnaniar (2019) in his research research stated that one of the ultimate goals of diabetes management is to maintain the quality of life of diabetics. A person's total perspective on all aspects of biological, psychological, social, spiritual, and environmental life as well as their capacity to perform daily tasks, determines the quality of life of diabetics.9 People with diabetes mellitus with a high quality of life can live their daily lives with all aspects of a good life.

The results of the analysis that have been carried out based on the results of statistical tests using the chi square test obtained a value of P value = 0.021 ($p<0.05$) so that it can be stated that H1 is accepted while H0 is rejected which says that there is a meaningful relationship between the level of knowledge and quality of life in people with diabetes mellitus. Furthermore, the researcher used the Spearman Test where the value of the coefficient of correlation was 0.006 ($p<0.05$) which means that there was a significant correlation between the two variables tested. However, based on the criteria of the level of correlation strength, the relationship is very weak. This research is in line with that conducted by researchers Ulfa & Muflihatin (2022) showing that diabetic patients with sufficient knowledge will have a good quality of life because diabetics with sufficient knowledge will understand the disease they suffer, self-care and reduce the occurrence of increased blood glucose levels. Patients who can maintain their glucose levels well can reduce the severity of diabetes complications which will certainly improve the quality of life of patients. Likewise, patients with low knowledge have less self-care for diabetes mellitus, causing a low quality of life (Ulfa & Muflihatin, 2022).

4. CONCLUSION

The results of this study with the chi square test obtained a P value of 0.021, namely ($p<0.05$) so that it can be stated that H0 is rejected while H1 is accepted which indicates that there is a meaningful relationship between the level of knowledge and quality of life in patients with diabetes mellitus and in the spearmen test a correlation of sig (2 tailed) 0.006 is obtained which is ($p<0.05$) which means that there is a significant correlation between the two variables tested. However, based on the criteria of the level of correlation strength, the relationship is very weak.

The majority of diabetics have a category of poor knowledge and good quality of life, because knowledge plays a very important role in diabetics, it can affect the quality of life of patients. The majority of respondents gave many wrong answers to the statements of the DKQ 24 questionnaire while the DQoL questionnaire only assessed the satisfaction and impact felt by patients due to the diabetes mellitus they suffered.

The education level of the majority of diabetics is high school with a low quality of life of 7 respondents and a good quality of life of 21 respondents. From this study, the higher the level of education, the better the quality of life of people with diabetes mellitus, and vice versa, the lower the level of education, the lower the quality of life.

The results of the study show that knowledge is very important to manage oneself with curiosity and prevent the severity of diseases that can affect the quality of life, so that the higher the level of knowledge, the better the quality of life.

Suggestion: From the conclusion of the results of the above research, the researcher gives the following suggestions: For the next researcher, the next researcher is expected to conduct research and development on other factors that affect the relationship between the level of knowledge and the quality of life of people with diabetes mellitus. For Educational Institutions, the results of this research are expected to provide information, additional literature, consideration and development materials for educational institutions so as to attract the interest of readers. For the Researcher, for the next research to be able to develop this research and further research with other variables. For the community, this research is expected to add insight to people with diabetes mellitus and be able to improve their quality of life for the better. For the UPT Puskesamas Pasar Merah, continue to improve health promotion and prevention regarding other factors that affect the relationship between the level of knowledge and the quality of life of people with diabetes mellitus.

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