

## RELATIONSHIP BETWEEN FAMILY SUPPORT AND QUALITY OF LIFE AMONG TYPE 2 DIABETES MELLITUS PATIENTS AT HOSPITAL Tk. IV 01.07.01 PEMATANGSIANTAR NORTH SUMATERA

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### ABSTRACT

**Background:** Diabetes mellitus (DM) is a disease caused by metabolic disorders, that characterized by the high rate of blood glucose exceeded from normal average caused by the damage of substances that produces insulin, and insulin production is greater than the normal value. Many factors affect the quality of life of the patients such as family support and dietary compliance. This study aimed to analyze the relationship of several characteristics (gender, education level) and family support with quality of life the outpatients with type 2 DM at Hospital Tk.IV.01.07.01 Pematangsiantar.

**Materials and Methods** This research was an observational study with cross sectional design. The population was all patients with type-2 DM outpatients from January to May 2019. These samples were chosen as the patients with type 2 DM at internal Disease Polyclinic by using accidental sampling technique of 212 respondents. The data were collected by interviewing method with the instruments taken from World Health Organization Quality of Life (WHOQOL- BREF) (1996); to measure the quality of life by using and Hensarling's Diabetes Family Support Scale (HDFSS) . The Data were analyzed by using Chi Square

**Result:**The results of the bivariate analysis showed that there is a significant relationship between family support ( $p < 0.001$ , OR = 3.656 95% CI 1961-6818), educational level ( $p = 0.031$ , OR = 2.384 95% CI 1135-5009), gender ( $p = 0.045$ , OR = 0.528 95% CI 0294-0949) with the quality of life of patients with type 2 DM.

**Conclusion:**Family support is the variable that mostly contributed to the quality of life of patients with type 2 DM in Hospital Pematangsiantar Tk.IV.01.07.01. It is expected that families of patients with type 2 DM provide high support to the patients of type 2 DM so that the quality of life of these patients get better.

**Keywords:** Diabetes, Characteristics, Diet, Family, Support.

## 1.0. Introduction

Diabetes mellitus (DM) is a disease due to metabolic disorder, characterized by high blood glucose values that exceed normal rate caused by the damage of substances or gland that produces insulin or the damage of insulin work or could be caused both of them. (ADA 2004, Soegondo et al, 2009). Data of World Health Organization (WHO, 2016) reported that the prevalence of diabetes mellitus globally increased by 3.8%, from 4.7% in 1980 to 8.5% in 2014. There were 422 million adults that suffer from Diabetes Mellitus with a significant increase occurred in developing countries than in developed countries.

The prevalence of DM in Indonesia based on the Health Research (Riskesdas) in 2013 has been increased from 6.9% to 8.5% in 2018. North Sumatra province positioned 13th rank is the highest for diabetes prevalence in Indonesia with figure 2.0%, and this figure resembling a national prevalence rate of DM (MoH RI, 2018). Based on the summary report of Communicable Diseases (PTM) outpatient and morbidity data reports outpatient Hospital Tk.IV.01.07.01 Pematangsiantar prevalence of type 2 DM increased from 5.8% in 2016 to be 7.5% in 2017, however in 2018 become 6.6%. Diabetes is on the 5<sup>th</sup> rank out of 10 most popular disease in 2016. on 4<sup>th</sup> rank in 2017, and become the 2<sup>nd</sup> rank in 2018. This means this was as the second highest after hypertension with a total patients visit of 7591 cases.

The World Health Organization Quality of Life (WHOQOL) group defined QoL as an individual's perception of viewing their position in life in the context of the culture and value systems in which they live and in relation to viewing their goals, expectations, standards, and concerns. Quality of life can be said to be a concept in the broad sense of the word, and can affect the physical, psychological, independence, social relationships and environment (Issa & Baiyewu, 2006). Nauli (2014) states that family support is one of the factors related to the quality of life of patients with type 2 DM ( $p = 0.030 < \alpha = 0.05$ ) means the confidence and ability to undergo self-care by patients with type 2 DM will increase if assisted by their family support. Hensarling (2009) sorts out the family support into four dimensions, which are emotional (*empathetic*), appreciation (*encouragement*), instrumental dimension (*facilitative*), and participative dimension.

Results of research by Purwaningsih (2018), in outpatient hospital Dr.Moerwadi Installation Surakarta mentions gender is significantly related to the quality of life of patients with type 2 DM ( $p = 0.001$ ). Various studies believe that poor quality of life is one of the effects due to suffering from diabetes, and some studies believe that the quality of life of women is usually lower than men, lower socioeconomic as well as low levels of education and lack of activity of the body correlates with poor quality of life (Gautam et al, 2009). Nuraisyah, Kusnanto and Rahayujati (2015), with the title of family support and quality of life of patients with type 2 DM showed that the four dimensions of family support related to quality of life includes the emotional dimension ( $p = 0.01$ ), the appreciation dimension ( $p = 0, 01$ ), instrumental dimension ( $p=0.01$ ), and participative dimension ( $p=0.01$ ).

Based on the initial survey of 28 patients with type 2 DM who visit the Interna Polyclinic at the Hospital Tk.IV.01.07.01 Pematangsiantar, it was found that only nine patients (32%) have a good

quality of life, and it is reflected by how patients with type 2 DM are dealing with illness DM type-2 that they experienced, and they say they always keep the diet by keeping the 3J, short for *Jumlah*, *Jenis* and *Jadwal* (number, type and schedule) of meals. In addition, family always encouraged and gives attention to them so that they can enjoy life even though they have type 2 DM. Meanwhile, the 19 patients (68%) claims they do not have good quality of life even though they maintain a diet and have their family support in suffering type 2 DM.

This study aim to analyze the relationship between family support with the quality of life of patients with type 2 DM in the outpatient Hospital Tk.IV.01.07.01 Pematangsiantar.

## 2.0. Materials and Methods

This type of observational study uses the cross sectional design, and is located in the Hospital Tk.IV.01.07.01 Pematangsiantar, and was conducted from January to August of 2019. The population in this study are all outpatients with type 2 diabetes mellitus of the Interna Polyclinic Disease in Tk.IV.01.07.01 Pematangsiantar Hospital. The sample method used non probability sampling with accidental sampling technique with 212 respondents.

The independent variable in this study were gender, education level and family support, while the dependent variable is the quality of life of patients with type 2 DM. The study uses three types of questionnaires, which are demographic characteristic questionnaires, family support questionnaires, and quality of life of patients with type 2 DM questionnaire. Questionnaire respondents' characteristics include age, gender, education level, marital status, and family members that give support. Questionnaire on family support was adopted from Hensarling's Diabetes Family Support Scale (HDFSS) which has been translated into Indonesian which was developed by Hensarling (2009). Quality of life questionnaire used questionnaires of WHO concise form (WHOQOL-Bref) which has been translated into Indonesian.

Prior to doing the data collection, the validity and reliability of instruments were first tested. Instrument of family support and quality of life were validated to 30 patients with DM in one of the private hospitals that are the same type with the hospital where this study was conducted. The validity of the family support questionnaire was  $r$  0.432 to 0.864 with Cronbach's alpha of 0.973, and the validity of the quality of life instrument was  $r$  0.373 to 0.862 with Cronbach Alpha of 0.941. The technique of data analysis in this study used Chi Square

### 3.0. Result

#### 3.1 The data of respondents' demographic

After tabulation of the 212 questionnaires, it can be served on demographic data of respondents by age, gender, education level, marital status and family members who give support as a description of research subject.

Table. 1 Demographic Data of Respondents (n = 212)

variables	n	%
Age (years)		
20-44 years	8	3.8
45-58 years	98	46.2
≥59 Years	106	50
Mean (SD) = 58.92 (8.872)		
Sex		
Female	142	67
Male	70	33
Level of education		
No school	12	5.7
Primary School	16	7.5
Junior High School	28	13.2
Senior High School	117	55.2
Tertiary Education	39	18.4
Marital status		
Single	1	0.5
Married	149	70.3
Widow/widowed	62	29.2
Family members who give support		
Child	65	30.7
Patients themselves	12	5.7
Husband or wife	135	63.7

Based on univariate statistical analysis of the characteristics of respondents, it was found that 106 (50%) of the respondents were in the age group  $\geq 59$  years. And the average age of the respondents age is 58.92 years, with an age range of 37-84 years. By gender 147 people (67%) of the respondents were female, based on the level of education the majority of respondents were in the group of high school graduates which are 117 patients (55.2%), while the second highest group of tertiary graduate accounts for 39 patients (18.4%). As shown in Table 1, the majority of respondents are married 149 (70.3%), and in the group of widow/widower there are 62 people (29.2%), but tonly 1 patient is unmarried (0.5%).

Based on the frequency distribution and percentage of family members who provide support, it was found that the spouse are the highest supporters, with the number of 135 people (63.7%), followed by children of respondents which are 65 people (30, 7%). However, there are 12 people (5.7%) who were not supported by any family member, and only rely on themselves. The average value of the respondent's family support is 76.59. The lowest value of the respondent's family support is 33, and the highest value is 108.

### 3.2 Univariate Analysis

Univariate analysis illustrates the distribution of respondents by gender, level of education, family support and quality of life of patients with Type-2 diabetes are presented in the table below.

Table 2. Distribution of respondents by gender, level of education, family support and quality of life of patients with Type-2 diabetes mellitus at Hospital Tk.IV.01.07.01 Pematangsiantar (n = 212)

variables	Category	amount	Percentage
Gender	Female	142	67.0
	Male	70	33.0
Level of education	Higher education	39	18.6
	Lower education	173	81.4
Family support	Good	147	69.3
	Not good	65	30.7
Quality of life of Patients with DM	Good	111	52.4
	Not good	101	47.6

Table 2. above illustrates that the majority of patients with type 2 DM at Hospital Tk.IV.01.07.01 Pematangsiantar consists of 142 females (67.0%) while males are 70 (33.0%). From the level education, it was found that 173 people (81.4%) are from lower education background and only 39 (18.6%) are from higher education background. Based on family members who give support, there were 147 patients (69.3%) that have a good family support, while 65 patients (30.7%) have not good family support. Based on the quality of life variable, there were 111 patients (52.4%) that have good quality of life, and 101 (47.6%) have a poor quality of life.

### 3.3 Analysis of bivariate

Table 3. Relationship between gender and the quality of life of patients with type 2 DM at Hospital Tk.IV.01.07.01 Pematangsiantar

Gender	Quality of Life				Total		OR (95% CI)	Score P
	Good		Not good		n	%		
	n	%	n	%			n	%
Female	67	47.2	75	52.8	142	100	0.528 (0.294-0.949)	0.045
Male	44	62.9	26	37.1	70	100		
Total	111	52.4	101	47.6	212	100		

Table 3. shows the results of the statistical test by doing a bivariate analysis to prove the relationship between the gender and quality of life variables of patients with DM. The test was performed using Chi-square statistical test at 95% confidence level, ie ( $\alpha = 0.05$ ). It was found that there is significant relationship between gender and quality of life of patients with type 2 DM at Hospital Tk.IV.01.07.01 Pematangsiantar, with  $p = 0.045$  and the value of OR = 0.528 (95% CI 0.294 to 0.949).

Table 4: Relationship between level of education and quality of life of patients with type 2 DM at Hospital Tk.IV.01.07.01 Pematangsiantar.

Level of education	Quality of Life				Total		OR (95% CI)	Score P
	Good		Not good		n	%		
	n	%	n	%			n	%
High	27	69.2	12	30.8	39	100	2.384 (1.135-5.009)	0.031
Low	84	48.6	89	51.4	173	100		
Total	111	52.4	101	47.6	212	100		

Table 4. shows the results obtained by Chi-square test  $p = 0.031$  with OR equal to 2.384 (95% CI 1.135 to 5.009), which means that there is a significant correlation between level of education and quality of life of patients with type 2 DM at Hospital Tk.IV .01.017.01 Pematangsiantar.

Table 5. Relationship between family support and quality of life of patients with type 2 DM at Hospital Tk.IV.01.07.01 Pematangsiantar.

Family support	Quality of Life				Total	OR (95% CI)	Score P
	Good		Not good				
	n	%	n	%	n	%	
Good	91	61.9	56	38.1	147	100	3,656
Not good	20	30.8	45	69.2	65	100	(1961-6818)
Total	111	52.4	101	47.6	212	100	

Table 5. illustrates the results of Chi-Square test which showed the value of  $p = 0.001$  with OR = 3.656 (95% CI 1.961 to 6.818), which means that there is a significant relationship between family support and the quality of life of patients with type 2 DM at Hospital Tk.IV.01.017.01 Pematangsiantar.

#### 4.0. Discussion

The average age of respondents was 58.92 years, which at this age female are more at risk of developing diabetes. The majority of respondents in this study were females (67%). According to the World Health Organization (WHO, 2016), DM is a disease with high incidence rates (8.5% of the total population) and will continue to increase. It is estimated that in 2030 Indonesia will occupy the fourth rank of country with highest number of DM, after America, China and India, which accounts for 21.3 million people. There is a significant difference in the number of patients with DM based on gender, in which there are more female than male. This study shows that women are more obedient in their treatment than men.

Based on this study of Chi Square test, it was found that Gender variables contribute to a score of  $p = 0.045$  (OR = 0.528 95% CI 0.294 to 0.949), which means that there is a significant relationship between gender and quality of life of patients with type 2 DM at Hospital Tk.IV. 01.07.01 Pematangsiantar. These results are similar to studies by Purwaningsih (2018), Rantung (2015), and Nauri (2016) which says that gender has significant influence to the quality of life of patients with type 2 DM.

The high incidence of diabetes in women is caused by overweight issues, and also because women produce estrogen which causes the increase in fat deposition in the sub cutis. In men the amount of body fat > 25%, and the amount of body fat in women > 35%. This situation led to the incidence of diabetes which is more common in women than in men (Soegondo, 2009). Research by Nauck (2018), said the quality of life of people with diabetes in the group of women are lower than men,

although women will more often seek treatment either as outpatient or inpatient to healthcare than men. The results showed most female respondents have a better quality of life than males (62.9%).

Based on educational level variables, it was found that respondents who have a good quality of life is in the highly educated group (69.2%), while those in lower education groups have better quality of life (48.6%), most respondents are less educated, after analysis of Chi Square test the education level variables showed  $p = 0.031$  (OR = 2.384 95% CI 1.135 to 5.009), which means there is a significant correlation between level of education and quality of life of patients with type 2 DM at Hospital Tk.IV. 01.07.01 Pematangsiantar.

These results are consistent with research conducted by Iqbal (2018) in Surakarta which shows that there is significant relationship between the level of education and quality of life of patients with type 2 DM. Similarly Indriyati (2019) reported lower education would result in lower quality of life of patients with type 2 DM in the Dr. Moewardi Surakarta Hospital. In other words, the quality of life of patients with type 2 DM can be influenced by levels of education. Hensarling (2009) found in his research that there is a significant correlation between level of education and quality of life of patients with type 2 DM, Chaidir (2018), found that there is a correlation between the level of education and quality of life. In other words, higher education will produce a higher quality of life in Yarsih Bukit Tinggi Hospital. Based on these results, a good quality of life will be obtained by a highly educated group. This is because the highly educated group is always looking for more information that will influence their quality of life. The education level can reflect a person's intellectual ability, with a higher education a person can be said to have sufficient knowledge and have ease to understand information, which will help themselves in their treatment.

Based on family support variable analysis, it was found that  $p < 0.001$ , OR = 3.656 95% CI 1.961 to 6.818 which means there is a significant relationship between family support with the quality of life of patients with type 2 DM at Hospital Tk.IV. 01.07.01 Pematangsiantar. This research supports the research conducted by Nuraisyah (2017) which found that there is a significant relationship between family support and quality of life ( $p = 0.001$ ). This is also suitable to a research conducted by Chusmeywati (2016) which says that there is a significant relationship between family support with the quality of life of patients with type 2 DM. Herdianti (2017), also expressed support from the family proved significant as a determinant of quality of life in patients with type 2 DM with the value (OR = 5.14). The average value of the respondent's family support is 77.08. The lowest value of family support is 33 and the highest value is 108. Based on the average value it can be concluded that the respondents often get support from family, namely from the emotional aspect and the instruments.

This can be seen from the respondents' answers concerning the emotional aspects in which the instrument were responded with more to "always", and "often". While those who answer to the statement of concerning aspects of appreciation were responded less to "always" and "often". more to the award in particular aspects of information only a few who answered always or often. The results of this study show that almost all respondents got family support, that by support of the family, the patients of DM feel more spirit and appreciated thus affecting the quality of life. This is in line with research Rahmawati, Setiawati and Solehati (2014) that expressed overall



support of the family effect of (40.3%) on the quality of life of patients with type 2 DM ( $R^2 = 0.403$ ), as did Indriyati (2019), said that social support affects the quality of life of patients with type 2 DM with p-value less than 0.001. Family support is very helpful for patients with type 2 DM to increase their believe to be able to perform the correct treatment of diabetes mellitus. DM patients who live near the family will feel more comfortable and secure. This will increase the motivation to carry out the treatment of diabetes. Patients that experience stress affects the body's functions.

Soegondo (2006) argues that the family has an influence on the attitudes and learning needs for people with diabetes either by refusing, providing support both physical, psychological, emotional, and social. DM patients were able to bring a positive attitude in learning DM if families provide support and participation in the form of health education related to diabetes. On the other hand, patients without support from family are more likely to refuse undergoing treatment. This negative attitude can lead to failure of the management of diabetes, which can affect quality of life and social skills of DM patients.

## 5.0. Conclusion and recommendation

### 5.1 Conclusion

Based on the research, it can be concluded that there is significant relationship between the variables of gender, education level and family support with the quality of life of patients with type 2 DM at Hospital Tk.IV. 01.07.01 Pematangsiantar.

The variables that contributed most to the quality of life of patients with type 2 DM is a family support, where the support of family shows the relation 3 times greater with the quality of life of patients with type 2 DM. This means that the better support for families of patients with type 2 DM, the better the quality of life of patients with DM type 2 at Hospital Tk.IV. 01.07.01 Pematangsiantar

### 5.2 Recommendation

Based on the above conclusions, the advice of of the researcher are as following: (1) For Community Health Service, Public health officials should be able to act as a facilitator and educator in improving family support to patients with type 2 DM, so that the quality of life is better. (2) For educational institutions it is necessary to add material about the family support and the material quality of life. (3) It is expected that families of patients with type 2 DM may provide support in carrying out the treatment of diabetes so that diabetic patient's quality of life could be better. (4) This research can be used as a basis to develop further research on the quality of life of type 2 DM patients.

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## Declaration

The authors declare that there are no conflicts of interest.

## Authors contribution

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