Quality of Life in Type 2 Diabetes Mellitus and Factor Affecting it in West Jakarta Health Center 2018

by Nanda Rumana

Quality of Life in Type 2 Diabetes Mellitus and Factor Affecting it in West Jakarta Health
Center 2018

Nanda Aula Rumana[1], Laras Sitoayu[2],MertienSa'pang[3]
[1,2,3]**EsaUnggul University, Health Science Faculty, UniversitasEsaUnggul, Jakarta**
JalanArjuna Utara, No. 9 KebonJeruk Jakarta Barat
+685692408058; nanda.rumana@esaunggul.ac.id

ABSTRACT

Background: The prevalence of diabetes increased in 2007 by 1.1% to 2.1% in 2013. If diabetes is not managed well, it will develop into complications that can threaten health, endanger life and cause a low quality of life.

Objective: This study studied the quality of life patients with type 2 diabetes mellitus using a cross sectional design with a structural equation modeling (SEM).

Methods: The Variable consist of demographic factors, psychosocial factors, medical social factors, and medical factors. The sample in this study were patients with type 2 diabetes mellitus in all West Jakarta health centers taken using purposive sampling as many as 246 respondents.

Results: The relationship between medical social factors on quality of life is significantly positive, meaning that the lower the social medical factor, the quality of life will decrease. In the relationship of variables between psycho-social factors to quality of life, the negative value is significant, meaning that the lower the psycho-social factor, the quality of life will increase. The structural models of factors affecting the quality of life in patients with Type 2 Diabetes Mellitus in West Jakarta Health Center are: Quality of Life = -0.24 medical -0.55 social psycho +0.30 social medical.

Conclusion : Diabetics are expected to be able to regulate the daily stressors that arise when doing activities, this is overcome by good self-management for example by taking medication regularly, eating food according to the recommended diet and routinely doing physical activities.

Keywords: Diabetes Mellitus, Quality of Life

INTRODUCTION

Diabetes Mellitus is a chronic disease that occurs when the pancreas cannot produce enough insulin or when the body cannot effectively use the insulin. Insulin is a hormone that manages blood sugar levels. A common effect due to an increase in uncontrolled blood sugar levels is the occurrence of Hypeglycemia, serious damage of many body systems, especially nerves and blood vessels(1).

In 2000, there were 171 million people in the world suffering from diabetes (2). Whereas, in 2014, 8.5% of adults aged 18 years and over had diabetes (3). It is projected that by 2030 the number will increase to 366 million (2). In 2012 diabetes was the direct cause of 1.5 million deaths (3).

193

Diabetes classified to Diabetes Mellitus type 1, Diabetes Mellitus type 2, Diabetes Mellitus in pregnancy / Gestational Diabetes Mellitus, and other types of diabetes(1). Diabetes Mellitus type 2 is 90% of all diabetes mellitus events (4).

Diabetes Mellitus type 2 (previously called as NIDDM / Non Insulin Dependent of Diabetes Mellitus) occurs because of the ineffective use of insulin in the body. This incident is a result of being overweight and lacking physical activity. Therefore, most people in the world suffer from this type of diabetes (3).

The prevalence of diabetes is increasing faster in middle and low income countries (3). Indonesia which is a developing country with low income has a high risk as well. Based on data, the prevalence of diabetes in Indonesia in the 1980s at the age above 15 years was 1.5% -2.3% (4). While according to the results of the RISKESDAS (RisetKesehatanDasar) there was an increase in the prevalence of diabetes 1.1% in 2007 to 2.1% in 2013 (5).

Diabetes risk factors include genetic factors / family history, age, overweight / obesity, unhealthy diet, lack of physical activity and smoking (3). Several researches conducted in Indonesia produced several risk factors for diabetes including> 45 years; more weight: (Relative Body Weight) BBR> 110% ideal weight or (Body Mass Index) BMI> 23 kg / m2; hypertension (> 140/90 mmHg); history of DM in the lineage; history of recurrent abortion, giving birth to a disabled baby or a newborn baby> 4000 g; HDL cholesterol <3 mg / dL and / or triglycerides> 250 mg / dL(6).

If diabetes is not managed properly, it will develop into complications that can threaten health and endanger life. Acute complications are a significant contributor to mortality, cost loss and poor quality of life (3).

The illness and the length of the treatment process in diabetic patients can affect physical, psychological, social and welfare functions which are defined as the quality of life (Quality of Life). According to WHO, quality of life is the individual's perception of their position in life in the context of the culture and values in where they live and in relation to their goals, hopes, standards and concerns (7).

There is a world standard in measuring quality of life in diabetic patients made by WHO namely SF-36 HRQOL. In Indonesia, there have been people who have made quality of life measurement instruments in Diabetes

Mellitus type 2 patients with the Indonesian version of the SF-36 HRQOL and have been validated with Cronbach's

In this study focused only on 8 sub-district health centers (puskesmas) in West Jakarta as a population. Based on the results in the field, there are 238 people obtained as samples that met the criteria. The inclusion criteria in this study are respondents age less than 60 years, able to read and write, willing to be respondents by signing informed consent, as well as conducting blood sugar checks at the health center during the study.

The variables measured to analyze the factors related to the quality of life of patients with diabetes mellitus type 2 in West Jakarta health centers use the statistical method SEM (Structural Equation Model) where there are two types of variables, namely latent variables and observed variables. The Latent Variables in this study are quality of life, demographic, psychosocial, medical factors and social - medical factors. Observed Variables are measures of Latent

alpha value. The overall item is 0.9426 (8)

METHODOLOGY

Variables. Observed Variables of quality of life are measured using Short Form 36 which is a questionnaire from The Medical Outcomes Study. The Observed Variables of demographic factors were age, sex, education level, ethnicity, marital status and economic level, Food intake, nutritional status, and occupation. The Observed Variables of psychosocial factors were anxiety levels, stress levels and depression levels measured using the Depression Anxiety Stress Scale (DAAS). Observable Variables from medical factors include long suffering, level of glycemic control, and complications. While the Observed Variables from social-medical factors include self-management measured using the Indonesian version of the Diabetes Self-Management Questionnaire (The DSMQ) validated by Fatimah (9) and social support measured using the Hensarling Diabetes Family Support Scale (HDFSS) Indonesian version validated by Yusra(9)

195

Pict 1. SEM Model, is adaptation model of Song, et al(10)Rubin &Peyrot(11), Kalda, et al(12), Laoh, (13), Lee et al,(14), Roman et al(15), Trikkalinou et al(16).
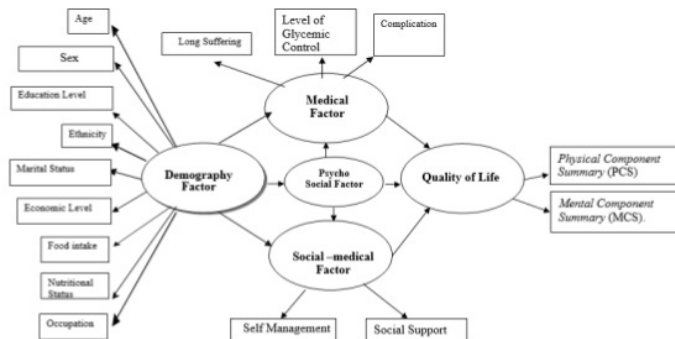

ETHICAL CONSIDERATION

This research has gone through an ethical approval process by obtaining a certificate of passing the ethical review no: 218-

18.146 / DPKE-KEP / FINAL-EA / UEU / IV / 2018 issued by the Ethics Commission of EsaUnggul University. In this case, the researcher is obliged to maintain the confidentiality of the identity of the respondent by not asking the name and address of the respondent, reporting serious unwanted events, not taking any action to the subject before passing the ethical review and informed consent by the subject.

RESULTS AND DISCUSSION

Pict 2. Structural Equation Model

Chi-Square=292.90, df=144, P-value=0.00000, RMSEA=0.066
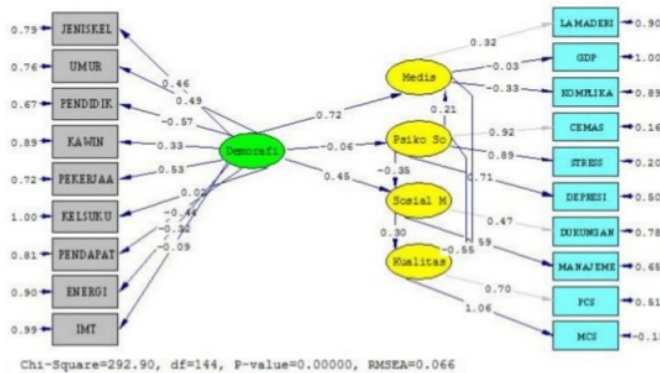
The model that has been formed, several tests must be carried out so that it can be declared feasible, valid and significant so that the meaning of the

model that has been formed can be interpreted. The following test results are carried out:

Tab. 1 Feasibility Test

No.	Indicator	Value	Standard	Remark
1	Chi-square	0.000	≥ 0.05	No Fit
2	RMSEA	0.06	≤ 0.08	Fit
3	GFI	0.9	≥ 0.90	Fit
4	AGFI	0.85	≥ 0.80	Fit
5	RMR	0.071	≤ 0.05	No Fit

Based on the results of the feasibility test, it can be seen that the results are RMSEA, GFI and

AGFI (Fit), so that the model is considered feasible and further steps can be taken in data analysis.

Tab.2 Structural Equation Model

Based on the results of the structural model test, the results show that

No.	Effect	Koefisien Standard Value	t-Value	Remark
Direct				
1	Medical Factor→ Quality of Life	-0.24	-1.91	No Significant
2	Social medical→Quality of Life	0.30	2.41	Significant
3	Psycho social → Quality of Life	-0.55	-5.48	Significant
Indirect				
1	Demography→ Medical Factor	0.72	3.14	Significant
	Medical Factor→Quality of Life	-0.24	-1.91	No Significant
	Total	-0.1728		
2	Demography→social medical	0.45	3.39	Significant
	Social medical→ Quality of Life	0.30	2.41	Significant
	Total	0.135		
3	Demography→Psycho social	0.06	-0.66	No Significant
	Psycho social →Quality of Life	-0.55	-5.48	Significant
	Total	-0.033		

the direct and indirect variables

value.

The causal relationship between medical latent variables on quality of life is not significantly negative with a P-value-1.91. The path coefficient value for medical factors

197

significantly influence the quality of life. This can be seen from the value of the t-is -0.24 means that the lower the medical factor, the quality of life will increase by 0.24. Vice versa, if medical factors increase, the quality of life will increase by 0.24.

The relationship between variables between medical social factors on quality of life is significant, namely 2.41. The path coefficient value is 0.30 which means that the lower the social medical factor, the quality of life will decrease by 0.30.

Significant medical social factors in this study are self-management. Patients who have good self-management will improve their quality of life, in line with Chaidir's research which states that the relationship between self-management and quality of life of patients with diabetes mellitus type 2 is directly proportional and has a level medium correlation (17). People who can manage themselves well will tend to pay attention to the food consumed, drugs taken as well as physical activities carried out. This is also corroborated by research conducted by Rantung where an increase in one unit of self-management will improve quality of life by 6.1% after sex control and depression (18).

The variables relationship between psycho-social factors on quality of life is significant, which is -5.48. The path coefficient value of -0.55 means that the lower the psycho-social factor, the qualityof life will increase by 0.55.

The significant psycho-social factors in this study consisted of stress and depression. The results of the study state that patients who are increasingly stressed will reduce their quality of life. In line with Zainuddin's research which states that stress can cause changes in a person's views and perceptions of the meaning, purpose and satisfaction of his life which will ultimately affect his quality of life. Stress in diabetic patients arises due to changes in lifestyle, continuous treatment, complications and a less favorable surrounding environment (19). Other psycho-social factors are depression, patients who experience depression are higher, and the quality of life will be lower. The research that is in line with these results include Safitri who states that there is a significant relationship between the level of depression and the quality of life of patients with diabetes mellitus type 2. This is due to the burden felt by diabetics make all activities in his life limited. Even though it does not always cause sadness and disappointment, the limitation of activity causes some of his hopes to fail, leading to depression and resulting in poor quality of life (20).

The demographic variable is the only variable that does not directly affect

to the quality of life, where if the demographic variables influence the quality of life through social medical values are significantly positive. The path coefficient value is 0.135, which means that the lower the demographic, the quality of life will decrease by 0.135. In this study, for example, education was taken, patients who had higher education, tended to conduct self-management well so as to improve quality of life. Based on these explanations, obtained a structural model of Life Quality = -0.24 medical -0.55 psycho social +0.30 social medical.

CONCLUSION

1. Indicators that can measure significant quality of life are significant demographic factors such as gender, age, education, marital status, employment, income, and energy intake. Significant psycho-social factors are stress and depression, a significant medical factor is only complications. Significant social medical factors are self-management. A significant quality of life is Mental Component Summary (MCS)

2. The causal relationship between the latent variables of the medical factor on the quality of life is not significant.

3. The relationship between medical social factors variables to the quality

of life has significant positive value means that the lower the medical social factors, the quality of life will decrease.

4. In the relationship between psychosocial factors variables on quality of life is significantly negative, meaning that the lower the psycho- social factor, the quality of life will increase.

5. Structural models of factors that affect to the quality of life in patients with Diabetes Mellitus Type 2 in West Jakarta health centers are: Quality of Life = -0.24 medical -0.55 social psycho +0.30 social medical

ACKNOWLEDGEMENT

1. Patients who have been diagnosed as diabetics are expected to be able to manage the daily stressors that arise when doing activities. This is overcome by good self-management for example by taking medication regularly, eating according to the recommended diet and routinely doing physical activities.

2. Further research is needed to determine other determinant factors that can cause the incidence of diabetes mellitus type 2, especially in other regions.

REFERENCES

1. WHO. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: Diagnosis

and classification of diabetes mellitus. 1999.

2. WHO. Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia : report of a WHO/IDF consultation. 2006.

3. WHO. Global report on diabetes. 2016.

4. Kemenkes. Situasi dan Analisis Diabetes. 2014.

5. Kemenkes. Riset Kesehatan Dasar 2013. 2013.

6. Soegondo S. Diagnosis dan Klasifikasi Diabetes Mellitus Terkini. Jakarta: Balai Penerbit FKUI; 2005.

7. WHO. Annotated Bibliography of the WHO Quality of Life Assessment Instrument – WHOQOL. 1999.

8. Nissa MK. Kualitas hidup penderita diabetes mellitus tipe 2 di Rumah Sakit Umum Daerah (RSUD) Kota Cilegon Periode Januari -Mei 2013. Universitas Islam Negeri Syarif Hidayatullah; 2013.

9. Yusra A. Hubungan antara dukungan keluarga dengan kualitas hidup pasien diabetes mellitus tipe 2 di poliklinik penyakit dalam rumah sakit umum pusat fatmawati Jakarta. Universitas Indonesia; 2011.

10. Song R, Ahn S, Oh H. A Structural Equation Model of Quality of Life in Adults with Type 2 Diabetes in Korea. Appl Nurs Res [Internet]. 2013 Aug 1 [cited 2018 May 30];26(3):116–20. Available from:https://www.sciencedirect.com/science/article/pii/S0897189713000359

11. Rubin RR, Peyrot M. Quality of life and diabetes. Diabetes Metab Res Rev. 1999;15(3):205–18.

12. Kalda R, Rätsep A, Lember M. Predictors of quality of life of patients with type 2 diabetes. Patient Prefer Adherence. 2008;2:21–6.

13. Laoh JMDT. GAMBARAN KUALITAS HIDUP PASIEN DIABETES MELLITUS DI POLIKLINIK ENDOKRIN RSUP PROF. Dr. R. D. KANDOU MANADO. JUIPERDO [Internet]. 2015 [cited 2018 Jun 1];4(1). Available from: https://media.neliti.com/media/publications/92587-ID-gambaran-kualitas- hidup-pasien-diabetes.pdf

14. Lee EH, Lee YW, Moon SH. A Structural Equation Model Linking Health Literacy to Self-efficacy, Self- care Activities, and Health-related Quality of Life in Patients with Type 2 Diabetes. Asian Nurs Res (Korean Soc Nurs Sci) [Internet]. 2016;10(1):82–7. Available from: http://dx.doi.org/10.1016/j.anr.2016.01.005

15. Roman-Urrestarazu A, Ali FMH, Reka H, Renwick MJ, Roman GD, Mossialos E. Structural equation model

for estimating risk factors in type 2 diabetes mellitus in a Middle Eastern setting: evidence from the STEPS Qatar. BMJ Open Diabetes Res Care [Internet]. 2016;4(1):e000231. Available from: http://drc.bmj.com/lookup/doi/10.1136/bmjdrc-2016-000231

16.   Trikkalinou A, Papazafiropoulou AK, Melidonis A. Type 2 diabetes and quality of life. World J Diabetes [Internet]. 2017;8(4):120. Available from: http://www.wjgnet.com/1948-9358/full/v8/i4/120.htm

17.   Chaidir R. Hubungan Self Care Dengan Kualitas Hidup Penderita Diabetes Melitus. J Endur. 2017;2(June):132–44.

18.   Rantung J, Yetti K, Herawati T. Hubungan Self-Care dengan Kualitas Hidup Pasien Diabetes Melitus (DM) di Persatuan Diabetes Indonesia (Persadia) Cabang Cimahi. Sk Keperawatan. 2015;1(1):38–51.

19.   Zainuddin, Utomo W, Herlina. Hubungan Stres dengan Kualitas Hidup Penderita Diabetes Mellitus Tipe 2. J Med UNRI [Internet]. 2015;2(1):890–8. Available from: https://media.neliti.com/media/publications/188387-ID-hubungan-stres-dengan-kualitas-hidup-pen.pdf

20.   Safitri D. Hubungan antara Tingkat Depresi dengan Kualitas Hidup padaPasien Diabetes Mellitus Tipe II di Rumah Sakit Islam Surakarta. Universitas Muhammadiyah Surakarta; 2013.

Quality of Life in Type 2 Diabetes Mellitus and Factor Affecting it in West Jakarta Health Center 2018