Sociodemographic Characteristic and Health Related Quality of Life in Outpatients of Type 2 Diabetes Mellitus under JKN

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ABSTRACT: *The aim of study was carried out to determine differences of health related qualitiy of life (HRQoL) with sociodemographic characteristic in type 2 diabetes mellitus outpatiens at one of government hospital in Jakarta. It was a cross-sectional study conducted from February to April 2015. Total of samples were 83 patients. Male 31(37.4%) and female 52(62.6%). HRQoL associated with level education was difference significantly (P<0.05). Based on score of domain quality of life, female had higher score (69.82 ± 3.14) of frequency of symptoms domain than male (67.32 ± 4.50) (P<0.05). The oldest patients had the highest score (P<0.05) in domain of satisfaction. In contrast, the oldest patients had the the most decrease score (64.14 ± 4.03) in domain of frequency of symptoms (P<0.05). Patients of senior high school had lower score (60.17 ± 24.65) in domain of treatmant satisfaction than patients of diploma/ bachelor (78.78 ± 21.98). Score of domain of frequency of symptoms was higher on patients employed than none (P<0.05). The household income did not influence all domain (P>0.05). Furthermore, diabetes duration affected both domain of satisfaction (P=0.005) and frequency of symptoms (P=0.00). In conclusion, only education level of characteristic sociodemographic had difference significantly to HRQoL among type 2 diabetes mellitus outpatients..*

INTRODUCTION

In 2014, Indonesian government transformed public health insurance from ASKES (Asuransi Kesehatan) to JKN (Jaminan Kesehatan Nasional). There is different payment method between these insurances. ASKES used fee for services and JKN uses INA-CBGs. INA-CBGs has limited health cost that is covered based on diagnose. In the other hand, every services patients obtained will be covered or no limited in fee for services method. Therefore, researcher, clinician, and patients need to realize impact of JKN to clinical outcome especially in chronic diseases as diabetes mellitus [1,2].

The prevalence of diabetes mellitus (DM) in Indonesia about 8.43 million people suffered DM in 2010. According to WHO, it will be constantly growing until 21.26 million in 2030 [3]. Type 2 DM is one of chronic disease that independent insuline require continues health services and survive by themself. In the long term patients with DM have to face many complication that related with morbodity and mortality [4]. To determine clinical outcome in type 2 DM, it is related with some parameters such as HBA1c, commorbidity, as well as health related quality of life [5]. Recently, many researcher and clinicians have been recognized quality of life as one of tool to measure outcome therapy [6,7].

HRQOL is defined that perception of patients relates with desired outcome of their therapy such as health, well being, and functioning. Moreover HRQoL also showed that capabilty of self care activities of patients that will influence to control and maintanance blood glucose as well. Sociodemographic and socioeconomic characteristic are associated with quality of life. Javanbakht's research in Iran was conducted that gender, education, employement, duration of diabetes, diabetes related hospitalization were affected quality of life [6]. In line with the research of Zyoud in 2015 performed that elderly patients, unemployed had independent risk to poor HRQoL [8].

Heretofore, there are limited research of HRQoL among type 2 DM outpatients under JKN in Indonesia. Therefore the presence of the study carrioud out to measure health quality of life among sociodemographic characteristic in type 2 DM outpatients

METHODS

The study was performed by cross-sectional method that used diabetes quality of life clinical trial questionnaire (DQLCTQ) to identify difference of health related quality of life among sociodemographic characteristic such as gender, age group, education level, employement, household income, and duration of diabetes at one of government hospital in Jakarta. The questionnaire was validated and reliable. Thus the questionnaire was distributed and filled by type 2 diabetes mellitus outpatients.

Subject who eligible in this study were all adult type 2 diabetes mellitus outpatients with ASKES before implementation of JKN, agree to be a participant and willing to write informed consent. Subject with double insurance were excluded in this study.

Data were collected by questionnaires have been filled by participant. The data were analyzed descriptively and statistically conducting one of statistical program.

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RESULT AND DISCUSSION

A. Validity and Reliability Test of DQLCTQ

The questionnaire consist of eight domains as physical function, energy, health distress, mental health, satisfaction, treatment satisfaction, treatment flexibility, and frequency of symptoms. The result of the test was conducted that in spite of 3 questions have not been valid but reliable. Associated with the result, that question still include in questionnaire with require editing of written text.

B. Sociodemographic Characteristic

Total of samples were collected that 83 patients. In this study, sociodemographic defined as sex, age group, education level, employment,

Table 1. Characteristics of the patients

Characteristic		N(%)*
Sex	Male	31 (37.4)
	Female	52 (62.6)
Age Group	45 – 54 years	3 (3.6)
	55 – 64 years	27 (32.5)
	65 – 74 years	43 (51.8)
	≥ 75 years	10 (12.4)
Education	Senior high school	35 (42.2)
	diploma/bachelor	48 (57.8)
Employment	Unemployed	80 (96.4)
	Employed	3 (3.6)
Household Income	None	18 (21.7)
	Rp. 1 - < 3 million	29 (34.9)
	Rp. 3 - < 5 million	36 (43.4)
Diabetes duration	1 – 5 years	14 (16.9)
	6 – 10 years	45 (54.2)
	> 10 years	24 (28.9)

*Percentage by total of samples

household income, and diabetes duration.

The characterictic of patients have been shown in Table 1. This study performed that female's patients more than male patients. It was linear with the research of Zyoud et.al [8] and Javanbakht et.al [6]. Mean of age upper than 50 years old (geriatric). 96.4 % patients unemployed. The most patients had duration of diabetes longer than five years.

C. Sociodemographic Characteristic Related with Differences of HRQoL

We used an independent t test to analyze the impact of gender, employment, and education level to health related quality of life. The statistic test indicated that characteristic of gender was not affected HRQoL (p>0.05), as well as employment. However, HRQol had differences significantly among education level of patients (P<0.05). The score of HRQoL was higher in diploma/ bachelor than senior high school. Patients with

higher education level had positive minded of their diseases. It assumed that education may lead influence to HRQoL. This result have in line with research of Hartati [9] and Sari et.al (2011) at Sardjito Hospital [10]. In addition, we used 0ne-Way ANOVA to determine the differences of HRQoL on age group and household income. The result of test performed that there were no differences score of HRQoL on age group and household income.

The result of descriptive analysis showed that female had higher quality of life than male. This reflected the study was carried out at Sleman hospital, Yogyakarta [11]. Meanwhile, The analysis quality of life based on age group demonstrated that the most score of quality of life was the oldest patients. Different with the research of Rodekop et.al [12] that reported the younger patients had positive minded to face their disease. The increase of household income was followed by score of quality of life. This conformed the

Table 2. HRQoL in type 2 DM outpatients

Variable		HRQoL scores	P Value
Sex	Male	63.17 ± 20.83	0.167*
	Female	69.55 ± 18.88	
Age Group	45 – 54 years	69.93 ± 3.10	0.667**
	55 – 64 years	73.55 ± 5.76	
	65 – 74 years	73.77 ± 4.75	
	≥ 75 years	72.33 ± 9.95	
Education	Senior high school	71.65 ± 4.82	0.019*
	diploma/bachelor	74.65 ± 6.20	
Employment	Unemployed	73.40 ± 5.84	0.937*
	Employed	73.07 ± 6.45	
Household Income	None	72.06 ± 5.22	0.555**
	Rp. 1 - < 3 million	73.76 ± 5.36	
	Rp. 3 - < 5 million	73.75 ± 6.50	
Diabetes duration	1 – 5 years	74.51 ± 5.24	0.733**
	6 – 10 years	73.14 ± 4.84	
	> 10 years	73.20 ± 7.70	

Note: Data are Mean±SD; *independent t test; ** One way ANOVA were used at α=0.05

research by Pontoan at Tarakan Hospital [13]. Patients who had better financial will have ability to improve their condition. Meanwhile HRQoL decreased as long time of duration of diabetes. The result study of Grey et al.(1998) reported that diabetes duration affected quality of life associated with complication [14].

D. Differences Domain Score of HRQoL Related with Sex

The scores of HRQoL in all domains were not normally distributed by Kolmogorov smirnov test. As a result, to asses the influence of sex on domain score of HRQoL, Mann whitney test was carried out. Statistical analysis showed that the domain score of frequency of symptoms

among type 2 DM female outpatients were higher than male patients and difference significantly (P<0.05). Based on domain of frequency of symptoms, physical function, energy, treatmant satisfaction, and treatmant flexibility, the female patients exhibited higher score than male patients eventhough it was not statistically significant. Meanwhile, patients with gender of male had higher score of quality of life in domain of health distress, mental health, and satisfaction but it was not significant in statistic. Rubin and Peyrot (1997) founded the similar result that the female patients demonstrated more experience physological disturbance than male patients [15]. Guciardi's research (2008) announced that physological depression may lead to patients behavior in look

Table 3. Differences of score each of domain related with sex

Domain	Sex		P value*
	Male	Female	
Physical Function	63.17 ± 20.83	69.55 ± 18.88	0.149
Energy	69.22 ± 11.67	76.54 ± 7.80	0.310
Health distress	88.55 ± 9.00	87.05 ± 10.22	0.446
Mental health	81.67 ± 4.94	80.13 ± 5.31	0.126
Satisfaction	72.11 ± 10.43	71.05 ± 10.85	0.732
Treatmant satisfaction	69.91 ± 26.69	71.54 ± 23.83	0.966
Treatment flexibility	65.97 ± 4.37	66.89 ± 4.60	0.366
Frequency of symptoms	67. 32 ± 4.50	69.82 ± 3.14	0.014

Note : data are means±SD,   * Mann Whitney Test were used at α=0.05

Table 4. Differences of score each of domain related with age group

Domain	Age Group				P Value*
	45 – 54 years	55 – 64 years	65 – 74 years	≥ 75 years	
Physical Function	58.33 ± 22.02	68.83 ± 20.23	68.60 ± 17.33	59.16 ± 27.34	0.485
Energy	70.67 ± 19.01	77.14 ± 9.24	72.90 ± 8.25	69.66 ± 14.56	0.326
Health distress	98.60 ± 2.43	86.35 ± 9.84	88.26 ± 9.77	84.98 ± 9.25	0.141
Mental health	81.67 ± 2.89	81.12 ± 6.07	80.70 ± 4.84	79.33 ± 5.06	0.706
Satisfaction	67.57 ± 8.10	64.56 ± 7.33	74.57± 10.56	77.78 ± 10.16	0.000
Treatmant satisfaction	45.37 ±41.63	72.86 ± 23.73	70.36± 24.43	75.86 ± 23.28	0.497
Treatment flexibility	66.07 ± 5.31	66.41 ± 4.53	66.42 ± 4.50	67.60 ± 4.85	0.887
Frequency of Symptoms	71.20 ± 3.21	71.14 ± 3.59	68.42 ± 2.85	64.14 ± 4.03	0.000

Note: data are means±SD * Kruskal-Wallis Test were used at α=0.05

after their disease [16].

E. Differences Domain Score of HRQoL Related with Age Group

The kolmogorov-smirnov showed that all domain of quality of life distributed not normally. To identify the influence of age group of all domain, Kruskal-Wallis test was conducted. Statistical analysis showed that age group influenced significantly domain of satisfaction and frequency of symptomps (p<0.05). Patients with age of ≥ 75 years old had the lowest score of domain frequency of symptom Meanwhile based on domain of satisfaction, patients with age of ≥ 75 years old had the highest score. Descriptive analysis showed that the increase of age did not influence of score of domain except mental health.

Different with Manini et.al (2009) reported that physiological system will descend as the increase of age [8].

F. Differences Domain Score of HRQoL Related with Education Level

Table 5 showed that quality of life difference significant statistically between patients of senior high school and patients of diploma/bachelor (P<0.05). Patients of senior high school had lower score on domain of treatmant satisfaction than patients of diploma/bachelor. Papadopolus et.al (2008) reported that the patients who had low education had the lowest quality of life [19]. Based on descriptive analysis, patients with level education of diploma/bachelor exhibited higher score in some domain such as phsycal function,

Table 5. Differences of score each of domain related with education level

Domain	Education level		P value*
	Senior High School	Diploma/Bachelor	
Physical Function	64.05 ± 18.71	69.44 ± 20.37	0.421
Energy	74.37 ± 8.55	73.39 ± 11.05	0.571
Health distress	87.36 ± 9.93	87.80 ± 9.73	0.827
Mental health	80.96 ± 5.43	80.53 ± 5.06	0.792
Satisfaction	71.20 ± 9.38	71.63 ± 11.57	0.783
Treatmant satisfaction	60.17 ± 24.65	78.78 ± 21.98	0.001
Treatment flexibility	66.15 ± 4.43	66.83 ± 4.58	0.498
Frequency of symptoms	68.98 ± 4.01	68.82 ± 3.81	0.790

Note: data are means±SD * Mann Whitney Test were used at α=0.05

Table 6. Differences of score each of domain related with employment

Domain	Employment		P value*
	Unemployed	Employed	
Physical Function	67.60 ± 19.89	55.57 ± 12.72	0.293
Energy	73.88 ± 9.60	71.67 ± 21.73	0.493
Health distress	87.41 ± 9.78	93.03 ± 8.69	0.336
Mental health	80.59 ± 5.23	83.90 ± 3.48	0.261
Satisfaction	71.79 ± 10.60	62.23 ± 8.24	0.072
Treatmant satisfaction	70.60 ± 24.97	79.67 ± 20.84	0.593
Treatment flexibility	66.57 ± 4.51	66.07 ± 5.31	0.851
Frequency of symptoms	68.76 ± 3.88	72.37 ± 1.67	0.048

Note: data are means±SD * Mann Whitney Test were used at α=0.05

health distress, satisfaction, as well as treatment flexibility. In addition they had lower score in domain as mental health and frequency of symptomps. Patients with high level of education have willingnes their condition and positive related with their treatment.

G. Differences Domain Score of HRQoL Related with Employment

Table 6 demonstrated that difference score of domain as employment. To identify, Mann whitney test were conducted regarding the result of kolmogorov-smirnov showed that the data distributed not normally. Statistical analysis revealed that there were no differences

significant between employment and all domains except domain of frequency of symptom. The score of domain of frequency of symptoms in patients unemployed lower than employed patients (P<0.05). But as descriptively study showed that employed patients had higher score of domain such as health distress, mental health, and treatmant satisfaction. The unemployed patients had a frequently complaint associated with blurred vission, nausea, fatigue, thirst/dry mouth, excessive hunger, frequent urination, and paresthesia (pins and needles of feet and hands). It related the decrease of HRQOL.

H. Differences Domain Score of HRQoL Related

Table 7. Differences all domain score related with household income

Domain	Household Income			P value*
	None	*Rp. 1 - < 3 million*	*Rp. 3 - < 5 million*	
Physical Function	64.35 ± 18.69	68.96 ± 19.53	67.13 ± 20.79	0.626
Energy	76.71 ± 8.10	74.94 ± 6.65	71.43 ± 12.53	0.558
Health distress	87.48 ± 10.79	87.14 ± 9.96	88.06 ± 9.31	0.846
Mental health	81.11 ± 5.08	79.60 ± 5.81	81.40 ± 4.70	0.474
Satisfaction	71.78 ± 8.82	71.90 ± 10.50	70.92 ± 11.78	0.766
Treatmant satisfaction	58.81 ± 26.01	71.95 ± 23.29	76.18 ± 23.92	0.061
Treatment flexibility	66.58 ± 4.62	67.12 ± 4.66	66.07 ± 4.34	0.642
Frequency of symptoms	69.72 ± 4.28	68.46 ± 3.28	68.82 ± 4.14	0.908

Note: data are means±SD * Kruskal-Wallis Tests were used at α=0.05

Table 8. Differences of score of all domain related with diabetes duration

Domain	Diabetes duration			P value*
	1 – 5 years	*6-10 years*	*> 10 years*	
Physical Function	73.81 ± 19.84	67.22 ± 18.58	63.19 ± 21.55	0.343
Energy	79.31 ± 11.81	74.06 ± 8.17	70.12 ± 10.91	0.065
Health distress	87.18 ± 8.57	87.36 ± 10.72	88.35 ± 8.78	0.904
Mental health	81.08 ± 5.50	80.34 ± 5.63	81.18 ± 4.23	0.825
Satisfaction	66.14 ± 7.37	69.72 ± 10.36	77.78 ± 10.13	0.005
Treatmant satisfaction	67.87 ± 27.85	71.87 ± 21.96	70.96 ± 28.67	0.850
Treatment flexibility	67.60 ± 4.77	65.66 ± 4.22	67.60 ± 4.70	0.147
Frequency of symptoms	73.11 ± 2.51	68.92 ± 2.55	66.37 ± 4.47	0.000

Note: data are means±SD * Kruskal-Wallis Tests were used at α=0.05

with Household Income

The result of study performed that household income did not influence all domain in quality of life (P>0.05) as shown by Table 7. This result is accordance with the study of Lely at Haji Hospital [19]. Not linear with the research of Pantoan (2015) reported that household incomed affected all domain except in domain of satisfaction [13]. Based on descriptive analysis, patients who had the highest level of household income had the highest score in domain of treatmant statisfaction. It related with financial capability. Treatmant statisfaction consist such as how controlled your diabetes, how satisfied your treatment, as well as how willing to continue your present treatment. In addition that patients without income showed that higher score in domain of energy than patients had income. It reflected with patients who had income had work alot. Through they had more often feel tired than patients without occupation.

I. Differences Domain Score of HRQoL Related with Diabetes Duration

To determine influence of duration of diabetes, Kruskal-Wallis test were conducted. As shown by Table 8, score of domain satisfaction and frequency of symptoms had difference significantly (P<0.05). Patients with the longest diabetes duration performed that the lowest score of domain of frequency of symptoms. While in satisfaction domain, the patients who had the longest duration had the highest score. The result of this study was in line with the study carried out by Pantoan at Tarakan Hospital [13] and difference with Lely at Haji Hospital [19]. Meanwhile in physical function domain, the shortest duration the highest score of domain. Domain of energy showed the equivalent result. It defined that the longest duration would not always be followed decrease of HRQoL.

CONCLUSION

Sociodemographic characteristic affected on health related quality of life among type 2 diabetes mellitus outpatients under JKN. Education level had influence significantly meanwhile such as gender, age group, employment, and diabetes duration had no correlation with health related quality of life. The score of domain of frequency of symptoms was affected significantly by gender, age group, employement, and duration of diabetes. The domain of satisfaction had difference significantly by age group.

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