

# The Quality of Life Chronic Renal Failure (CRF) Patients in Hemodialysis Unit at District General Hospital Pringsewu Regency Lampung Province in 2018

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**Abstract.** The purpose of this study was to determine the factors that affect the quality of life of CRF patients in Hemodialysis Unit at Pringsewu District General Hospital. This study was conducted from February to May 2018 with cross sectional study design. The sampling technique using total sampling technique. Measurement of quality of life using KDQOL-SFTM version 1.3. The results found that quality of life scores were quite low in some domains and subscales. The mean of total score was  $55.70 \pm 21.30$  with mean of Physical Health Composite (PHC) =  $38.85 \pm 9.26$  and mean of Mental Health Composite (MHC) =  $36.13 \pm 7.08$ . Regarding the targeted area of ESRD, the scale of renal disease burden and occupational status scale resulted in the lowest score. The sleep quality scale score was  $56.18 \pm 20.72$ . Only 61 patients responded to questions of sexual activity with a score of  $55.53 \pm 27.44$  on the scale of sexual function. In the 36-item health survey, the mean total score was  $45.90 \pm 21.95$ . The lowest score represented the limitations of roles caused by physical and emotional health problems. The result of statistical test showed that the variables significantly related to the quality of life of CRF patients were age, income, duration of hemodialysis and family support. Thus, family support was the variable that had the greatest impact on determining the quality of life of CRF patients. The CRF patients who lacked family support were 4.6 times more likely to lead poorer life compared to CRF patients who received good family support after being controlled by age, income, duration of hemodialysis, gender, working status, and diabetes mellitus variables.

## 1 Introduction

Chronic Renal Failure (CRF) is still a public health problem worldwide today. The estimated prevalence of overall chronic renal failure was about 8% -16% or nearly 500 million affected individuals, of whom 78% (387.5 million) were in low-income and middle-income countries (LMICs). Between 1990 and 2010, deaths caused by Chronic Kidney

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Disease (CKD) were nearly doubled, and were ranked 18th cause of death in 2012 [3]. According to the United State Renal Data System, in the United States, the prevalence of chronic renal failure increased by 14.8% in 2011-2014, with stage 3. It was estimated that more than 20 million (more than 10%) adults in the United States had Chronic Kidney Disease per year [7]. The increase in cases of kidney disease in the world occurs every year by more than 50%. In Indonesia, the prevalence of CRF based on a doctor's diagnosis was 0.2% and in Lampung the prevalence was 0.3% [6]. The Indonesian Renal Registry (IRR) data showed that patients with Chronic Renal Failure or Terminal/ ESRD were the most patients (89%) followed by Acute Renal Failure / ARF patients (7%), and Acute Renal Failure patients in CRF (4%). They must undergo hemodialysis to survive.

Hemodialysis or kidney transplantation is not a cheap action. The cost of treatment in prolonging the life of chronic renal failure patients who have reached the final stage will certainly increase health costs. The number of cases distribution and claim fee at BPJS Advanced Outpatient Care (RJTL) by 2016, for urinary system disease reached 3,198,267 cases, the third highest by spending more than Rp 3.052.691.160.100 (Three trillion fifty two billion six hundred ninety one million one hundred sixty thousand one hundred rupiahs) [2].

Besides impacting considerable health financing, hemodialysis also affects the patient's quality of life. World Health Organization WHO itself has formulated four dimensions of quality of life namely physical dimension, psychological dimension, social dimension and environmental dimension. These four dimensions have been able to describe the quality of life of patients with chronic renal failure with hemodialysis therapy who have different religions, ethnicities and cultures [8].

Many factors affect the quality of life of CRF patients, one of it is family support. The presence of family members who accompany the patient during hemodialysis therapy, causing the patient to feel noticed, although not all family members, but alternately or family members who have more time seen during therapy. Such family support has an impact on patient compliance in performing hemodialysis therapy. A study of 72 patients with Chronic Kidney Disease (CKD) at RSU Haji Surabaya concluded that the quality of life of patients was influenced by the support they received and the status of diabetes mellitus [1].

## **2 Materials and Methods**

This research used observational analytic research with cross sectional research design, in Hemodialysis Unit at Pringsewu District General Hospital of Pringsewu Regency. The study was conducted in February-May 2018. Population of the study was all patients of Chronic Renal Failure (CRF) in Hemodialysis Unit at Pringsewu District General Hospital of Pringsewu Regency in 2018. The sampling technique using total sampling technique, consisted of 117 participants. Independent variables to be studied were age, sex, education, employment status, income, duration of hemodialysis, Hb level, DM status, and family history of hypertension and family support.

The types of data collected were primary and secondary data. Primary data were obtained from interviews using sociodemographic questionnaires, family support questionnaires and Kidney Disease Quality of Life-Short Form (KDQOL-SFTM version 1.3) questionnaires with a range of values from 0-100 [5]. While the secondary data were in the form of research subject, by looking at patient status and diagnosis of patient's disease in Medical Record in Hemodialysis Unit at Pringsewu District General Hospital of Pringsewu Regency in 2018. The test result of validity and reliability of instrument

KDQOL-SFTM version 1.3 and instrument of family support caused internal consistency and coefficient reliability (Cronbach's alpha) of 0.941 and 0.937 respectively. There were three data analyzes: univariate analysis, bivariate analysis using chi-square test, with  $\alpha = 0.05$  and 95% confidence interval value as well as multivariate analysis using multiple logistic regression [4].

This research was conducted after going through ethical review procedure and got ethical statement and was approved to be executed from Health Research Ethics Commission (KEPK) of Public Health Faculty of Sriwijaya University by issuing Ethical Approval Certificate (Number 91 / UN9.1.10 / KKE / 2018) on May 3, 2018.

### 3 Results and Discussions

**Table 1.** KDQOL SF-1.3 scores for all studied patients

Scales	Mean	Median	SD	n
<b>Kidney disease targeted scales</b>				
Symptoms/problems (12)	70.12	72.92	19.75	117
Effect of kidney disease (8)	70.14	75.00	19.71	117
Burden of kidney disease (4)	37.02	25.00	25.63	117
Work status (2)	41.03	50.00	31.22	117
Cognitive function (3)	80.74	86.67	15.82	117
Quality of social interaction (3)	73.96	73.33	15.39	117
Sexual function (2)	55.53	50.00	27.44	61
Quality of Sleep (4)	56.18	57.50	20.72	117
Social support (2)	74.93	66.67	21.40	117
Quality of Dialysis staff services (2)	82.16	75.00	11.53	117
Patient satisfaction (1)	59.12	50.00	19.88	117
<b>SF-36 survey scale items</b>				
Physical function (10)	49.44	50.00	22.18	117
Role physical (4)	17.09	0.00	33.26	117
Pain perception (2)	65.26	67.50	24.13	117
General health (5)	50.85	50.00	16.22	117
Emotional well-being (5)	34.46	36.00	18.65	117
Role emotional (3)	17.66	0.00	32.92	117
Social function (2)	66.35	75.00	23.30	117
Energy/Fatigue (4)	51.54	55.00	13.90	117
Overall health (1)	60.43	60.00	12.96	117
<b>Total Score</b>	<b>55.70</b>	<b>53.78</b>	<b>21.30</b>	
<b>SF-12 Physical Health Composite</b>	38.85	38.41	9.26	117
<b>SF-12 Mental Health Composite</b>	36.13	37.07	7.08	117

**Table 2.** Distribution of Respondents

<b>Variables</b>	<b>Number</b>	<b>Percentage (%)</b>
<b>Age</b>		
≤ 52 years	62	53
> 52 years	55	47
<b>Gender</b>		
Male	58	49.6
Female	59	50.4
<b>Education</b>		
High (SMA, PT)	54	46.2
Low (SD, SMP)	55	47.0
None	8	6.8
<b>Working status</b>		
Working	58	49.6
Not working	59	50.4
<b>Total income</b>		
> Rp1.908.447,50	34	29.1
≤ Rp1.908.447,50	83	70.9
<b>Duration of Hemodialysis therapy</b>		
Long (≥ 11 bulan)	87	74.4
Not long yet (< 11 bulan)	30	25.6
<b>Hemoglobin level</b>		
Not anemia (> 10 gr/dl)	6	5.1
Anemia (≤ 10 gr/dl)	111	94.9
<b>DM Status</b>		
Not Diabetes (< 126 mg/dL)	86	73.5
Diabetes (≥ 126 mg/dL)	31	26.5
<b>History of Hypertension</b>		
No (< 140/90 mmHg)	36	30.8
Yes (≥ 140/90 mmHg)	81	69.2
<b>Family support</b>		
Good	42	35.9
Not good	75	64.1
<b>Marital Status</b>		
Married	106	90.6
Single	5	4.3
Widowed	6	5.1
<b>Race</b>		
Lampungnese	7	6.0
Javanese	95	81.2
Semendonese	6	5.1
Others	9	7.7
<b>Comorbidities</b>		
Unknown	14	12.0
Hypertension	81	69.2
Polycystic Kidney Disease	5	4.3
Kidney stone	14	12.0
Preeclampsia	1	0.9
Primary Glomerulopathy (GNC)	2	1.7
<b>Most often accompany HD therapy</b>		
Husband/Wife	70	59.8
Children/Nephew	33	28.2
Father/Mother	4	3.4
Brother/Sister	2	1.7
None	8	6.8
<b>Membership of BPJS</b>		
Yes	117	100.0

**Table 3.** Distribution of Quality of Life According to Independent Variables under Study

Variables	Quality of life				Total		P Value	OR
	Good		Not good		N	%		
	N	%	n	%				
Age: Young ( $\leq$ 52 years) Old ( $>$ 52 years)	32 15	51.60% 27.30%	30 40	48.40% 72.70%	62 55	100% 100%	0.013	2.844 (95% CI: 1.311 - 6.173)
Gender: Male Female	27 20	46.60% 33.90%	31 39	53.40% 66.10%	58 59	100% 100%	0.227	1.698 (95% CI: 0.805 - 3.582)
Education: High Low None	22 23 2	40.70% 41.80% 25%	32 32 6	59.30% 58.20% 75%	54 55 8	100% 100% 100%	0.659	0.957 2.062
Working Status: Working Not working	30 17	51.70% 28.80%	28 42	48.30% 71.20%	58 59	100% 100%	0.019	2.647 (95% CI: 1.234 - 5.679)
Income: $>$ Rp1.908.447.50 $\leq$ Rp1.908.447.50	20 27	58.8% 32.5%	14 56	41.2% 67.5%	34 83	100% 100%	0.001	4.253 (95% CI: 1.886 - 9.905)
Duration of HD therapy: Long ( $\geq$ 11 month) Not long yet ( $<$ 11 month)	41 6	47.1% 20%	46 24	52.9% 80%	87 30	100% 100%	0.017	3.565 (95% CI: 1.326 - 9.582)
Hemoglobin level: Not anemia ( $>$ 10 gr/dl) Anemia ( $\leq$ 10 gr/dl)	4 43	66.7% 38.7%	2 68	33.3% 61.3%	6 111	100% 100%	0.352	3.163 (95% CI: 0.555 - 18.016)
DM Status: Not Diabetes ( $<$ 126 mg/dL) Diabetes ( $\geq$ 126 mg/dL)	40 7	46.5% 22.6%	46 24	53.5% 77.4%	86 31	100% 100%	0.034	2.981 (95% CI: 1.162 - 7.652)
History of Hypertension: No ( $<$ 140/90 mmHg) Yes ( $\geq$ 140/90 mmHg)	15 32	41.7% 39.5%	21 49	58.3% 60.5%	36 81	100% 100%	0.987	1.094 (95%CI: 0.492 - 2.430)
Family support Good Not good	23 24	62.2% 30%	14 56	37.8% 70%	37 80	100% 100%	0.002	3.833 (95%CI: 1.691 - 8.691)

\*Chi Square Test

From Table 4, it can be seen that p value  $>$  0.25 for educational variables, hemoglobin level and history of hypertension, so it was not included in multivariate analysis. While for the variable with value p value  $<$  0.25 can be directly proceeded to multivariate analysis and got the final model as follows (after interaction test):

**Table 4.** Multiple Logistic Regression Final Model

Independent Variables	B	S.E	p value	OR	95% CI	
					Lower	Upper
Age	1.336	0.496	0.007	3.803	1.440	10.044
Gender	0.391	0.493	0.427	1.479	0.563	3.884
Working status	0.791	0.495	0.110	2.205	0.835	5.819
Income	1.153	0.506	0.023	3.168	1.176	8.533
Duration of HD therapy	1.224	0.609	0.044	3.401	1.031	11.211
DM status	0.870	0.591	0.141	2.387	0.750	7.594
Family support	1.521	0.503	0.002	4.576	1.709	12.257
Constanta	- 3.054					

### 3.1 Quality of Life

Based on table 1 above, from 117 HD patients studied (58 men + 59 women), most of them aged  $51.52 \pm 11.8$  years, a fairly low HRQOL score appeared in some domains and subscales. The mean of total score was  $55.70 \pm 21.30$  (out of 100 points), so the mean of Physical Health Composite (PHC) =  $38.85 \pm 9.26$  and the mean of Mental Health Composite (MHC) =  $36.13 \pm 7.08$ . Regarding the targeted area of ESRD, the mean total score was  $63.72 \pm 20.77$ , the highest score was for the dialysis staff support scale ( $82.16 \pm 11.53$ ) followed by the cognitive function scale ( $80.74 \pm 15.82$ ) and social support scale ( $74.93 \pm 21.40$ ). However, the renal disease burden scale and the employment status scale resulted in the lowest scores ( $37.02 \pm 25.63$  and  $41.03 \pm 31.22$  respectively). The sleep quality scale score was  $56.18 \pm 20.72$ . Only 61 patients responded to questions of sexual activity with a score of  $55.53 \pm 27.44$  on the scale of sexual function. In the 36-item health survey, the mean total score was  $45.90 \pm 21.95$ . The social function gave the highest score ( $66.35 \pm 23.30$ ). The lowest score represents the limitations of roles caused by physical and emotional health problems ( $17.09 \pm 33.26$  and  $17.66 \pm 32.92$ ).

### 3.2 Family Support

Based on the multivariate analysis, the most influencing variable on the determination of quality of life for patients with CRF was family support (OR = 4.6), meaning that patients with CRF who lacked family support were at risk of 4.6 times living a life less qualified compared to patients with CRF who received support from family well after being controlled by age, income, duration of hemodialysis, gender, working status and diabetes mellitus. It was known, family support consisted of four dimensions: the instrumental dimension, the informational dimension, the emotional dimension and the assessment dimension. If these four dimensions were well established then it will synergize positively to the quality of life of patients with CRF. Based on the results of the study found that only 1/3 patients or equal to 35.9% of patients were with good family support while the remaining 2/3 were still with poor support from families. But in terms of assisting the implementation of dialysis, was good enough. They were routinely always accompanied by families when undergoing hemodialysis therapy. Proved 70 patients (59.8%) most often delivered by their spouses, 33 patients (28.2%) delivered by their children, 4 patients (3.4%) delivered by their parents, 2 patients (1.7%) delivered by their brother/ sister. Even so there were 8 patients (6.8%) who went to the hospital themselves. These eight patients went to the hospital with using their own vehicle, there were also by foot because the

distance between the house and the hospital was not too far away and there were also leaving together with other patients because their homes were close.

According to the researcher, should the eight patients were still delivered and accompanied in the implementation of dialysis as a form of support from the family. In addition, in case of something undesirable such as the condition of the patient were suddenly down/ unconscious because of the decreased sugar levels, the family accompanying the patient can monitor the patient's condition immediately, minimize the possible emotional effects, and have the right to make a decision for better remedial measures (although at the beginning of dialysis, the family has already signed a letter willing to accept medical treatment in accordance with procedures for patient safety).

Family support has an important effect on the treatment of various types of chronic diseases including hemodialysis patients, where family support can improve the health of hemodialysis patients and is associated with depression, perception of the effects of illness or treatment, and satisfaction in life. The following examples was a piece of interview with one of a female patient initial X who have had tuberculosis, as a description of the patient's condition regarding the support of the family they received and support from the surrounding community.

It was shown that X patient got less attention from their children. She never fainted while taking ablution and when conscious she was still in the original position, whereas patient X and her son were in the same house. There was disappointment at being ignored. There was a feeling of depression and being a burden on the family in old age. "X patients expressed her concerns to her husband because she felt she could not make her husband happy anymore so there was a feeling of resignation if her husband remarries". On the other hand, the lack of support from the surrounding environment makes the patient more depressed. This was seen when the patient is attending the mosque, when the patient tries to sit with other mothers, the patient X was shunned (no one wants to sit close) until X patient finally spend more time at home and this can certainly worsen the condition physical and psychological of the patient.

## 4 Conclusion

Based on the multivariate analysis, the significant variables related to the quality of life of patients with CRF were age, income, duration of hemodialysis and family support. The variable that most influence on the determination of the quality of life of patients with CRF was family support with OR = 4.6. This means that CRF patients who get lack support family are 4.6 times more likely to lead a less qualified life compared with patients with CRF who get good family support. It was expected that nurses in the Hemodialysis Unit work together with doctors, nutritionists and other health teams to provide education about diabetes mellitus and hypertension holistically, as well as counseling to HD patients and their families as a form of supportive therapy (health promotion once a week).

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