

ORIGINAL ARTICLE

Gender Differences in Determinant of Quality of Life Among Patients Undergoing Hemodialysis

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ABSTRACT

Introduction: Patients with chronic kidney failure (ESDR) who undergo hemodialysis will experience several stressors, functional restrictions, dietary restrictions, medication effects, difficulties at work as well as social and dynamic changes. The roles set down by gender stereotypes and sex discrimination could lead to lower quality of life at all stages of the life cycle and diseases. **Methods:** A cross-sectional study design was employed. This study was conducted in a hospital in Indonesia. A total of 239 hemodialysis patients (females, 112; males, 127) were recruited. Data were collected including sociodemographic characteristics, Center for Epidemiological Studies Depression (CESD), Kidney Disease Quality of Life- Short Form (KDQOL-SF), and Spiritual Questionnaire. **Results:** There were a significant different in total score of depression and domain of depressed affect, and total score of spiritual and spiritual experience between male and female. The DSES result showed that both female and male participants were high in spiritual level. No significant different in family support in both female and male. Depression was a significant predictor of quality of life among female, while in male, age and depression significant predictor of quality of life. **Conclusion:** Gender disparities in quality of life, however, were significantly reduced after account was taken of differences in symptoms of depression.

Keywords: Gender difference, Quality of life, Hemodialysis

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INTRODUCTION

Chronic kidney disease (CKD) is a global health condition with a very high incidence and prevalence in the general population. The prevalence of CKD increases with the increase in the incidence of diabetes mellitus, hypertension and the increasing number of elderly people (1). In Indonesia, the prevalence of chronic renal failure was 0.2% as diagnosed by physician (2). According to data from the Indonesia Renal Registry, in 2018 the number of active patients undergoing hemodialysis was 30,554 patients. While there were 21,050 new patients undergoing hemodialysis from all over Indonesia.

Chronic kidney disease (CKD) is a progressive

decrease of kidney function connected with high blood pressure, metabolic syndrome, obesity, and primary renal diseases (3). Kidney failure happens when the kidneys can't carry the waste from the body or do their normal jobs. An ingredient that is usually flushed out of the body through the urine ends up in the body fluids because the kidneys can't get rid of it. This causes problems with the body's endocrine and metabolic systems, fluids, electrolytes, and acid-base balance (4). Hemodialysis is the primary therapeutic option for people with end-stage renal disease.

A lot of stressors exist during hemodialysis treatments for people with end-stage renal disease (ESDR). These patients may have difficulty at work, due to their poor health, and other social and dynamic changes. The requirement to go to dialysis centers every week, probably 2 or 3 times a week, causes further issues. In relation to physical and psychological issues arising from treatment with hemodialysis, the patient's financial influence can often change due to

expected changes in work schedule and higher medical costs. Additionally, religiosity and spirituality are associated with an improved quality of life and a reduction in the occurrence of depression. Religious and spiritual views, on the other hand, have not been widely integrated into clinical treatment (5). Spirituality enhances a patient's ability to cope with illness and accelerates healing (6).

The process of adaptation to hemodialysis varies between men and women (6,7). Women's expectancies and behaviors vary from men. In contrast to women, males desire more sex-related medical care, particularly for their reproductive health (8,9). Even though there are some differences in how women and men are built that can affect how they are cared for, there is a big difference in how the community thinks about gender that has a big impact on their health (10,11). Previous research reported that women had higher risk of depression than male (12). Women having longer lifespans can be a problem due to the burden of chronic illnesses they encounter (13). Facts such as women's economic dependence, minimal education and inadequate healthcare services may also reduce women's quality of life (13).

Treatment strategies for women might not be quite as effective as for men due not only to physical differences but also to difficulties constrained by gender roles, which can adversely determines the effectiveness of therapy (9,13). The roles set down by gender stereotypes and sex discrimination could lead to lower quality of life at all stages of the life cycle and diseases. In this study, we investigated the determinants of quality of life among hemodialysis patients according to gender differences.

MATERIALS AND METHODS

Design and sample

This cross-sectional study was conducted at one of referral hospital in Malang East Java Indonesia, started from March to May, 2019. A total of 239 hemodialysis patients (females, 112; males, 127) were recruited. The inclusion criteria were diagnosed as chronic kidney disease (CKD), having hemodialysis treatment regularly 2 times/ week, age > 20 years old, cooperative and able to communicate, writing, and reading the questionnaires.

Measurement

We collected data on age, hemodialysis therapy, ethnicity, education level, salary per month, CKD diagnosis and length of time, and duration of hemodialysis treatment.

The Center for Epidemiological Studies Depression Scale (CESD) was used to assess depression. CESD was developed by (16), containing 20-items,

each of which is meant to assess the frequency of people's recent symptoms associated with depression, including restlessness during sleep, an unappetizing or diminished appetite, and feelings of loneliness. Depression impact, physical symptoms, positive impact, and interpersonal relationship were used as indications in CESD. Each item has a response option ranging from 0 to 3 (0 = never, 1 = Ssometime, 2 = a lot of the time, and 3 = always). High scores indicate more depression symptoms. According to the current study, the Cronbach alpha was 0.79.

The Kidney Disease Quality of Life-Short Form Survey (KDQOL-SF) was selected as the best tool for measuring quality of life in patients with ESRD. It contained 36 items, some of which were related to physical functioning, role, emotional wellbeing, energy, and mental wellbeing (17). Higher scores indicate better quality of life. The Cronbach alpha in the current study was 0.78.

Family support was measurement using established tool by (18). This questionnaire includes 12 items on social support, such as emotional, information, and practical support from family, friends, and others. The questionnaire employed a five-point grading system, ranging from one (strongly disagree) to five (strongly agreed). The average score ranges between 12 and 60. Cronbach's alpha value was 0.76 (18).

The Daily Spiritual Experiences Scale (DSES) questionnaire was used to measure spiritual. The DSES questionnaire question item 1-15 is scored using a Likert scale with values of 1 (never) to 6 (every day). In addition, for question item number 16, utilize a Likert scale with provisions; values of 1 (not at all near) to 4 (very close). Higher score indicated higher spiritual level. The Cronbach alpha in the current study was 0.81.

Data collection

This study was approved by ethical committee of Universitas Muhammadiyah Malang, Indonesia (Number: E.5.a/012/KEPK-UMM/III/2019). We recruited them in Hemodialysis Unit during their routine clinical visiti. We invited participants and requested them to fill a series of questions after obtaining written consent. Participants return the question to the researcher in seal envelope. No personal identification were required.

Data analysis

For categorical variables, the results are reported as proportions; for continuous variables, the data are summarized as mean and standard deviation. The gender differences in demographics, CESD, support, and spirituality were evaluated using descriptive statistics. We used linear regression to evaluate multivariate predictors of quality of life in hemodialysis

patients, and we tested these factors separately for male and female patients. A p-value of 0.05 indicated statistical significance. Data analyses were performed using SPSS v. 23.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

The average age of female was 51.50 years old, while the mean age of male was 50.17 years old. The most of participants were Javanese ethnicity (Table I). The female and male participants were received hemodialysis treatment during 22.25 and 25.10 months, respectively. Education level and monthly income were variables that significantly different between female and male hemodialysis patients.

Based on the KDQOL total score, they had moderate quality of life, in additionally, physical function and emotional role were only statistically different between female and male participants (Table II). There were a significant different in total score of depression and domain of depressed affect, and total score of spiritual and spiritual experience between male and female. The DSES result showed that both female and male participants were high in spiritual level. No significant different in family support in both female and male.

In female hemodialysis patients, we found that dependent variables simultaneously affect the quality of life by 55.5%, while the remaining 44.5% was

Table I : Demographic characteristics of patients undergoing haemodialysis (n=239)

	Female (n=112)	Male (n=127)	p-value
Age in year (mean \pm SD)	51.50 \pm 9.31	50.17 \pm 13.79	0.715
Duration of hemodialysis in month (mean \pm SD)	22.25 \pm 21.87	25.10 \pm 24.53	0.690
Duration of diagnosed with CKD in month (mean \pm SD)	24.95 \pm 17.18	31.19 \pm 28.09	0.391
Javanese ethnicity (n, %)	19 (95)	20 (83.3)	0.261
Education level (n, %)			0.002*
Elementary school	84 (75)	25 (20)	
Junior high school	11 (10)	37 (29)	
Senior high school	6 (5)	52 (41)	
University	11 (10)	9 (7)	
Monthly income (n, %)			0.005*
Below minimum regional basic salary	0	43 (34)	
Above minimum regional basic salary	112 (100)	84 (66)	
Comorbidity (n, %)			0.440
Yes	62 (55)	80 (70)	
No	50 (45)	47 (30)	

Note: *= $p < 0.005$; CKD= Chronic kidney disease

Table II : An overview of studied variables

	Female	Male	p-value
	Mean \pm SD	Mean \pm SD	
Quality of life			
Total score	54.1 \pm 19.1	44.3 \pm 14.8	0.005
Physical functioning	37.2 \pm 29.8	17.3 \pm 19.5	0.011
Role limitations caused by physical health problems	36.1 \pm 11.8	33.9 \pm 12.8	0.555
Role limitations caused by emotional health problems	71.4 \pm 23.1	66.3 \pm 25.7	0.496
Social functioning	55.7 \pm 13.5	50.0 \pm 12.3	0.155
Emotional well-being	61.0 \pm 41.7	22.9 \pm 38.9	0.003
Pain	60.7 \pm 23.8	53.5 \pm 21.2	0.292
Energy/fatigue	58.5 \pm 24.5	64.6 \pm 21.5	0.385
General health perception	52.6 \pm 25.5	45.6 \pm 22.9	0.370
Depression			
Total score	19.8 \pm 4.7	21.4 \pm 3.2	0.003*
Depressed affect	5.9 \pm 1.2	7.0 \pm 2.3	0.040*
Somatic symptom	5.9 \pm 2.65	5.51 \pm 2.72	0.626
Positive affect	5.95 \pm 2.85	4.79 \pm 2.55	0.163
Interpersonal relation	3.60 \pm 2.54	2.46 \pm 1.69	0.083
Family support			
Total score	46.8 \pm 9.43	48.2 \pm 8.16	0.634
Emotional support	11.2 \pm 2.46	10.9 \pm 2.54	0.670
Informational support	12.3 \pm 2.67	13.0 \pm 2.46	0.378
Instrumental support	11.3 \pm 2.27	11.6 \pm 2.16	0.685
Appreciation support	12.0 \pm 3.04	12.7 \pm 2.49	0.429
Spiritual			
Total score	73.9 \pm 9.33	70.8 \pm 11.98	0.004*
Spiritual experience	71.2 \pm 11.19	68.0 \pm 15.35	0.001*
Closeness with God	2.65 \pm 0.87	2.79 \pm 0.83	0.586

Note: *= $p < 0.005$;

influenced by other variables that were not examined in this study. There was no significant effect between the independent variables on quality of life (p -value=0.063). Moreover, in female hemodialysis patients, the depression had significant effect on quality of life (p -value=0.04) (Table III).

In male hemodialysis patients (Table IV), this study found that dependent variables affect the quality of life by 69.8%, while the remaining 30.2% was

influenced by other variables that were not examined in this study. Additionally, age and depression had statistically significant effect on quality of life among male participants (p -value=0.001).

DISCUSSION

In this study, we examined the determinants that may influence on quality of life in female and male hemodialysis patients. Our participants had

Table III : Predictors of quality of life among female undergoing hemodialysis (n=112)

Independent variable	B	SE	β	t	p-value	R	R ²
Age	- 0.342	0.473	- 0.168	- 0.724	0.482	0.745	0.555
Duration of hemodialysis	0.344	0.252	0.397	1.362	1.96		
Duration of diagnosed with CKD	- 0.179	0.333	- 0.162	- 0.538	0.600		
Depression	-1.879	0.541	- 0.715	- 3.471	0.004		
Family support	- 0.885	0.492	- 0.441	- 1.797	0.096		
Spiritual	- 0.046	0.322	- 0.033	- 0.144	0.877		

Table IV : Predictors of quality of life among male undergoing hemodialysis (n=127)

Independent variable	B	SE	β	t	p-value	R	R ²
Age	- 0.477	0.164	- 0.418	- 2.916	0.01	0.835	0.698
Duration of hemodialysis	0.588	0.313	0.915	1.878	0.078		
Duration of diagnosed with CKD	- 0.532	0.287	- 0.949	- 1.914	0.073		
Depression	- 1.461	0.333	- 0.690	- 4.384	0.000		
Family support	0.034	0.306	0.019	0.111	0.913		
Spiritual	- 0.235	0.166	- 0.238	- 1.411	0.176		

moderate quality of life, moreover, physical function and emotional role were only statistically different between female and male participants. Both female and male participants having high spiritual level. In female undergoing hemodialysis, age and depression had significant effect on quality of life, while in male, only depression had statistically significant effect on quality of life.

This finding indicates that females have higher quality of life than male undergoing hemodialysis. Our research was supported by previous studies, showing that women have higher rates of quality of life on functional and psychological dimensions (19,20). However, it was different with previous studies reported that men have higher quality of life than women (21,22). Issues triggered by disease, gender inequality and gender stereotypes can also decrease quality of life of patients (23). In addition to these three major issues, the critical concerns among long-term illnesses include psychological, physiological, and social problems that result from a lifetime sickness. This is especially true for patients who rely on a life-sustaining therapy such as hemodialysis.

Both in men and women, a lower quality of life score was linked to higher levels of depressed symptoms. Women had lower scores of depressions and higher score of quality of life in physical functioning and emotional well-being domains. The findings support the notion that depression is a significant factor to worse quality of life scores in both females and males. Other research indicates that women are more likely to be depressed and experience a lower quality of life (24–27). Previous research supports the notion that depression causes a reduction in quality of life, and that depression treatment plays an important role in enhancing the quality of life of patients with chronic renal failure (28). Several probable factors for women having a higher risk of depression and a lower HRQOL than males include anger and frustration with unattended wants, as well as a lack of social support (29–31). The collinearity across measures may also effect the decrease in gender disparities in quality of life scores after controlling for CES-D scores, assuming that depression assessment questions are included (32,33).

In female undergoing hemodialysis, age was significantly associated with quality of life. Previous studies failed to demonstrate a significant link between age and quality of life (34,35) and others (21,22,36) have revealed a relationship. A negative relationship between age and quality of life was identified in this research; increasing age with decreasing quality of life. This seems to be an expected outcome since getting very old tends to bring several physical constraints and decreases the quality of life (20,21).

CONCLUSION

This study demonstrates higher quality of life rates and lower rates of symptoms of depression among women compared to men who undergo hemodialysis. Gender disparities in quality of life, however, were significantly reduced after account was taken of differences in symptoms of depression. These findings serve to lend further evidence to the importance of detecting early, and especially for men, as well as treating depression in all patients undergoing hemodialysis, particularly those who are men.

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