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# STRESS LEVEL AND COPING MECHANISM IN CHRONIC KIDNEY DISEASE ON HEMODIALYSIS PATIENTS

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## ABSTRACT

**Introduction:** The number of Chronic Kidney Disease (CKD) patients on hemodialysis with poor quality of life was still high. This was due to several factors, one of which was psychological health. The aim of this study was to analyze the correlation between stress levels and coping mechanisms with quality of life in CKD Patients who was undergoing hemodialysis. **Methods:** The method of this study was correlational descriptive with cross sectional design. Total respondents were 120 people. The independent variables were stress levels and coping mechanisms. The dependent variable was the quality of life. Instrument used was a questionnaire. Data were analyzed using Spearman Rho and Linier Regression test. **Results:** There was a relationship between the levels of stress and the quality of life of CKD patients on HD ( $p = 0,000$ ) with ( $r = -0,471$ ), there was a relationship between coping with the quality of life of CKD patients on HD ( $p = 0,001$ ) with ( $r = 0,310$ ), and the levels of stress was the most dominant variable in influencing the quality of life of patients with CKD on HD ( $p = 0,000$ ). **Discussion:** The Stress levels and the coping mechanisms influence the quality of life CKD patients on HD, but the stress level are the dominant factor affecting the quality of life of CKD patients on HD.

**Keywords:** *CKD on HD, coping, quality of life, stress levels*

## INTRODUCTION

The majority of *Chronic Kidney Disease* (CKD) on hemodialysis (HD) experienced psychological distress. One of the stressors is that some of them are forced to leave the workforce due to the physical condition deterioration (Jansen, et al, 2012). A study by Yunita (2010) revealed that loss of employment, unable to continue study, and physical changes had caused stress to the respondents. This study also supports a study by Yosep (2007) which showed that stress occurs due to an imbalance between the demands or expectations and resources possessed by individuals (Rahayu et al., 2018). This condition is closely associated with the coping mechanisms used by each individual. Some CKD patients on HD have different coping mechanisms. The mechanisms used are dependent on each individual. Coping relates to a

person's psychological condition. The coping mechanism used by patients with CKD on HD will highly affect the psychological condition.

The principle of management of CKD disease is improving the quality of life. Quality of life highly affects the condition of the CKD patient. Patients with CKD on HD are expected to help improve the patient's quality of life. The measurement of the quality of life is not only influenced by physical conditions but also influenced by psychological conditions (Rahayu et al., 2018). Hemodialysis therapy has side effects that are physical changes and mental changes. These changes will affect the poor quality of life.

Based on the preliminary study on 10<sup>th</sup> April, 2019 at the Ibnu Sina Gresik hospital, the researcher conducted interviews and distributed a stress-level questionnaire (DASS-42) to 10 patients of CKD on HD. The result showed that 6 of them had a high level of stress (60%). Furthermore, the researcher provide questionnaires (The Ways Of Coping), of 6 people who have a high level of stress, 4 of whom have a poor coping mechanism (66.7%). Then, researchers use the WHOQOL-BREF questionnaire to get the data on the quality of life issues, in which from the four people who had poor coping mechanisms, two of them had poor quality of life (50%).

Physiological and psychological stress relate to the quality of one's life components namely physical and psychological aspects. In this case, stress will affect the life satisfaction of the life who will also affect the person's quality of life (Cecilia, 2011). In further, stressful conditions will be overcome by individuals according to the levels of stress. The stress levels will be assessed by CKD the patients on HD with the coping mechanisms. The coping mechanisms are used to assess problems due to chronic diseases which are very influential in the patient's quality of life. The high level of stress and bad coping mechanisms are psychological problems. The levels of stress and coping mechanisms are two important problems that can affect the quality of life. If the CKD patients on HD have a poor quality of life, it will degenerate the physical, psychological, environmental and social relations of the patient.

Chronic Kidney Disease is a chronic disease that is not curable but only improves the quality of one's life. According to previous studies, the relationship between the levels of stress and the life quality of patients with chronic kidney disease has been demonstrated. However, further research on the relationship between the stress levels and the quality life of patients with

chronic kidney disease, especially CKD patients undergoing hemodialysis, needs to be conducted.

## METHODS

This study employed a correlational descriptive design with a cross-sectional approach. The population was the CKD patients on HD at Ibnu Sina Gresik hospital. From the total of 138 respondents, 120 respondents were chosen with the purposive sampling technique. The inclusion criteria were age of - 20-55 years, able read and write, had undergone hemodialysis for at least 3 months. The exclusion criteria were patients who unconscious and traveler hemodialysis CKD patients.

The independent variables in this study were levels of stress and coping. The dependent variable was the quality of life. This study used the Depression, Anxiety, Stress Scale (DASS), the ways of coping questionnaire which had been modified by Lita Purnama Sari (2013) and the WHOQOL-BREF questionnaire from the WHO institution (Bruesch, Reynolds, Hailey, Martin, & Treadway, 2011).

The DASS questionnaire has 14 questions that measure the stress levels of the CKD patients on HD with the answer scores of never = 0, sometimes = 1, often = 2, always = 3. The coping questionnaire has 20 question items about the mechanisms of the CKD patients on HD, with strongly agree score of = 5, agree = 4, do not know = 3, disagree = 2, very disagree = 1.

Meanwhile, the WHOQOL-BREF questionnaire contains 26 questions referring to several categories: the quality of life of the CKD patients on HD, the capacity responses, the frequency response, and the evaluation response. First, in the quality of life category there are 4 categories of scores of none at all = 1, a little = 2, medium = 3, many = 4, very many = 5. Second, the range of scores for the capacity responses includes scores of very dissatisfied = 1, not satisfied = 2, fair = 3, satisfied = 4, very satisfied = 5. Third, in the frequency response, there are 5 categories of scores which are never = 1, rarely = 2, quite often = 3, very often = 4, always = 5. The last category is the evaluation response with the scores of a very bad score = 1, poor = 2, fair = 3, good = 4, very good = 5.

The data were analyzed using a Spearman rho ( $P \leq 0.05$ ) which aimed to know the relationship between stress level and coping mechanism of CKD patients and linear regression test to show the most dominant independent variables relate to the quality of life. This research

has obtained a certificate of ethics from the Health Research Ethics Commission of the Faculty of Nursing Universitas Airlangga.

## RESULTS

Distribution of respondents based on demographic characteristics of 120 people. The majority of respondents (89 respondents, around 74.2%) at were the age of 41-55 participated in the research. According to the long run of HD, the majority of respondents who have undergone HD for more than 3 years were 44 respondents (36.7%). The majority of respondents were high school graduates with a total number of 42 respondents (35%).

Respondents who experienced a serious stress rate were 33 people (27.5%) Respondents with adaptive coping were 71 people (59.2%), while 49 respondents (40.8%) have a maladaptive coping. Respondents with a good quality of life category were 92 people (76,7%) . In this study, nobody had a poor quality of life.

Statistical test with a view of the level is obtained  $P = 0.000$  ( $P < 0.05$ ) meaning that there is a relationship of stress levels to the quality of life as well as  $R = -0.471$  with the meaning that the value of significance between two variables is very low and negative which means that the higher the stress level, the lower the quality of life. Statistical analysis results ( $P = 0.001$ ) and correlation coefficient-0.310 means that the relationship to the quality of life is low and unidirectional, so the better it will be used, the better the quality of life. The statistical tests of the linear regression on stress levels obtained  $p\text{-value} = 0.000$  and  $p\text{-value} = 0.003$  for coping mechanisms. The results indicate that stress levels dominantly affect the quality of life than those of coping mechanisms.

Tabel 1. Distribution of demographic data

No.	Respondent Characteristic	n	%
<b>1.</b>	<b>Age</b>		
	20-30 years	3	2,5
	31-40 years	28	23,3
	41-55 years	89	74,2
	Total	120	100
<b>2.</b>	<b>Haemodialysis</b>		
	3 months-a year	34	28,3
	a year-3 years	42	35
	>3 years	44	36,7

Total	120	100
<b>3. Education</b>		
No School	10	8,3
Elementary School	31	25,8
Junior High School	29	24,2
Senior High School	42	35
Scholar	8	6,7
Total	120	100

Tabel 2. Distribution of stress levels

No	Variable	Category	n	%
1	Stress levels	Normal	28	23,3
		Light in weigh	20	16,7
		Moderate	32	26,7
		Severe	33	27,5
		Very heavy	7	5,8
		Total	120	100

Tabel 3. Distribution of coping

No	Variable	Category	n	%
1.	Coping	Adaptive	71	59,2
		Maladaptive	49	40,8
		Total	120	100

Tabel 4. Distribusi of quality of life respondent

No	Variable	Category	n	%
1.	Quality of life	Moderate	18	15
		Good	92	76,7
		Very Good	10	8,3
		Total	120	100

Tabel 5. Correlation stress levels to the quality of life CKD on HD patients

Stress levels	Quality Of Life						Total	
	Moderate		Good		Very Good		$\Sigma$	%
	n	%	n	%	n	%		
Normal	0	0	18	15	10	8,3	28	23,3
Light in weight	2	1,7	18	15	0	0	20	16,7
Moderate	5	4,2	27	22,5	0	0	32	26,7
Severe	7	5,8	26	21,7	0	0	33	27,5
Very heavy	4	3,3	3	2,5	0	0	7	5,8

Total	18	15	92	76,7	10	8,3	120	100
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Significant ( $p$ ): 0,000  
Coefisient correlation *Spearman's Rho (r)*: -0,471

Tabel 6. Correlation coping to the quality of life CKD on HD patients

Coping	Quality Of Life						Total	
	Moderate		Good		Very Good		$\Sigma$	%
	n	%	n	%	n	%		
Maladaptive	13	10,8	35	29,2	1	0,8	49	40,8
Adaptive	5	4,2	57	47,5	9	7,5	71	59,2
Total	18	15	92	76,7	10	8,3	120	100

Significant ( $p$ ): 0,001  
Coefisient correlation *Spearman's Rho (r)*: 0,310

Tabel 7. Correlation stress levels and coping to the quality of life CKD on HD patients

Variable	Coefisient Regression	t count	Significant
Stress levels	-0,173	-5,722	0,000
Coping	0,231	3,008	0,003

Significant : 0,000  
F: 24,304

## DISCUSSION

### 1. Correlation stress levels to the quality of life CKD on HD patients

The results of this study showed that there was a correlation between the quality of life and the CKD patients on HD. The correlation was negative as the lower the stress levels, the higher the quality of life. Some respondents who have a normal level of stress suggested that respondents can control the stress levels in order to improve their quality of life.

The research conducted by Cohen (2016) showed that the limitation of physical activity could cause most of stressors followed by a decline in social life, uncertainty about the future, fatigue and muscle cramps. This suggests that stressor affects the measurement of life quality in terms of physical health.

Researchers assumed that the relationships between the two variables in respondents who had the high level of stress would have more problems with the more reactive aspects which affect the quality of life of some CKD patients on HD. But this research suggests that there are still results of respondents who have very high stress levels but still have a good quality of life. . Respondents who had undergone HD for a particular period of time enable them to meet with other CKD patients. This leads to social relationship among the CKD patients. In this case, patients with a high level of stress but able to maintain a good relationship with others will lead to a good quality of life

## **2. Correlation coping to the quality of life CKD on HD patients**

The results of this study show that there is a low relationship of the CKD patient's quality of life on HD. The positive relationship means the better the coping mechanisms are the better the quality of one's life. Some respondents have adaptive coping. In the results of the adaptive-questionnaire shows that respondents had a good coping mechanisms in addressing the problem so that respondents could improve the quality of their lives.

The results of this analysis confirmed previous research by Dedy (2018). The study showed the results that there was a significant relationship between the coping mechanisms and the quality of life of renal failure patients undergoing hemodialysis. Another study conducted by Siti (2015) found that there was a meaningful relationship of the patient's quality of life undergoing hemodialysis. It is also supported by Evi's Research (2011) which explained that adaptive coping can improve the quality of life of chronic renal failure patients undergoing hemodialysis therapy. A good coping mechanism will help patients to tolerate and accept their situation.

This research shows that there are still results of respondents who have maladaptive coping mechanisms still have good quality of life. This situation happens due to the fact that there are patients who had been undergone HD for more than 3 years. Research conducted by Nurchayati (2010) explained that respondents who have undergone for a period of time understand the importance of HD. Based on the results of the questionnaire, Respondents who have maladaptive to choose a good answer on the physical domain. Respondents who have long run HD will be accustomed to their physical condition, so they have adapted and improved their physical condition by running HD while still running their daily activities.

## **3. Correlation stress levels and coping to the quality of life CKD on HD patients**



The results of the analysis on the relationship of stress levels and in the environment to the quality of life show that stress levels are more dominant related to the quality of life than the coping mechanisms. This is demonstrated by the result of the P-value relationship level of stress to the quality of life is smaller than the relationship to the quality of life. This means the smaller the significance value, the more dominant the variable.

Research shows that stress levels are more dominant about quality of life because stress levels are a level of psychological problems that directly affect a person's condition. According to Kozier et al. (2011), stress has consequences of being physically, emotionally, intellectually, socially and spiritually. Affects several aspects such as physic, emotion, intellect, social and spiritual of the patients. Physically, stress can elicit negative or non-constructive feelings towards oneself. Intellectually, stress can affect one's perception and ability to solve problems. Socially, it can It can socially threaten a person's beliefs and values. The stress in the CKD patients of PGK on HD emerged due to the continuous stressor faced by the sufferer patients itself, both due to the duration of treatment, hemodialysis, and environmental sufferers the enviroment. Experienced stress is manifested directly through physiological and psychological changes (Septilia, 2018).

According to the opinion of the researchers, based on respondents data related to data on stress levels, it is apparent that stress levels directly impact the measurement of quality of life. Stress affects both physical and psychological conditions, which affect the quality of life of the CKD patients PGK on HD. This study showed that stress levels affect the physical condition of CKD patients PGK on HD and physical conditions are one aspect of That affects the quality of life. And the quality of one's life.

## **CONCLUSION**

The level of stress has a connection to the quality of life of CKD patients on HD. This is showed by the higher the stress level the lower the respondents have. Koping has a relationship with the quality of life of CKD patients on HD. Respondents who have adaptive coping mechanisms tend to have a good quality of life. Stress levels have a more dominant relationship with quality of life than the coping mechanisms. This shows that the level of stress affects the quality of life, especially the physical health of patients.

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