

## Differences in health beliefs and behavior compliance of the patients with chronic renal failure

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### ABSTRACT

Health belief is about a patient's belief that vulnerability and treatment efficacy can affect health behavior decisions. This research investigated the difference in behavior compliance of patients with chronic renal failure based on gender and health beliefs' contribution to it. The sample of this research was 30 male and 30 female renal failure patients at Brigjend H. Hasan Basry Hospital. Data was collected by behavior compliance scale and health belief scale. Multivariate analysis was used to analyze the data. The results show a significant relationship between male and female patients' health beliefs and behavior compliance. The health belief of male patients is higher than female patients, while the behavior compliance of female patients is higher than males. It can be concluded that health and gender are factors affecting behavior compliance. Therefore, paramedics may increase patients' health beliefs to enhance behavior compliance, especially among female patients with chronic renal failure.

### Introduction

Renal failure is the acute deterioration of renal function (recurrence) and chronic condition. From this condition, kidney disease will develop into a chronic renal failure condition, a progressive and irreversible end-stage disease in which the body's ability fails to maintain the metabolism and balance of fluid and electrolytes, thus occurring uremia (Rostanti et al., 2016). According to Pranandari and Supadmi (2015), chronic renal failure progressively and slowly worsens renal failure. This condition happens since the kidney loses the ability to maintain the volume and composition of body fluid in a normal diet.

In Indonesia, the number of chronic renal failure patients is rising rapidly, becoming a devastating medical, social, and economic problem for patients and their families (Prodjosudjadi & Suhardjono, 2009). Patients with chronic renal failure need hemodialysis, peritoneal dialysis, and hemofiltration treatment. The length of treatment depends on the causes and extent of the kidney damage (Sukarwanto & M., 2014). Rostanti et al. (2016) state that behavior compliance is related to long-term treatment, which commonly makes the patients feel worried about their unpredictable illness and disruption in their lives. Long hemodialysis often eliminates one's spirit of life, affecting dialysis compliance (Guerra, 2020).

Ardani et al. (2007) define behavior compliance as the level of patient willingness to carry out the treatment and behavior suggested by their doctor or other people. Behavior compliance in the treatment or therapy process begins with a person's belief in the seriousness of his illness, leading to action for treatment even though it is overshadowed by the risks or

side effects of the action. Health belief and behavior compliance behavior are interrelated. Non-compliance with medications can be reviewed from doses, ways of taking the drug, time to take medicine, and the period of taking the medication accordingly (Gokoel et al., 2020).

The physical organ of the kidneys is a sieve or blood filter in the body. Blood flows into the kidneys, and the fluids in the blood come out through glomeruli. The kidneys also maintain a fluid balance in the body (Kerthyasa, 2013). Both kidneys are depressed during inspiration due to the diaphragm contraction (Yasmine, 2009). According to Kerthyasa (2013), human life aims to achieve a perfect balance. Homeostasis involves the work of heart rate, body temperature, metabolic arrangement, death and organization of cells, digestion, and others to achieve balance in the body (Paul et al., 2021). Not only from within the body, but people also pursue the balance of the surrounding environment, such as working, establishing social relationships, and praying to balance spiritual life.

The five dimensions of health are physical, social, intellectual, emotional, and spiritual (Maulana, 2009). On the physical dimension, human health is related to practicing positive lifestyles. The physical dimension includes the ability to complete daily tasks, fitness achievement (such as cardiovascular, lung, and gastrointestinal), adequate nutrients, and the accuracy of the body's proportion of fat deposits, free from drugs, alcohol, and cigarettes. The social dimension includes interacting well with others and their environment. Emotional, intellectual, and spiritual dimensions include managing stress, expressing emotions appropriately, growing and adapting effectively to change, and believing in strength.

The dimensions of health are intertwined to form a healthy, holistic condition. Kerthyasa (2013) describes health as a condition when all components of the body, mind, soul, and environment function harmoniously. The body, mind, soul, and environment are mutually supportive; therefore, when the condition is not balanced or not functioning correctly, it will cause pain (Chauhan & Maheshwari, 2021). The human mind relates to health problems or disease experiences (Assegaf, 2011). Discomfort in the body results from a negative mental attitude and affects emotions characterized by always lamenting difficulties, grieving because of illness, and not believing in healing.

Health belief confirms that a person's perception of vulnerability and treatment will affect one's decision on behavior of health (Setyaningsih et al., 2016). Self-checking is included in the function of personal beliefs about the magnitude of the threat of illness and its transmission and the benefits of recommendations given by health officers (Sampa et al., 2020). Perceived threat based on belief in the disease seriousness according to the symptoms arose and the person vulnerable to the disease. Individuals then assess the benefits of the treatment action and take risks, such as side effects or medical expenses.

The differences in adherence behavior among patients with chronic renal failure undergoing hemodialysis have been studied. However, no study yet on health beliefs and gender differences in behavior compliance. Previous study at Dr. Hospital. Pringadi Medan found that the highest proportion of patients with chronic kidney failure (CKD) was male, 54.7% (Ningsih et al., 2012). Therefore, this study aimed to investigate the different levels of behavior compliance of male and female patients with chronic renal failure and its correlation with the health belief of the patients in the process of hemodialysis at Brigjen H. Hasan Basry Kandangan Hospital

## Method

### *Participants*

The population in this research was 93 patients with chronic renal failure that underwent hemodialysis at Brigjen H. Hasan Basry Kandangan Hospital, 50 male and 43 female, respectively. The research sample was 60 patients consisting of 30 males and 30 females. The inclusion criteria are: (1) patients with chronic renal failure had been diagnosed at least three

months; (2) the patients are undertreatment with hemodialysis 2-3 times a week; (3) the patients aged from 15 to 45 years old.

### ***Instruments***

This research used a quantitative method with a questionnaire as the instrument. The data was collected using a Likert scale consisting of a behavior compliance scale and a health belief scale. The behavior compliance scale was developed based on the aspects proposed by Niven (Safitri, 2013). The aspects consist of the level of patients undergoing treatment according to the rules and the level of patients in carrying out their recommended or ordered behavior. After a field trial, 32 items can be used for the data collection with good reliability ( $\alpha = .971$ ).

The health belief scale consists of perceived vulnerability, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Glanz et al., 2008). After a field trial, 43 items can be used for the data collection with good reliability ( $\alpha = .956$ ).

### ***Procedure***

The data collection was conducted in the morning and afternoon after patients underwent dialysis. If the questionnaire was not filled, the patients could continue to the next dialysis session. The authors explained the purpose of the research and ensured the patients did not affect medical service if patients had not been involved in the study. Therefore, the patients were voluntarily involved. The authors were guided by the internist, general practitioner, head of the hemodialysis installation, and nurse during the data collection. After filling out the questionnaire, the patient was given follow-up counseling about health beliefs or behavior compliance.

### ***Data Analysis***

Multivariate analysis or MANOVA was applied to analyze the data with SPSS. Multivariate analysis is applied to analyze multi variables in one or more relationships (Santoso, 2017). All MANOVA tests are described as  $A = E^{-1}$  and relate to all statistic techniques that simultaneously analyze several measurements in an individual.

### ***Results***

Based on Table 1, there is a significant value of interaction of gender with the health belief ( $p < .05$ ) and with behavior compliance ( $p < .05$ ). The results indicate differences between health belief and behavior compliance based on gender of the patients.

Table 1  
*Differences in Health Belief and Behavior Compliance Based on Gender*

Source	Variable	Type III Sum of Squares	df	Mean Square	F	p
Gender	Health Belief	12,906.667	1	12,906.667	94.874	.000
	Behavior Compliance	17,035.350	1	17,035.350	83.462	.000

Based on Table 2, the average value of health belief among male and female patients is 144.50 and 117.17, respectively. These results indicate that based on the average, the health belief of male patients undergoing hemodialysis is higher than female patients. On the contrary, based on the average, the behavior compliance of female patients is higher than male patients, which is 148.20 and 117.83.

Table 2

*Statistic Description of Health Belief and Behavior Compliance Based on Gender*

Variable	Gender	Average	Standard Deviation
Health Belief	Male	144.50	12.883
	Female	117.17	15.564
Behavior Compliance	Male	117.83	11.086
	Female	148.20	12.214

Table 3 shows health belief of male patients contributes significantly to behavior compliance ( $F = 6.867$ ;  $p = .002$ ). It can be concluded that health belief has a significant role in male patients' behavior compliance.

Table 3

*The Contribution of Health Belief on Behavior Compliance among Male Patients*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	p
Men's Health Belief	Men's Behavior Compliance	3,237.750	18	179.875	6.062	.002
	Woman's Behavior Compliance	2,460.000	18	146.667	.957	.549

Table 4 shows the contribution of health belief to behavior compliance among female patients is significant ( $F = 6.6867$ ;  $p = .037$ ). Therefore, it can be concluded that the health belief of female patients significantly contributes to behavior compliance.

Table 4

*The Contribution of Health Belief on Behavior Compliance among Female Patients*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	p
Woman's Health Belief	Male's Behavior Compliance	2,738.667	25	109.547	.531	.855
	Female's Behavior Compliance	4,227.667	25	169.107	6.867	.037

## Discussion

Based on the data analysis, health belief contributes significantly to behavior compliance among male or female patients. Health belief relates to the behavior of patient's behavior compliance because individuals who feel vulnerable and threatened with a symptom of the disease will decide more quickly on the treatment. Individu threatened by the disease symptoms and believe the good of treatment is more significant than the obstacles certainly will not postpone or prevent the treatment process (Sarafino & Smith, 2014). On the other hand, patients not feeling threatened by the disease will see that obstacles are more prominent, so they probably call off or even prevent them.

The analysis shows differences in *health beliefs* and behavior compliance among patients with chronic renal failure based on gender. Male patients with chronic renal failure have higher health beliefs than females, while the behavior compliance of the male patients is lower than that of female patients. The occupation factor may influence male patients to take responsibility for their jobs due to financial issues. Males tend not to use health services, especially in adolescence and early adulthood, for those who come from underprivileged

(Sarafino & Smith, 2014). A male patient can postpone or stop the treatment process due to financial factors though they believe in the effectiveness of treatment.

Other than health beliefs and gender, several factors affect on behavior compliance of patients to treatment. This factor includes cost, the effectiveness of hemodialysis, patients' perception of vulnerability, relatives' support, and the relationship between patient and medical personnel. This finding aligns with Kamran et al. (2014) that behavior compliance is low because of vulnerability, symptoms, low perceived severity, bad lifestyle, perception of drugs, and access to health services.

This study's limitation is not all patients met the criteria involved. Some patients have unstable conditions, while others refuse to be involved, so only 60 patients with chronic renal failure could be involved. Therefore further research with a higher number of samples is needed.

## Conclusion

Health belief contributes significantly to behavior compliance among male and female chronic renal failure patients undergoing hemodialysis. Health belief relates to behavior compliance because individuals who feel vulnerable and threatened with a disease symptom will decide more quickly on the treatment. Moreover, there is a difference in health beliefs and behavioral compliance in male and female patients with chronic renal failure. Health belief among male patients with chronic renal failure is higher than that of females. In comparison, behavior compliance among female patients is higher than that of males. Therefore health beliefs and gender are important in predicting behavior compliance among chronic renal failure patients undergoing hemodialysis.

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## Declarations

**Author contribution.** JS contributed toward developing the research idea, literature review, data analysis, & drafting of the manuscript. MS contributed toward developing the research idea, literature review, & drafting of the manuscript. RR contributed toward developing the instrument, data analysis, & drafting of the manuscript. MR contributed toward collecting data & finishing the final manuscript.

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