

An Exploration of Health Beliefs Related to Fluid-Restricted in Patients Undergoing Hemodialysis

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ABSTRACT

Background: Adherence to the therapeutic regimen is important for patients undergoing hemodialysis. The problem of non-compliance with fluid management is still a major problem for patients undergoing hemodialysis. Health-related beliefs on patients undergoing hemodialysis are one of the factors that influence their adherence to the diet, but how is the confidence level of hemodialysis patients in Indonesia especially regarding fluid restriction still unclear. The aimed of this study was to explore the adherence of fluid restriction and health-beliefs related to fluid restriction in patients undergoing hemodialysis.

Method: A cross-sectional study was conducted among 115 patients undergoing hemodialysis with a simple random sampling technique. Data were collected through an information form, the belief about fluid adherence scale including four subscales: perceived threat (susceptibility & seriousness), perceived benefit, perceived barrier, and self-efficacy. Descriptive statistic was used for data analysis.

Result: The result showed that the majority of patients were less adherence to fluid restrictions (53.9%). The prevalence of patients who have perceived barrier was higher (53%) than the result of belief in the perceived benefits (51%). Most patients have negative self-efficacy values against fluid restrictions.

Conclusion: Non-adherence with fluid restriction was a problem among hemodialysis patient. High levels of non-adherence are associated with greater 'perceived barriers'. A better understanding of health beliefs related to fluid restriction is needed by patients and to facilitate the implementation of tailored interventions

Keywords: Health belief, Hemodialysis, Fluid restriction, Adherence, End-stage renal disease.

Introduction

Chronic kidney disease is increasing globally. Therapy to replace kidney function in patients with end-stage renal failure includes hemodialysis, peritoneal dialysis and kidney transplantation¹, currently, hemodialysis is the main choice for patients who experience end-stage chronic renal failure. Patient compliance with treatment regimens, including restrictions on fluid intake, diet, treatment, and control schedules are factors that influence the success of hemodialysis. Studies report that many patients undergoing hemodialysis do not adhere to restrictions on fluid intake². Nurses use

various methods of providing health education, one of which is by speaking directly to patients, but it has not been able to improve compliance with fluid restrictions in patients undergoing hemodialysis. The study reported a high rate of non-compliance of hemodialysis patients, especially against restrictions on fluid intake and dietary restrictions, namely between 30-81.4%³. According to⁴ the prevalence of noncompliance with fluid restriction in patients undergoing hemodialysis is between 3.4-74%. Chronic kidney disease (CKD) was the 27th cause of death in the world in 1990 and increased to 18th in 2010. Based on the Indonesian Renal Registry (IRR) in 2016, 98% of patients with kidney failure undergo hemodialysis therapy⁵. Based on monthly report data obtained at Sidoarjo Hospital, Indonesia, it was found that in August to October 2018 the average number of patients with CKD who underwent hemodialysis was 192 patients, with 52% of patients have problem with excess fluid volume.

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Non-adherence of patients to fluid restrictions can cause chronic excess fluid which leads to serious consequences for hemodialysis patients, including excessive circulation burden, edema to severe cardiovascular disorders, impaired cognitive function, increased risk of hospitalization, and even death threats (2). Hemodialysis patients are patients with special chronic conditions, who need effective education for their self-care ⁶several issues associated with the process raise barriers that make learning difficult. Computer-based education can reduce these problems and improve the quality of education. This study aims to develop and validate a theory-based multimedia application to educate Persian patients on hemodialysis. The study consisted of five phases: (1, and hemodialysis nurses have an important role to play in it. Development of effective methods is needed to help patients manage fluids. This study uses the theory of the Health Belief Model (HBM) approach as a theoretical framework. HBM was a theory that focuses on individual attitudes and beliefs in explaining and predicting health behavior. The main construction of HBM has perceived susceptibility and perceived severity that is a perceived threat, perceived benefit, and perceived barrier as well as other constructions that have been added namely modification factors, cues to action, and self-efficacy. HBM focuses on the perception of threats and evaluating health-related behaviors as the primary aspect of understanding how a person presents healthy actions ⁷.

Health belief of patients undergoing hemodialysis was one of the factors that influence patient adherence to diet ^{8,9}. The method of patient education and self-monitoring effectively improves compliance with hemodialysis patients with restrictions on fluids and diet ¹⁰. Therefore, this study wants to assess health belief related to fluid restriction in patients undergoing hemodialysis in Sidoarjo, Indonesia. The objective of this study was to describe the patient's characteristic of hemodialysis patients which included; age, gender, marital status, occupational status, and to examine health-belief related to fluid restriction in Sidoarjo, Indonesia patients on hemodialysis.

Method

This research uses descriptive explorative with a cross-sectional approach. The subjects in this study were 115 hemodialysis patients selected with simple random sampling. The inclusion criteria in this study were: patients undergoing regular hemodialysis twice a week; patients over the age of 21 years; patients who had undergone hemodialysis for at least 3 months; were

able to communicate in Indonesian. Patients who have severe cognitive impairment and critical conditions were the exclusion criteria of this study. Information obtained from 115 patients who met the inclusion criteria, for the participation rate was 100%.

Individual beliefs are measured through a health belief questionnaire conceptualized based on HBM (perceived threat, benefit, barrier, self-efficacy), questions are modified from previous assessments of themes in the HBM construct ¹¹. The questions in this questionnaire are 21 items. Patient responses were assessed with a 4-point Likert scale starting from "1" (strongly disagree) and "4" (strongly agree). The questionnaire was tested for validity and reliability and declared valid and reliable with Cronbach's alpha value of 0.808 and the validity level of 21 questions was 0.505-0.886 (> 0.444 with N = 20), so all questions were valid and reliable. fluid restriction measures were assessed using a questionnaire that had been tested for validity and reliability and declared valid and reliable.

Result

Data collection was conducted in February-April 2019 in the hemodialysis installation of Sidoarjo hospital, Indonesia. One hundred fifty people underwent hemodialysis at the time of data collection. Based on the inclusion and exclusion criteria a sample of 115 people completed the questionnaire until the end of the study. The results of the research shown in table 1 represent the characteristics of respondents in terms of gender, age, marital status, recent education, employment status and length of time undergoing hemodialysis.

Table 1: Demographic and characteristic of participant (N = 115)

No.	Characteristics	n	%
1.	Gender		
	Male	70	60.9
	Female	45	39.1
	Total	115	100
2.	Age		
	21-25 years	3	2.6
	26-35 years	9	7.8
	36-45 years	39	33.9
	46-55 years	33	28.7
	56-65 years	31	27
	Total	115	100

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3.	Marital Status		
	Married	99	86.1
	Single	15	13
	Total	115	100
4.	Education		
	Primary	39	33.9
	Senior high school	60	52.1
	University	16	13.9
	Total	115	100
5.	Occupational Status		
	Employed	31	27
	Unemployed	84	73
	Total	115	100

Based on table 1, out of 115 patients, male patients (n=70) and female patients (n=45), it can be seen that most patients undergoing hemodialysis (61%) are male. Most of the patients (34%) in the group of aged 36-45 years. Most respondents were unemployed (73%) due to their dialysis condition, and more than half of the respondents (52%) had senior high school education.

Table 2: Beliefs and adherence of respondents (N = 115)

Variabel	Sub Variabel	Parameter	n	%
Belief	Threat	Positive	61	53
		Negative	54	47
		Total	115	100
	Benefit	Positive	59	51.3
		Negative	56	48.7
		Total	115	100
	Barrier	Positive	61	53
		Negative	54	47
		Total	115	100
	Self-efficacy	Positive	51	44.3
		Negative	64	55.7
		Total	115	100
Fluid restriction		Good	33	28.7
		Enough	20	17.4
		Less	62	53.9
		Total	115	100

Based on table 2 above, it can be seen that in the evaluation of beliefs, some respondents had positive beliefs related to perceptions of susceptibility and severity/perceived threat (53%). From the perceived

benefit variable, half respondents showed positive beliefs about the benefits of adhering to fluid restrictions (51%), and on the perceived barrier, most of the respondents (53%) showed confidence in the barrier of fluid restriction. Most respondents have negative self-efficacy (56%), self-efficacy is about belief in self that individuals are able to limit fluids. From the table above, it was found that the adherence of most respondents to fluid restrictions was still lacking (54%).

Discussion

This study sought to investigate adherence to fluid restriction in patients undergoing hemodialysis and patient confidence in fluid restriction measures. This study has added evidence that non-adherence of patients undergoing hemodialysis is still a problem. Overall the high levels of non-adherence were reported in this study. This is probably due to the possibility of subjective estimates of patients, measurements of the level of adherence were carried out with a questionnaire without clinical measurements such as weight. Most of the patients undergoing hemodialysis are male and married. In this study, most of the HD patients were in the age group of 36-45 years (33.8%), this result is in contrast to the study conducted¹² where the most age of group were 60-69 years. this shows a finding that all ages are at risk for developing the end-stage renal disease (ESRD). In this study most of the patients had a high school education, this was different from the study conduct to¹³ that most patients have a bachelor's degree.

The belief of respondents in this study there is 4 main components based on health belief model construction, namely perceived threat (susceptibility & seriousness), perceived benefit, perceived barrier, and self-efficacy. The participants in this study were most knowledgeable about the benefits associated with the recommended fluid restrictions. This can be caused by health education about the benefits of fluid restriction is effective. Patients know about certain benefits obtained from following fluid restriction recommendations, for example recognizing that limiting fluid can keep them from swelling and shortness of breath.

The results of this study also highlight the belief in barriers to high fluid restriction. More than half of patients reported difficulties in following fluid restriction recommendations. This was in accordance with⁸ which also reported similar issues regarding salt restriction.

It is important for patients undergoing hemodialysis to know the general obstacles that are felt because they can have adverse consequences for patients. In this study, researchers examined perceptions of benefits and barriers following fluid restriction as factors that might be related to the compliance of patients undergoing hemodialysis. ⁸ found a positive and significant relationship between adherence to sodium restrictions and perceived benefits thus indicating an increase in the level of adherence associated with an increase in perceived benefits. While a weak negative relationship was found between adherence to sodium restriction and perceived benefit. In line with this study, the level of confidence in barriers is higher than the level of confidence in the benefits, this shows that the higher the confidence in the obstacles, the lower the action in limiting fluid.

Most of the respondents had confidence in positive susceptibility and seriousness, although there were still some respondents who had negative beliefs. Individual belief in the susceptibility of the disease is related to symptoms that occur due to excess fluid volume. Individual beliefs about the seriousness of the disease, especially the risk of complications that occur can be shown by the patient's knowledge of the disease. The patient's knowledge of the disease will help the patient understand the prognosis of the disease including recommendations for action by health workers to prevent the prognosis of the disease towards a worse. In the belief in benefits, the majority of respondents had positive beliefs, but the level of confidence in the perceived barrier was higher. This shows that respondents' beliefs/perceptions of the barrier are greater than the benefits that will be obtained from fluid management behavior. Most of the respondents in this study had negative self-efficacy. Self-efficacy is an individual's trust in himself that he is able to carry out an appropriate behavior to achieve the desired results of natural individuals facing their conditions ¹⁴.

Based on the evaluation of adherence behavior, it was obtained partly in the low adherence category. Behavior adherence here was defined as the actions taken by respondents in managing fluids. Indicators in adherence include monitoring input and discharging fluid, as well as fluid consumption as recommended. most patients do not pay attention to urine output or input fluids every day, because urine production is low or even many experience anuria. Input and output of fluid should be considered as a basis for determining

the amount of fluid intake every day. Previous studies have shown that individuals who see higher barriers have greater interdialytic weight gain, this indicates low compliance ¹⁵. A lack of motivation is observed by the patients as a barrier to adherence because the patients think that this restriction was not necessary to maintain their condition while having dialysis ¹⁶. Having a sense of self-confidence allows a person to be involved in health-promoting behavior, avoiding health-threatening behavior, and affecting all aspects of life (11). It takes a high degree of confidence to be able to change lifestyles before being made possible through change.

Conclusion

The results of this study corroborate previous studies which showed that rates of non-compliance with fluid restriction were clearly seen in the ESRD population. In addition, the results of this study indicate that participants in this study had a positive perception of the benefits felt in following fluid restrictions, but also reported feeling a number of high barriers. On the other hand, compliance in fluid restriction measures is in a low category. This association shows that increasing patient perceptions about the benefits of fluid restriction compliance, and reducing barriers increases the likelihood that the patient will perform the desired behavior. The perceived benefits and perceived barriers contribute to the increased understanding of compliance behavior in this study. This indicates by increasing patient perceptions of the benefits of fluid restriction compliance, while at the same time reducing barriers will allow patients to carry out the desired behavior, in this case adhering to fluid limitation recommendations ^{8 15}.

Conflict of Interest: None

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Ethical Clearance: The study protocol was approved by the ethics committees (KEPK) in Sidoarjo Hospital, Indonesia, number. 893.3/0484/438.6.7/2019.

REFERENCE

1. Chiou CP, Chung YC. Effectiveness of multimedia interactive patient education on knowledge, uncertainty and decision-making in patients with end-stage renal disease. *J Clin Nurs.* 2012;21(9-10):1223-31.

2. Jia S, Huang B, Chu Y, Lu Y, McArthur A. Management of non-adherence to fluid intake restrictions in hemodialysis patients in a tertiary hospital: a best practice implementation project. *JBI database Syst Rev Implement reports*. 2016;14(8):309–22.
3. Baraz S, Zarea K, Dashtbozorgi B. Comparing the Effect of Two Educational Programs on the Quality of Life of Hemodialysis Patients in Iran. *Iran Red Crescent Med J*. 2014;16(8).
4. Kim Y, Evangelista LS, Phillips LR, Pavlish C, Kopple JD. The End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ): Testing The Psychometric Properties in Patients Receiving In-Center Hemodialysis. *Nephrol Nurs J*. 2010;37(4):377–93.
5. Badan Penelitian dan Pengembangan Kesehatan. *Riset Kesehatan Dasar (RISKESDAS) 2013*. Lap Nas 2013. 2013;1–384.
6. Feizalahzadeh H, Tafreshi MZ, Moghaddasi H, Farahani MA, Khosrovshahi HT, Zareh Z, et al. Development and validation of a theory-based multimedia application for educating Persian patients on hemodialysis. *CIN - Comput Informatics Nurs*. 2014;32(5):242–7.
7. Glanz K, Rimer KB, Viswanath K. *Health and Health*. 2008.
8. Walsh E, Lehane E. An exploration of the relationship between adherence with dietary sodium restrictions and health beliefs regarding these restrictions in Irish patients receiving haemodialysis for end-stage renal disease. 2011;331–40.
9. Kara B. Health Beliefs Related to Salt-Restricted Diet and Associated Factors in Turkish Patients on Hemodialysis. *J Transcult Nurs*. 2018;29(2):155–64.
10. Düzalan ÖB, Pakyüz SC. Educational interventions for improved diet and fluid management in haemodialysis patients: An interventional study. *J Pak Med Assoc*. 2018;68(4):532–7.
11. Ghaddar S, Shamseddeen W, Elzein H. Behavioral Modeling to Guide Adherence to Fluid Control in Hemodialysis Patients. *J Ren Nutr*. 2009;19(2):153–60.
12. Veetil RTP, Kamath J, Mateti UV. Impact of patient education on interdialytic weight gain and blood pressure in patients undergoing hemodialysis. *Indian J Pharm Educ Res*. 2017;51(4):653–60.
13. Sharaf AY. The impact of educational interventions on hemodialysis patients' adherence to fluid and sodium restrictions. *IOSR J Nurs Heal Sci Ver II*. 2016;5(3):50–60.
14. Bandura A. Health Promotion by Social Cognitive Means. 2004;31(April):143–64.
15. Welch JL, Perkins SM, Evans JD, Bajpai S. Differences in perceptions by stage of fluid adherence. *J Ren Nutr*. 2003;13(4):275–81.
16. Abdullah E, Idris A, Saparon A. Contributing Factors for Therapeutic Diet Adherence in Patients Receiving Haemodialysis Treatment: An integrative review. *ARNP J Eng Appl Sci*. 2017;12(10):3218–21.