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# Family support in chronic kidney failure patients with hemodialysis

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## Family support in chronic kidney failure patients with hemodialysis



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### ABSTRACT

**Introduction:** Hemodialysis is one of the treatments for kidney failure patients, although it is not always effective and has a tendency to make the patient's health worse. One such effect is a rise in interdialytic weight. In this study, patients with chronic kidney failure receiving hemodialysis at the Islamic Hospital A. Yani Surabaya were examined to establish the association between family support and weight growth.

**Method:** a cross-sectional research strategy for analysis. 70 respondents made up the population of all hemodialysis patients with chronic renal failure, and 60 respondents made up the purposive sampling sample size. The unrestricted factor is family support. The weight gain between dialysis sessions was the dependent variable. A questionnaire and an observation sheet were used as instruments. The Spearman Rank test was utilized in data analysis.

**Results:** According to the findings, out of the 60 respondents, the majority's (70%) family support was excellent, and the majority (76.7%) of those who had dialysis saw modest weight gain. According to statistical analysis, the p value was 0.001, which indicates that among hemodialysis patients with chronic renal failure who receive family support, there is a relationship between weight gain.

**Conclusion:** In patients with chronic renal failure receiving hemodialysis, the more well-controlled the interdialytic weight increase, the better the family support. The requirement for support and assistance for dialysis patients so they can follow the recommended course of treatment.

**Keywords:** Family Support, Interdialytic Weight Gain, Hemodialysis.

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### INTRODUCTION

Patients undergoing hemodialysis therapy will not live their lives as before, many aspects must be changed, this aims to achieve good dialysis results, dialysis patients need to control their body weight so that they are able to control waste products and accumulated fluids before the next dialysis procedure. Weight management in patients with chronic kidney disease is very necessary. This aims to prevent edema and cardiovascular complications.<sup>1</sup>

Hemodialysis is one of the treatments used to treat renal failure patients, however as it develops it sometimes doesn't work as it should and tends to make the patient's situation worse, one of which is interdialytic weight gain (IDWG). High interdialytic weight gain is linked to a worsening of the state of patients with renal failure, which increases the risk of

left ventricular hypertrophy, intradialytic hypertension, and all-cause and mortality in patients with chronic renal failure.<sup>2,3</sup>

Hemodialysis patients face significant changes because they have to adapt to hemodialysis therapy, complications that occur, changing roles in the family, lifestyle changes, which they have to do related to chronic kidney failure and hemodialysis therapy. This situation is not only faced by the patient, but also by other family members. Families tend to be involved in the decision-making or therapeutic process in every stage of health and illness of sick family members. This process makes a patient get health services including a series of decisions and events that are involved in interactions between a number of people, including families.<sup>4</sup>

The Global Burden of Disease reports that the global incidence of kidney failure reaches 697,509,472 patients with

the distribution in the East Asia Region reaching 139,556,765, the Southeast Asia region reaching 69,598,036 sufferers, the Oceania Region reaching 1,097,010 patients, and the European Region reaching 13,951. 402 sufferers.<sup>5</sup> Regional Australia reached 2,919,853 patients. And in Indonesia the prevalence of chronic kidney failure reached 27,232,922 patients with a mortality rate of 35,446 people or equivalent to 17.3% of patients.<sup>6</sup> Data reported that the prevalence of new cases of chronic kidney failure in Indonesia reached 30,831 patients where East Java ranked second with 4,828 new patients.<sup>7</sup> An initial study conducted at the Islamic Hospital A. Yani Surabaya. in November 2021 based on data from the hemodialysis installation cohort, it was found that from 20 patients, there were 5 patients (25%) experienced an interdialytic weight gain of more than 3%, and 6 patients (30%) had

an interdialytic weight increase. between 1-3% which is one indicator of not meeting the minimum standards of clinical medical services in the management of kidney disease.

Interdialytic weight gain (IDWG), which accounts for daily urine output depending on body weight, was utilized as a metric for fluid consumption. One of the prognostic indicators in patients with chronic renal failure is a high IDWG, which is linked to higher predialysis blood pressure and a bigger fall in intradialytic blood pressure as a result of higher ultrafiltration rates.<sup>8,9</sup> Excess fluid in hemodialysis patients can cause complications such as heart failure, hypertension, shortness of breath, arrhythmia, pulmonary edema, pleural pain, pleural effusion, cardiomyopathy, pericardial effusion, uremic pericarditis, uremic pleurisy, and uremic lung.<sup>10</sup> However, IDWG is one of the conditions of hemodialysis patients that can still be controlled.<sup>11</sup> One of the suggested strategies to limit IDGW is behavioral intervention through family support.<sup>12</sup> The support provided by the family to the patient will increase motivation and responsibility in carrying out care independently.<sup>13</sup>

Family support is required to regulate and control the patient's fluid intake. Informational help, evaluation support, emotional support, and practical support are all examples of ways that families might get support.<sup>14</sup> According to studies by Mailani and Andriani, the patient's family is crucial in ensuring that their food and drink consumption complies with their nutritional needs.<sup>15</sup> The patient's dietary compliance will be affected by the absence of family support, which will have an effect on health and may worsen the patient's condition.

## METHOD

### Study Design

Cross-sectional study design was used in correlational analytic research to examine the relationship between variables that are seen or assessed just once. Interdialytic weight increase was the dependent variable in this study, whereas family support was the independent variable. This study was carried out in the Surabaya Islamic Hospital A. Yani.

### Data collection

All renal failure patients who received hemodialysis at the Islamic Hospital A. Yani Surabaya—up to 70 patients—constituted the study's population. Through the use of purposive sampling, 60 respondents made up the study's sample size. A modified version of the Family Support Scale (FSS) questionnaire was utilized as the research tool in this study, along with an observation sheet to measure weight growth between dialysis sessions (interdialytic weight gain).

### Data analysis

Data were analyzed using SPSS version 21.0 for Windows. Data analysis using Rank Spearman test with significance shows p value (0.05).

## RESULTS

The results of the study are as follows:

Based on [table 1](#), it can be seen that the majority of hemodialysis patients at A. Yani Islamic Hospital Surabaya are more than 50 years old, as many as 38 people (63.3%), most of them (55%) are male, almost half of them (41,7%) have high education, most (56,7%) work, all (100%) suffer from illness for more than one year, and almost all (63,3%) are main family.

**Table 1.** Respondent characteristics

Variable	Frequency	Percentage (%)
<b>Age</b>		
21-30	2	3,3
31-40	7	11,7
41-50	13	21,7
>50	38	63,3
<b>Gender</b>		
Male	33	55
Female	27	45
<b>Education</b>		
Basic Education	15	25
Middle Education	20	33,3
College	25	41,7
<b>Job status</b>		
Doesn't work	26	43,3
Work	34	56,7
<b>Long time sick</b>		
More than 1 year	60	100
Less than 1 year	0	0
<b>Family Type</b>		
Main family	38	63,3
Big family	22	36,7

The results of statistical analysis showed that the p value = 0.001. The results of the analysis in this study showed that the significance value was  $p < 0.05$ , which means that there is a relationship between family support and weight gain among dialysis patients with chronic kidney failure undergoing hemodialysis at the Islamic Hospital A. Yani Surabaya. The value of the correlation coefficient ( $r = -0.589$ ) can be assumed in the two variables, namely the independent and dependent variables running in reverse, which means that if there is an increase in family support, it will be accompanied by a decrease in interdialytic weight gain, and vice versa if there is a decrease in family support, it will accompanied by an increase in *interdialytic weight gain*.

## DISCUSSION

Based on the results of the study showed that of the 60 respondents, most of them received quite optimal family support, as many as 42 people (70%). Based on the family form, it is known that most hemodialysis patients live in nuclear families (63.3%) and a small proportion live in large families, namely (36.7%). This study is consistently in line with that proposed by Kim and Kawanishi that individuals living in main families



**Table 2.** Cross tabulation of the relationship between family support and IDWG

Family Support	Weight gain between dialysis (Interdialytic Weight Gain)							
	Low		Medium		Heavy		Total	
	f	%	f	%	f	%	f	%
Less Than Optimal	0	0	0	0	5	8,3	5	8,3
Quite Optimal	4	6,7	38	63,3	0	0	42	70
Optimal	5	8,3	8	13,3	0	0	13	21,7
Total	9	15	46	76,7	5	8,3	60	100
<i>p value</i>					0,001			
<i>r</i>					-0,589			

have lower family support compared to extended families.<sup>16</sup> It can be logically assumed that in the form of a large family it is very possible to provide family support when needed, especially for family members who are sick. Supportive behavior by extended families indicates that there is a compensatory support mechanism meaning that resources in the family network are mobilized when needed to compensate for the consequences of lack of resources in the family. Therefore, this study provides evidence that patients living in main families modulate to reduce the level of support in their primary family in patients with renal failure undergoing hemodialysis.

According to Hasanah et al.'s research, family support is lower for people living in major families.<sup>17</sup> Family support is the manner in which the patient's family members act, react, and accept him or her. Other people who are close to the topic may offer assistance in the form of knowledge, certain actions, or things that might make people feel loved, cared for, and supported.<sup>18</sup>

According to this research, 41.7% of the respondents had a bachelor's degree or above. This suggests that someone with university education is assumed to be capable of understanding health issues and being able to accept information. This understanding serves as the foundation for the family's adaptive conduct in providing the patient with helpful assistance. The education of family members is one of the elements that affects the presence of support in a family. Additionally, a person with a good education will have a solid understanding of the issue at hand, making it simpler for them to accept external influences, both positive and negative,

be objective, and be more receptive to different types of information, such as health information when supporting their family.<sup>12</sup>

Based on the study's findings, 46 respondents (76.7%) who had hemodialysis at the Islamic Hospital A. Yani Surabaya reported a rise in body weight that was mainly at a moderate level. This suggests that the typical patient gains 2-5% of their body weight between dialysis sessions. Another study with similar findings found that the majority of hemodialysis patients gained weight somewhat between treatments.<sup>19</sup> Ferraz et al. further support the idea that the majority of hemodialysis patients were at a moderate level of function.<sup>20</sup> Interdialytic weight growth is influenced by a number of variables, including demographic ones like age, gender, and education level.<sup>21</sup> Age is very influential on a person's health status. Age will affect the patient's perspective in making decisions. Age is also closely related to disease prognosis and life expectancy, those aged more than 55 years have a tendency to develop complications that aggravate kidney function compared to patients aged under 40 years.

Based on age, it is known that 63.3% of hemodialysis patients are older than 50 years old. The notion states that kidney failure can happen at any age and for a variety of reasons.<sup>22</sup> Kidney failure can happen at a young age as a result of nephrotoxic drugs or prolonged dehydration. Consuming meals or beverages that contain nephrotoxic chemicals will hasten kidney cell deterioration. Anatomically, kidney cells lose their capacity to grow and their ability to function declines, as they become older.<sup>23</sup>

However, based on a study conducted by Kuipers revealed a correlation between age and weight gain between dialysis (interdialytic weight gain) in hemodialysis patients where the elderly who underwent hemodialysis had a higher potential to experience weight gain between dialysis compared to younger ages.<sup>24</sup>

Based on gender, it is known that the majority of hemodialysis patients at the Surabaya Islamic Hospital are male (55%). According to a study conducted by Goto et al revealed that the majority of hemodialysis patients who experienced an increase in weight between dialysis (interdialytic weight gain) of more than 2.5% were dominated by male patients. Consistently, this study found similar results where women had a lower potential for weight gain between dialysis (interdialytic weight gain) than men.<sup>25</sup>

Based on the length of time undergoing hemodialysis, it is known that all hemodialysis patients at the Surabaya Islamic Hospital have undergone hemodialysis for more than 1 year (100%). According to Hecking and Karaboyas, the length of time a patient undergoes hemodialysis has clinical implications for interdialytic weight gain, primarily through fluid adjustment or adaptation.<sup>26</sup> This condition is also related to the process of fluid withdrawal and salt restriction as well as the dialysate concentration gradient. In patients who have undergone frequent hemodialysis, the potential for severe postdialysis volume depletion can lead to greater weight gain between dialysis (interdialytic weight gain).

The proportion of this study shows that male predominance, older age (advanced) and duration of hemodialysis which has been more than one year provide strong reasons for the increase in body weight between dialysis. Therefore, it is expected that patients with consistent weight gain between dialysis to limit salt, and improve adherence to therapy recommendations and dialysis treatment time, can allow the achievement of a volume status that is close to normal so that the incidence of interdialytic weight gain can be suppressed.

According to statistical analysis, hemodialysis patients with chronic renal failure who get assistance from their

families tend to gain weight ( $p$  value = 0.001;  $r = -0.589$ ). The findings of this study are consistent with those of Saraswati et al., who found that family support increases patient compliance with the fluid restriction procedure, which has implications for limiting interdialytic weight gain.<sup>27</sup> The findings of this study demonstrate that optimal family support for patients receiving hemodialysis for kidney failure correlates with low levels of interdialytic weight gain, whereas less optimal family support for patients receiving hemodialysis for kidney failure correlates with higher levels of interdialytic weight gain. This demonstrates that having the best possible family support is consistently linked to improved health outcomes for those with chronic conditions.

This study provides an understanding that often family members appear as counselors, who encourage patients to better adhere to their treatment regimens and make the necessary adaptations for disease control. Family support for patients with chronic renal failure undergoing hemodialysis can lead to increased compliance with all health instructions such as fluid restriction, wise nutrition management which has implications for controlling interdialytic weight gain. One of the reasons is the nature of this disease which has an impact on individual relationships, meaning that through family support the patient will be able to adapt to life while undergoing hemodialysis therapy.

## CONCLUSION

Most hemodialysis patients at A. Yani Islamic Hospital Surabaya had the best possible family support, and the majority of them gained weight among moderate dialysis patients. In hemodialysis patients with chronic renal failure, there is a connection between family support and weight increase. Provide counseling to families through effective communication between families and patients primarily related to weight management during hemodialysis therapy. Informing the family of the target dry weight and any changes in body weight conditions are always conveyed before and after dialysis.

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## CONFLICT OF INTEREST

This manuscript has no conflicts of interest.

## ETHICAL CONSIDERATION

This research has been approved by the Research Ethics Committee of A. Yani Islamic Hospital Surabaya. with an ethical description No. 019.EC.KEP.RSIAY.04.22

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