

ORIGINAL ARTICLE

The Relationship of Self-efficacy With Increased Interdialytic Weight Gains in Hemodialysis Patients

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ABSTRACT

Introduction: Weight gain due to excess fluid in patients undergoing hemodialysis results in shortness of breath and heart failure. This study aimed to analyze the relationship between self-efficacy and control of interdialytic weight gains (IDWG) in chronic kidney failure patients undergoing hemodialysis.

Methods: This research design was a descriptive correlation. The population of this study was 70 patients who underwent hemodialysis at the Surabaya Ahmad Yani Islamic Hospital. The sample size was 70 respondents who were taken using the total sampling technique. The variables in this study were self-efficacy and IDWG control in patients undergoing hemodialysis. The research instrument were used a questionnaire and an observation sheet. The data were analyzed using the Spearman rank test with a significance value of $\alpha=0.05$.

Results: A total of seventy respondents reported high self-efficacy (52,86%) and light IDWG control (57,15%). The Rank-Spearman test results showed there was a correlation between self-efficacy and IDWG control in patients undergoing hemodialysis ($p=0.000$).

Conclusion: Monitoring fluid intake consumed by patients is very important to prevent weight gain which can affect the health status of patients undergoing hemodialysis.

Keywords: Chronic; Kidney failure; Renal dialysis; Self-efficacy; Weight gain

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INTRODUCTION

Hemodialysis is a replacement therapy in patients with chronic kidney disease which aims to replace kidney function so as to prolong survival. Hemodialysis is the most frequently used therapy for chronic kidney disease patients worldwide (1). The problem that often occurs in patients undergoing hemodialysis is weight gain between two times or it is called Interdialytic Weight Gains (IDWG). Therefore self-efficacy is very necessary because self-efficacy is something that can influence one's feelings, ways of thinking, self-motivation and behavior. Self-efficacy has an important role in a person's ability to organize and carry out the action programs needed to manage situations that will occur (2)

High self-efficacy is needed to control the increase in IDWG in patients with chronic kidney failure

undergoing hemodialysis therapy (3) Self-efficacy will affect patient compliance in limiting fluid intake as indicated by weight loss between the two dialysis. In accordance with the results of the study that the application of a self-efficacy training program in patients undergoing hemodialysis is effective in losing weight (4) Thus, the increase in IDWG can be suppressed.

Based on the phenomenon that has occurred so far, several patients undergoing hemodialysis have been detected as having IDWG that exceed the tolerance limit. Which is generally characterized by the event of edema, windedness, progressively serious hypertension, disabled actual capability, and cardiovascular breakdown which can demolish the state of hemodialysis patients (5;6;7). Interdialytic Weight Gain (IDWG) is an expansion in liquid volume appeared by an expansion in body weight as a pointer to decide how much liquid enters during the interdialytic period and client consistency with liquid administration in clients receiving hemodialysis therapy (8). Interdialytic Weight Gain values that can be tolerated are about 2 to 3 pounds or about

0.9 - 1.3 kilograms (9).

In light of the underlying information survey conducted at the Surabaya Ahmad Yani Islamic Hospital on five patients while undergoing hemodialysis, it was found that two patients experienced mild IDWG, namely weight gain that exceeded 3%, two patients experienced moderate IDWG, namely weight gain of more than 5%, and one patient experienced severe IDWG, namely weight gain of more than 8%, this was because they often felt thirsty so that their fluid intake exceeded the recommended limit.

Hemodialysis is the most frequently used therapy, among patients with ESRD in the United States and Europe 46%-98% are undergoing hemodialysis therapy, although hemodialysis can effectively make an effective contribution to prolonging patient life, the morbidity and mortality rates are still quite high, only 32%-33% of patients going through hemodialysis therapy can survive in the fifth year (10;11). In Indonesia, the number of patients with chronic renal failure undergoing hemodialysis contacts 6.2%, or 104,000 individuals from the Indonesian populace.

Limitation of liquid admission in patients with constant renal disappointment on hemodialysis is vital to note, on the grounds that over-the-top liquid admission can prompt quick weight gain. The right parameter to follow in addition to properly recorded fluid intake and output data is a daily weight measurement. Free intake can cause excessive circulatory load and edema, while too low intake results in dehydration, hypotension, and impaired kidney function (12;10). It is reported that the prevalence of the expansion in Interdialytic Weight Gain (IDWG) in a few nations have expanded, around 9.7%-49.5% in the US, and 9.8%-70% in Europe (13).

Several studies have shown that 60%-80% of patients die from overabundance liquid and food admission in the interdialytic period. Therefore, restriction of fluid intake is very important for patients undergoing hemodialysis therapy. Many factors contribute to the occurrence of IDWG, including factors from the patient and family. The expansion in IDWG can be brought about by different elements, both internal variables which include age, orientation, training level, thirst, stress, and self-adequacy. As well as external variables, in particular family and social help and how much liquid admission (14).

One is the treatment programs that hemodialysis patients must undergo is fluid intake restriction (12;14) Fluid intake during dialysis will increase the volume of extracellular water so that it affects the IDWG (15;16). Based on the results of the study, it was shown that the majority (55%) of respondents

had moderate IDWG, of which 45% experienced complications, namely 11.7% hypotension and 33.3% hypertension (17) Self-efficacy is the belief that a person has in carrying out self-care, the higher the self-efficacy, the easier it will be to undergo a treatment program (18). According to the results of the study which showed that there was a significant relationship between self-efficacy, daily fluids, thirst and IDWG (17;19;20)

There have been many previous studies on IDWG and the factors that influence it, but there is still little research related to self-efficacy in hemodialysis patients. In this study the researchers wanted to focus more on self-efficacy by increasing IDWG because body weight can continue to increase if hemodialysis patients cannot limit fluid intake so patient education is very important regarding limiting fluid intake and factors that can affect IDWG. The purpose of this study was to determine the relationship between self-efficacy and an increase in IDWG.

MATERIALS AND METHODS

This exploration configuration was an engaging relationship with cross-sectional methodology. The populace in this study were all 70 patients who went through hemodialysis at the Surabaya Ahmad Yani Islamic Hospital. The sample was size is 70 respondents used total sampling. The factors in this study were self-efficacy and IDWG in patients going through hemodialysis at an Islamic hospital in Surabaya. The research instrument used modified self-efficacy from Bandura questionnaire (20) and IDWG observation sheet. The data analyzed used the Spearman Rank-Measurement test.

Study Design

The type of research was descriptive correlation with a cross-sectional approach. The strategy of measurement or data collection is carried out simultaneously, meaning that both variables are observed at the same time. Data collection was carried out at certain times and observations of study subjects were only carried out once during the study (21).

Population, Samples and Sampling

The populace in this study was 70 patients who went through hemodialysis at the Surabaya Islamic Hospital. The examples in this study were patients going through hemodialysis, with the inclusion criteria in this study: (1) Willing to be respondents; (2) is undergoing hemodialysis twice a week; (3) Can be weighed by standing; (4) Can communicate verbally. While the rejection measures in this study were patients who experienced a decrease in consciousness during the study. The examination utilized in this study utilizes non-probability sampling, the strategy

utilized is all-out testing, namely the determination of the sample when all members of the population are used as samples.

Instruments

The data collected was obtained by observing and interviewing the research subjects based on the research questionnaire. The data collection instrument utilized in this study was a questionnaire containing several questions.

Primary data on demographic characteristics in the form of questions containing age, gender, and education. Age is filled in by writing in years, gender, and education by putting a checklist (√) in the column of choice according to the condition of the respondent at the time of the interview.

The self-efficacy of subjects was measured using a questionnaire developed on the theory of Bandura (2) which is in accordance with the concept of hemodialysis. This questionnaire consists of ten question items, positive questions will get a score of "strongly disagree" worth zero, "disagree" is worth one, "undecided" is worth two, "agree" is worth three, and "strongly agree" is worth four. While negative questions get a score of "strongly disagree" worth four, "disagree" is worth three, "undecided" is worth two, "agree" is worth one, and "strongly agrees" is zero. The highest score that can be achieved is 40 while the lowest is zero.

The General Self-Efficacy Scale (GSES) instrument, which was adapted into Indonesian, has been tested for validity. All of these instrument items have a t-value > 1.96 and contain positive factors. So that the General Self Efficacy Scale proves to be valid in measuring self-efficacy constructs in a comprehensive context (22).

IDWG measurement was done by gauging the patient's load after hemodialysis on the primary day of information assortment and before hemodialysis on the second information assortment. The IDWG value was obtained from the difference in body weight before hemodialysis in the second measurement with body weight after hemodialysis in the first measurement and then as a percentage. The classification of IDWG measurement results was carried out as mild <4%, moderate 4-6%, severe > 6% (23). Improved interdialytic (IDWG) using a weight scale in accordance with ISO-certified medical device standards. The alignment test is completed one time each year.

Procedure

This research was conducted in November 2018 to January 2019. In the first period, data was collected related to demographic data before patients

underwent hemodialysis. Subsequently, the patient's weight was weighed after undergoing hemodialysis. Then before the patient goes home, a form is given to monitor drink intake and record the results of the weighing in the recording sheet that has been given to the patient. then the recording sheet that has been filled in by the patient will be collected again at the second meeting (three days later).

At the next meeting, weight was measured before the patient underwent hemodialysis. Then after 2 hours of undergoing hemodialysis the patient was asked to fill out a questionnaire about self-efficacy

Ethical Clearance

This study was endorsed by the Research Ethics Committee, Faculty of Dental Medicine, Universitas Airlangga No. 230/HRECCFODM/VIII/2018.

RESULTS

Total of seventy respondents, the majority of respondents aged 36-45 years (42.9%), female (54.3%), and higher education (51.4%), as summarized in (Table I). The results of the correlation data analysis (Table II) show that most of the respondents have high self-efficacy (52,86%) and IDWG control light (57,15%). The results of the Spearman-Rank test show that there is a significant correlation between self-efficacy and IDWG control (P=0,000).

Table I : Characteristics of respondents (n=70)

Characteristics	Frequency	Percentage
Age		
26 – 35	12	17.1
36 – 45	30	42.9
46 – 55	16	22.9
56 – 65	12	17.1
Gender		
Male	32	45.7
Female	38	54.3
Education		
Elementary Education	8	11.4
Middle Education	26	37.1
Higher Education	36	51.4

DISCUSSION

The results of the research in table II show that the majority of the respondents IDWG control light. It is possible that liquid restrictions is connected with the patient's weight since liquid admission

Table II : Data analysis of correlation between self-efficacy and IDWG

Variable		IDWG Control			Total N (%)	P-value
		Light N (%)	Medium N (%)	Heavy N (%)		
Self-efficacy	Low	2 (2.86)	8 (11.43)	4 (5.71)	14 (20)	0.000
	Medium	7 (10)	12 (17.14)	0 (0)	19 (27.14)	
	High	31 (44.29)	6 (8.57)	0 (0)	37 (52.86)	
		40 (57.15)	26 (37.14)	4 (5.71)		

straightforwardly expands the patient’s weight. Liquid admission in patients with constant renal disappointment is undeniably challenging to dispose of in the body on the grounds that the guideline of the kidneys in wiping out liquids is extremely restricted or comes up short. The interdialytic weight gain corresponds to how much body liquid intake can’t be dispensed with by the kidneys in this manner, bringing about a weight gain inclination between dialysis periods. Then hemodialysis therapy will replace the task of kidney function. IDWG can be seen by the presence of weight gain between two dialysis times. Patients are routinely weighed when hemodialysis to decide the state of the liquid in the patient’s body, then, at that point, IDWG is determined in light of dry load after hemodialysis. Good fluid intake regulation can prevent excessive IDWG (24).

The expansion in IDWG can be brought about by different variables, both inner elements including age, orientation, schooling level, thirst, stress, and self-viability, as well as outer elements, in particular family and social help and how much liquid admission (14).

Based on the characteristics of the respondents, almost half of respondents are aged 36-45 years. Age is a strong factor in the level of patient compliance, where patients at a young age have a low level of compliance while those with an older age have a better level of compliance (25). The results of other studies also show that age is a variable that is conversely corresponding to IDWG. More youthful clients generally have a more prominent hunger joined by more prominent sodium and water consumption (26).

Based on gender, hemodialysis patients showed that most were female. In principle, everyone, both male and female, has the same risk of suffering from chronic kidney disease. In the research, there was no significant relationship between gender and IDWG is related to the patient’s behavior is undergoing

hemodialysis. Both men and women have the same risk factors for an increase in interdialytic weight gains.

Based on the results of research at the level of education shows respondents most had higher education. Education is the process of delivering information to someone to get behavior change. The higher an individual’s schooling level, the more critical, logical, and systematic way of thinking is. Education can bring insight or knowledge to a person. In general, someone with higher education will have broader knowledge than someone with a lower level of training. The higher a person’s level of education, he will tend to behave positively because the education obtained can lay the foundation for understanding in a person (27). However, based on previous research, it shows that education has nothing to do with increasing IDWG and education level does not make a difference to the ability to carry out independent care of hemodialysis patients (14;28)

Based on the results obtained most of the respondents have high self-efficacy. Self-efficacy forms the patient’s mental sentiments to act as per the proposals that have been set for patients going through hemodialysis so there is no expansion in IDWG. In patients undergoing hemodialysis, self-efficacy has an effect on determining behavior according to the established program. The existence of bad and disobedient behavior significantly reduces the health status which in turn also reduces the patient’s quality of life. Low quality of life is portrayed by the event of complexities because of an expansion in IDWG. Supported by research results which show that there is an effect of self-efficacy module intervention on increasing motivation to achieve optimal physical health (p value = 0.05) (29).

Based on table II, shows that patients with high self-efficacy still experience an expansion in IDWG despite the fact that it is only in the mild and moderate classifications. Meanwhile, patients with low self-efficacy tend to build IDWG which is

more assorted, namely the floaty, moderate, and serious categories. Based on the results of the Rank-Spearman analysis, shows that there is a relationship between self-efficacy and IDWG. This shows that self-efficacy is able to influence patient confidence in managing fluid intake and output during the interdialysis period. Patients with high self-efficacy express confidence that they are able to manage fluid intake, be able to withstand thirst, and are able to carry out activity management so that there is no tendency to drink excessively. Self-efficacy forms the patient's psychological feelings to behave according to the recommendations that have been set for patients undergoing hemodialysis so that there is no increase in IDWG

Self-efficacy is the power that comes from someone who can release positive energy through cognitive, motivational, affective, and selection processes. Self-efficacy can influence the client's trust is going through treatment (hemodialysis). High self-efficacy is expected to create inspiration from inside to conform to treatment and liquid control appropriately in order to forestall an expansion in IDWG (27). Self-efficacy will decide how an individual feels, thinks, and inspires himself to act or behave.

Self-efficacy is an individual's trust in his abilities and carrying out an action to achieve a goal. Self-efficacy is a strength that comes from somebody who can deliver positive energy through mental, persuasive, full of feeling, and determination processes. High self-efficacy is needed in hemodialysis patients to comply with therapy and control fluids properly (30). This study has several limitations such as limited number of samples, completing the questionnaire during hemodialysis so that some patients need to be accompanied when filling out the questionnaire.

CONCLUSION

Self-efficacy has a significant relationship with increasing IDWG in patients undergoing hemodialysis. It is necessary to continuously educate and use persuasive methods in order to provide awareness to patients to pay more attention to weight gain between dialysis sessions. Patients must understand that fluid intake, thirst control, and self-efficacy are very important to control weight gain so that the IDWG does not increase.

ACKNOWLEDGMENT

The authors thank all respondents who participated in this study and thank Universitas Airlangga Surabaya and Universitas Nahdlatul Ulama Surabaya for facilitation and financial support in this study.

The abstract has been presented at the 13th International Nursing Conference, Faculty of Nursing, Universitas Airlangga 2022.

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