

The Effect of Self-Efficacy Training on the Patient's Adherence of Fluid Restriction to the Hemodialysis Patients

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Abstract: The success in hemodialysis is much concerning to the patient's adherence and commitment in the therapy management and fluid restriction. Non-adherence in fluid intake restriction by patients will result in the increases of predialysis blood pressure, miocard infarct risks, heart failure, and mortalities on patients. One of the nursing interventions to improve the patient's adherence is an application on the self-efficacy training. The aim of this research was to finding out the effectiveness of the self-efficacy training against the patient's adherence of daily-fluid intake restriction on the patients. This research applied aquasi experiment with pre-post test design. The research data were taken based on the purposive sampling method, with the sample amount of 42 patients. The statistic analysis applied a t-test design. The research showed that p values were 0.002 (<0.05). Accordingly, it was concluded that the self-efficacy training have a significant impact on compliance of the hemodialysis patients to restrict their daily fluid intake.

Keywords: Adherence, fluid restriction, hemodialysis, self-efficacy

Introduction

Chronic kidney failure is a progressive and permanent loss of kidney function that occurs over several months or years. This situation results in the loss of the kidneys' ability to eliminate metabolic waste, maintaining an acid-base, fluid and electrolyte balance. There is no cure for chronic kidney failure except for replacement therapy, which can only slow or stop the progression of the disease to a more serious condition. Currently 10% of the population worldwide is at risk of developing chronic kidney disease (CKD), and millions die each year because they do not have access to kidney replacement therapy. Most of the renal failure sufferers exert the hemodialysis as a general therapy for a renal replacement (Smeltzer & Bare, 2013; USRDS, 2018). During this therapy, patients must adhere to four important components, namely adherence in taking hemodialysis sessions, drug consumption, fluid restrictions and adherence to recommended diet (Geldine, Bhengu & Manwere, 2017).

The adherence in fluid restriction is the most difficult aspect to be conducted by most of the hemodialysis patients (Snyder, Jaar, Lea, & Plantinga, 2020). The patient's adherence in the fluid restriction is able to be valued from the patient's weight gain or *interdialytic weight gain* (IDWG). IDWG is an increase in interdialysis body weight affected by salt and fluid intakes (Siregar, 2020). IDWG of more than 3% indicates fluid intake excess. Of some researches conducted they show that more than 43% hemodialysis patients sustained fluid excess (Ahrari, Moshki, Bahrami, 2014; Hidayati, 2018; Hung et al, 2014).

Non-adherence patients in fluid intake restriction not only increase IDWG, but also cause the increases in predialysis blood pressure, miocard infarct risks, heart failure, and patient's mortality. (Cabrera, et al, 2015; Hidayati, 2018; Stern, Sachdeva, Kapoor, Singh, Sachdeva, 2014; Tsai, 2015). An effective strategy is needed to improve patient compliance in the care process.

The hemodialysis nurses play an important role to decrease the number of morbidity and mortality on patients. One strategy that can be developed is self-care management in patients undergoing hemodialysis (Rahimi, Gharib, Beyramijam, 2014). Self care can be developed in the form of Self-Efficacy. Among the nursing interventions provided, Self-efficacy is one of the methods to improve the patient's adherence on the restriction of fluid intake. Efficacy is an individual belief on the success to do a self-care to reach the intended result. (Chen, Lewthwaite, Schweighofer, and Winstein, 2012; Maddux, 2013). Self-efficacy is positively correlated and encourages self care behavior. Self-efficacy also increases patient empowerment and provides long-term benefits for chronic kidney patients (Ramezani, Sharifirad, Rajati, Rajati, & Mohebi, 2019).

Self-efficacy is an individual convince on his capability or the individual belief on his capability to do a specific activity in a certain situation. The self-efficacy training program is one of many ways to improve the adherence on fluid restriction on hemodialysis patients. This can be valued from the life quality, interdialytic body weight increment, and predialysis blood pressure and laboratory results. Self efficacy training is significantly related to patient Self Care results including decreased salt intake, interdialytic weight loss, increased compliance with hypertension medication consumption, and adherence to dialysis schedule. Self efficacy is also associated with lower diastolic blood pressure. (Aliasgharpour, Shomali, Moghaddam&Faghihzadeh, 2012; Kauric, Peters, &Yarandi, 2017)

Self-Efficacy training is a well-organized efficacy training programme. This training is specifically designed for routine hemodialysis patients. These training purposes to provide experiences and enhance the patient's success by providing an oral pursuance followed with a positive reinforcement, give them motivation, and reduce stress physically and emotionally through an intervention.

Research Method and Procedure

This is an experiment studi with a pre-post test design. The study conducted in Dr. CiptoMangunkusumo National Central Public Hospital. The number of sample was 42 routine hemodialysis patients as stipulated divided into two groups (control and intervention groups). The sampling techniques used a single-blind quasi-experimental selected based on the purposive sampling method. The sampling inclusive criteria was a routine hemodialysis patients within twice of three times a week, or at least within 3 months, with the age of more than 18 years old or the same, able to walk and eat independently, no acute disease history and not being taken care in the hospital.

The pre interdialytic test of body weight measurement was given to each of group. Then, the control group received only standard care while the intervention group was given self-efficacy training for three weeks. The intervention implementation was conducted twice a week within three weeks for 6 sessions of training. The intervention was given when patients were under hemodialysis within 45 minutes to an hour. This activity is conducted by providing a sustainably-structured education to patients. The education material which has been given includes topics of kidney anatomy and physiology, renal failure patophysiology, hemodialysis, treatment, complication, nutrition, fluid restriction, management of thirsty control, and stress management.

The training material was given by educating them on the patient's performance and achievement since they have been hemodialysed including regulations on diets, fluid intakes, and drug therapies. Other methods included a discussion and experience sharing from other patients within the group, positive reinforcement and motivation and relaxation on the progressive muscular as a strategy of stress management. In the end of each meeting session, researchers made a contract of agreement with respondents for the next meeting. A week after all sessions was over; the re-calculation of the average interdialytic weight gain for the last two dialysis sessions was measured. Then, the average value or *Mean Interdialytic Weight Gaint* was compared to the average of premeasurement followed with a statistic test to assure the success the intervention given.

Data Analysis

The data were derived from the interdialytic weight gain/IDWG. The measurement was conducted twice, preintervention and post-intervention (the fourth weeks). The interdialytic weigh gain was measured based upon the difference the weight gain before dialysis and the last dialysis post test. The measuring tool used was a scale which was previously calibrated. After that, the researchers conducted the data analysis using *t test*.

Result

The number of sample participated to the end of research were 42 out of persons. Two respondents of the intervention group could not settle the program due to the decrease of health state and under a medical treatment.

Table 1. Demographic characteristics of ESRD participants (n = 42)

Variable	Control Group		Intervention Group	
	n	(%)	N	(%)
Age groups				
18 – 44 years	7	32	6	30
45 – 60 years	9	41	10	50
≥ 60 years	6	27	4	20
Gender				
Female	9	41	11	55
Male	13	59	9	45
Level of education				
High	14	64	12	60
Midle and lower	8	36	8	40
Employment status				
Have a job	9	41	8	40
Workless	13	59	12	60
Duration of Dialysis				
3 months to 1 year	8	36	6	30
More then 1 year	14	64	14	70
Dialysis Access				
AVF	15	68	15	75
Non AVF	7	32	5	25

Most respondents were in the intervention group aged 45-60 years (50%) and were female (55%). Most of them were higher education (60%) and 60% respondents were workless. In terms of In terms of dialysis duration, 14(70%) were more then 1 year. Based on dialysis access used, 75% of respondents have used permanent vascular access: Arteriovenous Fistula (AVF).

Table 2. Mean differences of Interdialytic Weigh GainPre dan Post intervention

IDWG	Mean		Decline	
	Before	After 4 weeks	Difference	%
Intervention	3,65	3,12	0,53	14,5
Control	3,53	3,40	0,13	3,7

The lowest IDWG on the control group and intervention group at the early measurement was 3 kg and the highest was 4,5 kg. On the other hand, the final measurement of IDWG in the intervention group was 2,1 kg at the lowest and 3,7 at the highest. Self-efficacy training conducted against 20 respondents on the intervention group resulted the weight loss at interdialytic weight Gain (IDWG) of 0,53 kg (14,5%). Interdialytic weight gain (IDWG) of respondents before interventions was 3,65 kg and the average of IDWG after intervention was 3,12 kg. Meanwhile, the average decrease of IDWG on the control group was only 0,13 kg (3,7%) with the average of previous IDWG was 3,53 kg.

Discussion

Results of this study showed the positive effect of a training program based on self-efficacy theory on reducing interdialytic weight gain in the intervention group. This is in line with other studies that used Self-Efficacy Theory is effective for making these patients believe that they are capable of adopting self-care behaviors. One of strategies which can be developed a self care management on patients with hemodialysis is Self Efficacy (Rahimi, Gharib, Beyramijam, 2014; Lee et al, 2021). Research by He., Chan., Chen., Cheng., &Vathsala. (2015), showed that mean of the self-efficacy increased significantly in the intervention group. That Studies confirmed that educational intervention program led to an increase in patients' self-efficacy in self-care behaviors.

In general, after conducting the self efficacytraining program, the mean IDWG of the intervention group decreased. In this study patients in the intervention group showed a higher reduction in IDWG compared to the control

group. It can be stated that training program regarding self-efficacy, has promoted patients knowledge and awareness about fluid intake and interdialytic weight gain. This is in line with study of Aliasgharpour., Shomali., Moghaddam & Faghihzadeh, 2012; Ramezani., Sharifirad, Rajati., Rajati., & Mohebi, 2019., Chen et al (2015).

On the statistic analysis, the researcher found a significant correlation between a self-efficacy training and IDWG of patient. Some studies' results confirm this research finding. The implementation of self-efficacy training on this research shows that this intervention is able to enhance the adherence against the fluid restriction which is manifested by the decreasing of average IDWG of patients after the intervention. From this process, the motivation and self convince will be construed to anticipate and do a independent caring. The process of convince formation derived from themselves will enhance their adherence against the therapy regimen and the determent of complication including the compliance of fluid restriction.

The convince of self capability will facilitate a person to reach his objectives in spite of encountering various impeding factors. The patient's adherence is fluctuating in nature. Therefore, it requires a social support and follow up by a dialysis caregivers. The follow-up implementing design can be used for a follow-up intervention so that the self-efficacy stablishing process can be optimally reached.

To maintain the Self Efficacy which has been established, it requires a sustainable motivation and reinforcement.

This can be conducted after the monitoring and evaluation on the sustainable intervention were conducted in the end of the first, second and sixth month after the intervention. (Aliasgharpour., Shomali., Moghaddam & Faghihzadeh, 2012)

Conclusion

The process of self convinces formation derived from themselves will improve their adherence to the therapeutic regimen including fluid restriction adherence. This study shows that the application of self-efficacy training has an effect on interdialytic weight loss. Therefore, to promote adherence of fluid restriction in hemodialysis patients, it is recommended that self-efficacy training being applied in health care center

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References

1. Ahrari. S, Moshki. M, Bahrami. M (2014) The Relationship Between Social Support and Compliance of Dietary and Fluids Restrictions among Hemodialysis Patients in Iran. *Journal of Caring Sciences* 2014 Mar; 3 (1): 11–19.
2. Aliasgharpour, M., Shomali, M., Moghaddam, M.Z & Faghihzadeh, S. Effect Of A Self-Efficacy Promotion Training Programme On The Body Weight Changes In Patients Undergoing Haemodialysis. *Journal of Renal Care*. 2012. 38(3), 155-161
3. Cabrera. C, et al. A retrospective, longitudinal study estimating the association between interdialytic weight gain and cardiovascular events and death in hemodialysis patients. *BMC Nephrology* (2015) 16:113
4. Chen, S., Lewthwaite, R., Schweighofer, N. and Winstein, C. J. (2012). Discriminant validity of a new measure of self-efficacy for reaching movements after stroke-induced hemiparesis. *Journal of Hand Therapy*.
5. Flythe JE, Curhan GC, Brunelli SM. (2013). Disentangling the ultrafiltration rate-mortality association: the respective roles of session length and weight gain. *Clin J Am Soc Nephrol* 2013;8:1151-1161
6. Hidayati, R. (2018). Analisis Faktor Yang Menyebabkan Rawat Inap Berulang Pada Pasien Hemodialisis. *JSS (Jurnal Scientific Solutem)*, 1(1), 15-23.
7. He, H., Chan, S., Chen, H., Cheng, K., & Vathsala, A. (2015). The effectiveness of self-efficacy psychoeducational intervention in enhancing outcomes of patients undergoing haemodialysis due to end stage renal disease. *HNE Handover: For Nurses and Midwives*, 8(2).
8. Hung. S.C, et al (2014), Volume overload correlates with cardiovascular risk factors in patients with chronic kidney disease <https://www.sciencedirect.com/science/article/pii/S0085253815562224#!>

9. Kauric-Klein, Z., Peters, R. M., &Yarandi, H. N. (2017). Self-efficacy and blood pressure self-care behaviors in patients on chronic hemodialysis. *Western journal of nursing research*, 39(7), 886-905.
10. Lee, et al, 2021. Effectiveness of a self-management program in enhancing quality of life, self-care, and self-efficacy in patients with hemodialysis: A quasi-experimental design. In *Seminars in Dialysis*.
11. Maddux, J. E. (Ed.). (2013). *Self-efficacy, adaptation, and adjustment: Theory, research, and application*. Springer Science & Business Media.
12. Rahimi, F, Gharib, A, Beyramijam, M (2014) Effect of self-care education on self efficacy in patients undergoing hemodialysis. *Life Science Journal* 2014: 11 (1): 136-140]
13. Ramezani, T., Sharifirad, G., Rajati, F., Rajati, M., &Mohebi, S. (2019). Effect of educational intervention on promoting self-care in hemodialysis patients: Applying the self-efficacy theory. *Journal of education and health promotion*, 8.
14. Stern A, Sachdeva S, Kapoor R, Singh J, Sachdeva S. (2014) High blood pressure in dialysis patients: cause, pathophysiology, influence on morbidity, mortality and management. *J ClinDiagn Res*. 2014;8(6):ME01-4.
15. Smeltzer, S.C., & Bare, B.G. (2013). *Textbook of medical surgical nursing Brunner &Suddarth*. 11th edition. Lippincott William & Wilkins, a Wolter Kluwer busines.
16. Snyder, R. L., Jaar, B. G., Lea, J. P., &Plantinga, L. C. (2020). Association of patient-reported difficulty with adherence with achievement of clinical targets among hemodialysis patients. *Patient preference and adherence*, 14, 249.
17. Tsai, YC et al (2015). Association of Fluid Overload with Cardiovascular Morbidity and All-Cause Mortality in Stages 4 and 5 CKD. *Clinical Journal of the American Society of Nephrology CJASN* January 2015, 10 (1) 39-46
18. USRDS. (2018a). *Incidence, prevalence, patient characteristics, and treatment modalities*.https://www.usrds.org/media/1736/v2_c01_increv_18_usrds.pdf