

The effect of using booklets on patients' self-efficacy knowledge and interdialytic weight gain

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ABSTRACT

Introduction: The inability of patients with chronic renal failure to follow a diet is influenced by low self-efficacy. (Inter Dialytic Weight Gain) IDWG is used as a common measure of patient compliance, as it shows fluid retention that occurs between two hemodialysis sessions. This study aims to analyze the effect of providing education using a booklet on self-efficacy, and level of knowledge, and IDWG in hemodialysis patients.

Methods: The research design was a pre-experimental design, with a group comparison design approach. The use of samples using accidental sampling. A sample of 48 respondents was divided into two groups: 25 and 23 respondents in the intervention and control groups respectively. The intervention group was given education using lecture and booklet methods for 45 minutes. The Control group was given education using the lecture method only. IDWG was measured by observing weight between hemodialysis sessions. The measurements of self-efficacy and level of knowledge were undertaken by employing a questionnaire. Wilcoxon test was used to determine the difference between the pre and post mean of the intervention group and the control group. Mann Whitney statistical test was used to determine the mean difference in the intervention and control groups on the variables of self-efficacy, level of knowledge, and IDWG.

Results: Intervention group increased self-efficacy ($p < 0.05$), increased knowledge ($p < 0.05$) and decreased IDWG ($p < 0.05$). Control group increase self-efficacy ($p < 0.05$), increase knowledge ($p < 0.05$), but not the value IDWG ($p > 0.05$).

Conclusion: Education using booklets helps patients in increasing self-confidence, knowledge of CKD patient care including controlling fluid overload.

Keywords: Education, booklet, self-efficacy, Chronic Kidney Failure, Knowledge Level, IDWG.

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INTRODUCTION

Chronic Kidney Disease (CKD) is a global threat to health in general and in particular to developing countries because its hemodialysis therapy is expensive and lifelong. In India, 90% of the patients cannot afford the cost, and the incidence of CKD has doubled in the last 15 years. The disease is generally managed through hemodialysis therapy, which is usually given twice a week in a dialysis center or clinic. The patients and their families need to know about hemodialysis home care management to prevent complications, which will increase their life expectancy and help them lead a near-normal life. Different studies show the importance of proper knowledge about home care management such as diet management, and fluid management. Knowledge related to these requires media. The information

booklet will help hemodialysis patients to care for themselves at home.¹

Based on a study, the health team should encourage hemodialysis patients to take an active part in self-management with their condition, as well as to promote health literacy through increasing their self-efficacy.² Self-efficacy is one aspect of one's knowledge or self-knowledge that influences human life. A person must believe in his abilities to deal with various events he will face.³ It is needed by everyone to face various problems in life. The CKD patients who have to undergo hemodialysis twice a week will desperately need self-efficacy to motivate themselves in coping with life's dramatic changes.

The results of research conducted by Moktan et al proved that 54.1% of respondents have high self-efficacy, and 47.0% of respondents have an average Inter

Dialytic Weight Gain (IDWG) (4% - 6%).⁴ The results of the further analysis revealed that there was a relationship between self-efficacy and IDWG ($p=0.000$). Understanding the function and concept of self-efficacy is important in developing a simple and targeted implementation to support the efforts of CKD patients in managing their disease.⁵

In addition, the patients undergoing hemodialysis should pay attention to controlling fluid intake. Another complication of hemodialysis is a weight gain between hemodialysis sessions, which is commonly referred to as IDWG. Non-adherence in chronic fluid restriction can increase the risk of death due to various organ complications they experience.⁶ Thus, IDWG needs to be controlled to prevent an increase in mortality. It can be tolerated by the body if the gain is not

more than 1.0-1.5 kg.

Another effort that can be made to improve patient compliance in limiting fluid intake is to increase patient knowledge about diet and ongoing therapy.³ Their knowledge greatly influences their behavior in everyday life. In a study conducted by Majer et al at the Dumai City Hospital, half of the respondents had low knowledge with a percentage of 53.8%. This is influenced by the lack of information they received about the correct diet pattern to adhere to while undergoing hemodialysis.⁷

It has been common that the information is given orally according to the patient's needs. Another way of education by using booklet media is expected to help patients in increasing self-efficacy, level of knowledge, and also fluid management. Such a strategy has been applied and has been well-received to increase the patients' knowledge.^{8,9} Therefore, this study aims to analyze the effect of providing education using a booklet on self-efficacy, and level of knowledge, and IDWG in hemodialysis patients.

METHODS

This study was a pre-experimental design with pre-and post-test in two-group design was adopted. Samples of this study were 48 patients on hemodialysis in the hemodialysis room at the Islamic Hospital of Purwokerto. The sampling employed a technique of accidental sampling. Sample criteria were patients who underwent hemodialysis therapy more than 2 times, fully aware and willing to become respondents. Based on these criteria, 48 respondents were selected, who were then grouped into 25 and 23 respondents to be the intervention and control groups respectively.

The determination of the intervention group and control group was carried out based on the room. This was done to avoid any misunderstanding of the respondents in the difference in treatment. Therefore, the researchers determined that the intervention group was patients who occupied the east hemodialysis room and the control group was the patients who occupied the west hemodialysis room. The intervention group was given education using the lecture method and

giving booklets. The material shared is material that focuses on how to maintain IDWG with the diet for chronic kidney failure patients undergoing hemodialysis. Meanwhile, the control group was only given education using the lecture method.

IDWG is calculated by subtracting the weight before the current HD by the weight before the previous HD then dividing the weight before the current HD multiplied by 100%. IDWG can be classified based on the percentage of weight gain with IDWG being said to be mild if the weight gain is <4%, IDWG is moderate if the weight gain is 4-6% and for IDWG if the weight gain is >6%. Measurement of self-efficacy and level of knowledge using a questionnaire. Wilcoxon test was used to determine the difference between the pre and post mean of the intervention group and the control group. Mann Whitney statistical test was used to determine the mean difference in the intervention and control groups on the variables of self-efficacy, level of knowledge, and IDWG. This research has applied ethical principles in research and passed the ethical test with No. KEPK/UMP/45/XII/2019.

RESULTS

This study succeeded in collecting 48 samples, which were divided into 25 samples in group 1 (intervention) and 23 samples in group 2 (control). Based on the age category the most patients are the elderly. It is seen that the youngest age is late adolescence. The oldest age is the elderly. From their gender, most of them are female, and their education is in elementary school. From their job, most of them is a housewife (Table 1).

Based on Table 2, it can be seen from the results of the Wilcoxon test in the intervention group that the value of self-efficacy, level of knowledge and IDWG obtained p-value < 0.05 (p = 0.000). The results of the analysis show that there is a significant effect on providing education using booklet media to increase self-efficacy, increase knowledge levels, and decrease IDWG in patients with chronic kidney failure. In the control group, the value of self-efficacy and level of knowledge was obtained by a p-value <0.05 (p = 0.000). IDWG value obtained p-value > 0.05 (p = 0.708). The results

of the analysis showed that there was a significant effect on giving lecture method education on increasing self-efficacy, increasing knowledge levels, but it did not affect decreasing IDWG in patients with chronic kidney failure.

Based on Table 3, the comparison of self-efficacy in the intervention group and control group is p-value > 0.05. The comparison of the level of knowledge in the intervention group and control group is p < 0.05. The comparison of IDWG in the intervention group and control group is p < 0.05.

DISCUSSION

In general, there was an effect of education using booklet media on the average value of self-efficacy, level of knowledge, and the average value of IDWG. The following research by Wong et al, says that the factors that influence compliance in regulating fluid intake are education, self-concept, family involvement, and patient knowledge. The difference of knowledge between obedient and non-compliant patients has proved that their knowledge has some effect on their compliance with limiting fluid intake.¹⁰

The results of the analysis showed that there was no significant difference in the effect of providing education using booklets on self-efficacy in the intervention group and the control group. This finding is since both groups had been exposed to information provided by health workers. They both had been previously stimulated to form self-confidence to be able to control fluid intake. Based on research by Anderson et al, the self-efficacy of patients with chronic diseases is influenced by external and internal factors. The former includes a good support system. The internal factor that can reduce a patient's self-efficacy is the emotional response to his/her illness.¹¹

The focus of this study is limited to the patient's understanding to control their diet, recommended and prohibited food and beverage intake to control IDWG through booklets. Self-efficacy is one of the most influential aspects of self-knowledge in everyday human life. This is because self-efficacy also influences individuals in determining the actions to be taken to achieve a goal, including

estimates of the various things that will be faced.⁵ The results showed that self-efficacy is an important mediator between knowledge and self-care. In addition to providing knowledge to chronic disease patients, health professionals must also

offer strategies that can increase self-efficacy to improve self-care behavior in chronic disease patients and implement effective disease management.¹²

The factors having an impact on their knowledge include education, mass media,

socio-culture, experience, and age. One of the therapies in patients with kidney failure is diet, but in reality, the patient fails to record the diet, due to boredom and lack of detailed knowledge about diet.³ The results of the analysis show that there is an effect of providing education using booklets on the level of knowledge in kidney failure patients undergoing hemodialysis. Knowledge is the result of human sensing or the result of a person knowing about the object of knowledge through his five senses (eyes, ears, feeling, and touch). Factors influencing their knowledge include education, mass media, socio-cultural, experience, and age.⁷ Health education is the main priority and is one of the interventions effective nursing care to increase the level of public awareness of the importance of a correct understanding of his health. Appropriate education can improve knowledge, attitudes, and patient skills.¹³ A continuously-provided proper health education can change them to have the expected behavior.¹⁴

A successful indicator in the assessment of the patients with kidney failure is their ability and confidence to care for themselves to survive in their condition, continuing to carry out life activities according to the patient's ability. In addition, the role of the family is also very important in their quality of life. Confidence to care for themselves must be supported by sufficient knowledge of their own needs. The booklet is one of the educational media that is easy to make and can contain all information related to them.¹⁵

Self-efficacy is a process of cognitive change that occurs through environmental and social roles. The patients, then, will perceive new behaviors and it affects the ability to improve future behavior. Good self-efficacy will improve their life quality.¹⁶ The booklet helps nurses in increasing knowledge, which in turn will improve their self-confidence.¹⁵

Communication with patients is very complex in form. Passive educational support, like booklets, can increase self-efficacy. It is very often that the patients are overwhelmed with new information. They fail to understand it, and this will lead them to stress. This reinforces the need for hospitals to provide educational media

Table 1. Characteristics of respondents.

Variable	Group 1		Group 2		n	%
	n	%	n	%		
Age group						
Teenager	0	0	1	4.4	1	2
Adult	8	32	7	30.4	15	31.3
Elderly	17	68	15	65.2	32	66.7
Gender						
Male	7	28	9	39.1	16	33.3
Female	18	72	14	60.9	32	66.7
Education						
Elementary School	7	28	9	39.1	16	33.3
Junior High School	8	32	5	21.7	13	27.1
Senior High School	7	28	8	34.8	15	31.3
College/University	3	12	1	4.3	4	8.3
Job						
Private employees	3	12	2	8.7	5	10.4
Civil servant	2	8	6	26.1	8	16.8
Farmer	4	16	1	4.3	5	10.4
Trader	1	4	0	0	1	2
Housewife	15	60	14	60.9	29	60.4

Table 2. Comparison of mean self-efficacy, knowledge level, and IDWG group 1 (intervention) and group 2 (control) before and after education using booklet media.

Group	n	Variable	Mean	Z	P-value
1	25	Self-efficacy	5,36	-3,934	0,000*
		Knowledge	3,08	-4,126	0,000*
		IDWG	1,18	-3,888	0,000*
2	23	Self-efficacy	0,74	-3,002	0,003*
		Knowledge	1,26	-3,097	0,002*
		IDWG	-0,26	-0,374	0,708

Table 3. Mean difference between the intervention group and the control group is seen from self-efficacy, level of knowledge, and IDWG.

Variable	Group	Mean	Z	P-value
Self-efficacy	1	27,28	-1,446	0,148
	2	21,48		
Knowledge	1	29,7	-2,721	0,007*
	2	18,85		
IDWG	1	20,28	-2,178	0,029*
	2	29,09		

to know and understand patient needs comprehensively so that they can perform self-care and increase self-efficacy.¹⁶

Family support is an important factor in increasing the patient's self-confidence, with support from the family and the environment including the hospital environment where the patient routinely performs dialysis will increase their confidence in taking care of themselves. Family knowledge and support will affect self-confidence and have an impact on self-regulation management including fluid management.¹⁷

The limitation of this study was the researcher that did not control for other factors that could affect the knowledge, self-efficacy and IDWG of the patients, one of which was the length of HD therapy because the two groups had been exposed to daily information provided by nurses so that knowledge of the two groups and the formation of self-confidence very good, but there was a difference in the patient's weight gain in the intervention group, this could happen because by providing education accompanied by the provision of a booklet the patient always remembered and tried very hard to maintain and comply with what was ordered and written in the booklet. In addition, the booklet made very easy to understand accompanied by pictures that made the patient more aware of the message conveyed from the booklet.

CONCLUSION

Based on the results of research, there is an effect of providing education using booklet media to increase self-efficacy, increase knowledge level and decrease IDWG. Booklet media has been shown a good result to increase knowledge level and decrease IDWG in the intervention group, compared to the control group which did not get booklet media. Therefore, each hemodialysis room should provide media booklets to be given not only to the patients but also to their families as a guide for them in providing care for the patients.

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DISCLOSURES

Conflict of Interest

There is no conflict of interest in this study.

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Ethics Approval

This research has passed the ethical test in the ethics team of the Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto with No. KEPK/UMP/45/XII/2019.

Author Contribution

The author team contributed to collaboration with hospitals and data collection, as well as analysis and creation of articles.

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