

The Influence of Health Education on Patient Adherence of Diet Therapy Treatment in the Hemodialysis Unit at Haji Medan Hospital of North Sumatera Government in 2021

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ABSTRACT

BACKGROUND

Kidney replacement therapy consists of hemodialysis, peritoneal dialysis and kidney transplantation. Hemodialysis (HD) is currently the most applied in kidney replacement therapy, and the implementations improve every year.

OBJECTIVE

This study aimed to the influence of health education on patient adherence to diet therapy treatment.

DESIGN

The research type used was a pre - experimental design. This study used one group pre - test and post - test design without a control group. The research location was in the hemodialysis unit at Haji Medan Hospital of North Sumatera Government.

PARTICIPANTS

The populations of the study were all chronic kidney patients as referral patients at Haji Medan Hospital of North Sumatera Government. The total populations are 40 patients. The samples were 20 respondents found out by using the purposive sampling technique.

RESULTS

The output of the study explained that there is a significant correlation between health education and patient adherence in implementing diet therapy in the hemodialysis unit at Haji Medan Hospital. The output further explains that health education has proved to influence patient adherence improvement in implementing diet therapy in the hemodialysis unit at Haji Medan Hospital.

CONCLUSIONS

The suggestion to the hospital health promotion officer is to apply PKRS of good diet therapy on hemodialysis patients. It was carried out equally and comprehensively to all the hemodialysis patients.

KEYWORDS

Health Education, Patient Adherence, HD

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How to Cite This Article:

Marniati, Misleini S, Ainun ZK, et al. The Influence of Health Education on Patient Adherence of Diet Therapy Treatment in the Hemodialysis Unit at Haji Medan Hospital of North Sumatera Government in 2021. *J Evid Based Med Healthc* 2022; 9(11):50.

Received: 04-May-2022,
Manuscript No: JEBMH-22-57887;
Editor assigned: 06-May-2022,
PreQC No. JEBMH-22-57887 (PQ);
Reviewed: 20-May-2022,
QC No. JEBMH-22-57887;
Revised: 04-Jul-2022,
Manuscript No. JEBMH-22-57887 (R);
Published: 14-Jul-2022,
DOI: 10.18410/jebmh/2022/09/11/50.

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INTRODUCTION

Background

Health development is not only focused on quantity but also on quality, particularly on health services quality. The hospital as a health center facility must comply with both of these requirements. One of the services of the hospital is hemodialysis. This service is still limited only to a few hospitals in North Sumatra. Although it is still limited in yet the service quality of the hospital must also be considered. If the service is not good, hemodialysis patient satisfaction will not be achieved.¹ As one of the health service facilities, the hospital becomes one integral part of the overall health service system. The Health Ministry of Indonesia Republic has outlined that public hospitals have the task of carrying out efficient and effective health by prioritizing healing and recovery efforts implemented in a harmonious and integrated to improve, prevent and implement the health referral. End Stage Renal Disease (ESRD) becomes the end phase of Chronic Kidney Disease (CKD). CKD is irreversible and progressive kidney function loss to maintain metabolism, and fluid and electrolyte balances generate uremia.² the latest guidelines explain that CKD is an abnormality of kidney function for more than three months accompanied by symptoms of albuminuria.³ CKD is affected by various diseases. According to data in Australia, it is affected by diabetic kidney disease 36 %, glomerulonephritis 19 %, hypertension 12 %, and polycystic kidney 5 %. The CKD incidence in Indonesia due to data from Basic Health Research (Risksedas) in 2013 was 0.2 % of the Indonesian population. Based on Pernefri's report in 2017, there were 13,758 patients diagnosed with end - phase of CKD. The CKD incidences possibility improved from 19,612 to 100 thousand in 2017 to 2019. The CKD patients treating dialysis in 2013 were only 156,396 patients, and it improved to 234,546 patients in 2017.⁴ chronic kidney disease has become one of the most death causes in Indonesia. The number of patients improves every year. According to the survey's output conducted by Indonesia Internist Association (PAPDI) from 1990 to 2020, terminal renal chronic (GGT) is the last phase of irreversible kidney chronic function disorders in which the body have no ability to transport waste metabolic or perform its regular functions and resulting a number of physiological changes cannot be overcome by conservative measures. This condition requires renal replacement therapy.⁵ Kidney replacement therapy consists of hemodialysis, peritoneal dialysis and kidney transplantation. Hemodialysis (HD) is currently the most applied in kidney replacement therapy, and the implementations improve every year. In the hemodialysis process, the bloodstream to the kidneys is switched through the semipermeable membrane of the artificial kidney to remove the metabolism waste products that can be removed from the body.⁶ In hemodialysis therapy

patients, diet intervention plays an important role, and they need a balanced diet to keep fit condition when their kidneys cannot function in full capacity. To maintain a better condition of dialysis patients, they require consuming the proper type and amount of food every day. To achieve good dialysis output, dialysis patients are required to control their diet to control waste products and accumulation fluids between dialysis treatments or procedures. Dialysis patients require receiving the right protein, calories, fluids, vitamins and minerals supplies every day. A good diet for dialysis patients is an adequate protein supply, adequate calories, low potassium, low sodium, low phosphorus and controlled fluids.⁷ The objective of the diet on chronic renal patients in treating hemodialysis therapy is preventing nutritional deficiencies and maintaining and improving nutritional status creating patients can carry out normal activities, maintain fluid and electrolyte balance and keep the metabolic waste products accumulation from being excessive. According to no one can implement the instructions if he misunderstands the instructions given.⁸ This condition occurs due to the miss of health educators in providing complete information to patients. According to health education is any combination of health education and interventions related to economics, politics and organizations designed to facilitate behavioral change and a health conducive environment. The Ottawa Charter mentioned that health education is a process to enable the public in maintaining and improving health. It also means that health education is an effort created for the community to maintain and improve their health.⁹ Health education is an effort to empower individuals, groups, and communities to maintain, improve, and protect health by improving knowledge, willingness, and competence in developing a supportive climate, carried out from / by and for the community according to socio - cultural and local conditions.¹⁰ Health Education in hospitals or known as Hospital Public Health Counseling, abbreviated as PKRS, is one form of service in supporting health development. Health education in hospitals on patient flow, including health education both outside and inside of the hospital. One of the successful keys to implementing Hospital Health Education (PKRS) is medical officers' participation in developing human relations in social interactions with the patient and their families.¹⁰ Health education methods, *i.e.*, counseling activities, distributing leaflets, creating posters have proven to be quite influential in changing a person's behavior. As described above, the Health Education Strategy in Hospitals or PKRS develops a comprehension of patients, families, and hospital visitors of the disease. In addition, hospital health education develops the awareness and interest of patients, families, and hospital visitors in disease treatment. By implementing hospital health education meaning that the patient's family or visitors have been invited to participate actively and empowered to improve the treatment of the

disease. Haji Medan Hospital of North Sumatera Government is a government - owned by North Sumatera Government, is a regional health referral center for the northern and central parts of Sumatra, including Aceh Province, North Sumatra Province, Riau Province and West Sumatra Province (Profile of Haji Medan Hospital of North Sumatera Government, 2020). To implement the health education services at Haji Medan Hospital of North Sumatera Government, it provides a hospital health education installation (PKRS). It is an installation of a health education program by providing the various activities including patients, family and visitor counseling in outpatient and inpatient. The output of the interview with PKRS Installation Staff of Haji Medan Hospital of North Sumatera Government informed that PKRS Installation has 7 officers in charge of facilitating and coordinating counseling activities for families / visitors, both inpatient and outpatient. Every 1 - 2 PKRS of the officers become facilitators in the implementation counseling. The counseling is provided by doctors, pharmacists and nutritionists related to the counseling topic. Diet management planning is quite difficult to be implemented by the patients, yet if it is not adhered to, it will have adverse consequences. According to, no one can comply with instructions if he cannot comprehend the instructions given. This condition occurs since health professionals cannot provide complete information to patients. Good health counseling in providing health education must be comprehended by patients treating hemodialysis therapy to improve patient knowledge of the recommended diet. The education officers require providing positive encouragement to patients in controlling their diet. One of the factors supporting adherence is improving the interaction between health education officers and patients. The patients need an explanation of their condition, what causes their condition, and what they can do to solve it. To improve the diet adherence on hemodialysis patients, it is necessary to have good health education by health educators. Health education can provide complete information to improve the patient's knowledge in every instruction given, and it is expected that patient adherence can be improved in treating the therapy. The strategy in improving patient's comprehension and adherence is hospital health education in providing information. Good health education can improve the patients' comprehension and adherence in treating the disease.¹¹ the research output carried out by at the National Central General Hospital of Dr. Cipto Mangun Kusumo mentioned that the awareness practice of the policy cannot guarantee the sustainability of health education activities, particularly if there are no resources to implement the policy. This means that the existing policy must be realized as a program to be implemented and supported by all resources, not only human resources and funds but also facilities and infrastructure. The output of interviews and

observations carried out in hemodialysis installation Haji Medan Hospital of North Sumatera Government explained that there were 10 patients with bad comprehension. The patients often asked about recommended foods, prohibited food, and high protein food. There were 7 patients not adhering to the recommended diet. This lack of comprehension and non - adherence of the patients was assumed due to the less optimal health promotion implemented by health officers. The output of the interview and observations of these 10 patients explained that promotion implemented by the health officer in the hemodialysis installation Haji Medan Hospital of North Sumatera Government is only done without planning the diet material counseling Through health education, it is expected to the changed behavior of the patients.¹³ Health education is expected to improve patient comprehension or adherence to the recommended diet on hemodialysis, so the complications do not occur and improve the patients' life quality in hemodialysis therapy. From the problems above, the researcher wants to

The Question Formulation

Due to the previous background, the researchers are interested in finding out whether health education influences patient adherence to diet therapy treatment in the hemodialysis unit at Haji Medan Hospital of North Sumatera Government in 2021?

MATERIALS AND METHODS

Research Method

The research type used was a pre - experimental design. This study used one group pre - test and post - test design without a control group. The research location was in the hemodialysis unit at Haji Medan Hospital of North Sumatera Government. The populations of the study were all chronic kidney patients as referral patients in December 2020 at Haji Medan Hospital of North Sumatera Government. The total populations are 40 patients. The samples were 20 respondents found out by using the purposive sampling technique.

RESULTS

Out of Research General Description

Haji Medan General Hospital of North Sumatera Government is a class B hospital used as the main health referral hospital in North Sumatra and its surrounding area. The total area of Haji Medan Hospital is 60,002 M₂, and the total building area is 13,837 M₂. The Haji Medan General Hospital of North Sumatra Government is located on Rs. Haji Medan Estate Medan Street, Deli Serdang District and in the border of Medan.

The vision of Haji Medan Hospital is to be a superior hospital and referral center that is Islamic, environmental friendly, competitive in both national and international standards. The missions of Haji Medan Hospital include:

- Improving human resources' professionalism, integrity, and religious competence at the Medan Haji General Hospital, North Sumatra Province,
- Improving the facilities and infrastructure quality of Haji Medan General Hospital based on national and international standards using the comfort and safety principles,
- Improving the prosperity of human resources at the Haji Medan General Hospital, North Sumatra Province through the Public Service Institution Financial Management Pattern,
- Improving health service range facilities,
- Improve the quality of transparent, clean, friendly, safe and comfortable services and go green, healthy environment.

Haji Medan Hospital has various types of medical services. Medical services at Haji Medan Hospital consist of 20 polyclinics, *i.e.* surgery, pediatrics, internal disease, obstetrics and gynecology, eyes, skin and venereal disease, neurology, psychiatry, lung disease, dentistry, ENT, cardiology, physiotherapy, orthopedics, TB dots, VCT Voluntary Counseling and Testing, hemodialysis and emergency installation. The number of bed facilities at Haji Medan Hospital are 245 beds consisting of 2 beds for suite rooms, 2 beds for super VIP rooms, 27 beds for VIP rooms, 68 beds for class III adult, 16 beds for class III kids, 9 beds for PICU / NICU rooms, 9 beds for baby rooms, 29 beds for class II rooms, 23 beds for class I room, 44 beds for COVID isolation rooms, 10 beds for hemodialysis rooms, 12 beds for ICU, and 1 operating room.

Univariate Analysis

Respondent Characteristic: Respondent characteristics in the hemodialysis unit at Haji Medan Hospital of North Sumatra Government in 2021 were categorized by age, educational background and job description. The Respondent characteristics can be detail described in Table 1 attached in the appendix. Based on table 1, most of the patients in the hemodialysis unit at Haji Medan Hospital of North Sumatra Government in 2021 have the age between 45 - 60 years, *i.e.*, 15 respondents (75.0 %), have the educational background of junior high school, *i.e.*, 10 respondents (50 %), and entrepreneurs as job description, *i.e.*, 10 respondents (50.0 %).

No	Demographics Data	Frequency	Percentage (%)
1	Age		
	<45 years old	2	10
	45-60 years old	15	75
	>60 years old	3	15

Total	20	100
2	Educational Background	
	Elementary School	2
	Junior High School	10
	Senior High School	6
		2
	Total	20
3	Job Description	
	Housewife	8
	Entrepreneur	10
	Government Staff	2
	TOTAL	20

Table 1. Respondent Characteristics in Hemodialysis Unit.

The Patients Adherence of Diet Therapy Treatment before Health Education Counseling in Hemodialysis Unit

The patient adherence data of Diet Therapy Treatment before Health Education Counselling in Hemodialysis Unit at Haji Medan General Hospital of North Sumatra Government in 2021 can be detail in Table 2, attached in the appendix. Table 2 of patient adherence of diet therapy treatment before health education counselling on hemodialysis patients at Haji Medan Hospital of North Sumatera Government in 2021 informs that the majority of the respondents are non - adherence as 12 respondents (60.0 %).

Diet Adherence	Frequency	%
(Pre-test)		
Adherence	8	40
Non-adherence	12	60
Total	20	100

Table 2. The Patient Adherence of Diet Therapy Treatment before Health Education Counseling in Hemodialysis Unit.

The Patients Adherence of Diet Therapy Treatment after Health Education Counselling in Hemodialysis Unit

The patient adherence data of Diet Therapy Treatment after Health Education Counselling in Hemodialysis Unit at Haji Medan General Hospital of North Sumatra Government in 2021 can be detail explained in Table 3, attached in the appendix. Table 3 of patient adherence to diet therapy treatment after health education counselling on hemodialysis patients at Haji Medan Hospital of North Sumatera Government in 2021 informs that the majority of the respondents are adherence as 16 respondents (80.0 %).

Diet Adherence	Frequency	%
(Post-test)		
Adherence	16	80,0
Non-adherence	4	20,0
Total	20	100

Table 3. The Patient Adherence of Diet Therapy Treatment after Health Education Counseling in Haemodialysis Unit.

The Influences of Health Education on Patient Adherence of Diet Therapy Treatment in the Hemodialysis Unit

The statistical test output of health education influences on patient adherence to diet therapy treatment in the hemodialysis unit at Haji Medan Hospital of North Sumatera Government in 2021 can be detail explained in Table 4, attached in the appendix.

Diet Adherence	Health Education		Ranking Alteration	P value
	Pre-Test	Post-Test		
	F	F		F
Adherence	8	16	Positive Ranking	0
Non - Adherence	12	4	Negative Ranking	8 0,005*
			Ties	1 2

Table 4. The Influences of Health Education on Patient Adherence of Diet Therapy Treatment in the Haemodialysis Unit.

Description: a) Wilcoxon test

The alteration of patients' diet adherence:

- The negative ranking is the change of previous and after conditions from the "non - adherence" category to the "Adherence" category
- The positive ranking is the change of previous and after conditions from the "Adherence" category to the "non - Adherence" category
- Ties mean that there is no change in patients' diet adherence to the previous and after conditions.

Table 4 explains that the on - patient adherence to diet therapy treatment in hemodialysis before and after health education counseling has changed. The patient adherence before health education counseling, there was 8 patients' adherence, and it improved to 16 patients after health education counseling. While patients were non - adherence before health education counseling, there were 12 patients, and it was reduced to 4 patients after health education counseling. The outputs of statistical tests using the Wilcoxon test inform that $p < \alpha$ as $0.005 < 0.05$, meaning that H_0 is rejected so that there is a significant influence between health education and patient's adherence to diet therapy treatment in the hemodialysis unit at the Haji Hospital Medan, North Sumatera Government in 2021. The output explains that health education is proven to improve patients' adherence to diet therapy treatment in the hemodialysis unit at the Haji Hospital Medan, North Sumatera Government, in

2021.

DISCUSSION

The Patients Adherence of Diet Therapy Treatment before Health Education Counseling in Hemodialysis Unit

The output of patient adherence to diet therapy treatment before health education counseling on hemodialysis patients at Haji Medan Hospital of North Sumatera Government in 2021 informs that the majority of the respondents are non - adherence as 12 respondents (60.0 %). The objective of the diet on chronic renal patients in treating hemodialysis therapy is preventing nutritional deficiencies and maintaining and improving nutritional status creating patients can carry out normal activities, maintain fluid and electrolyte balance and keep the metabolic waste products accumulation from being excessive. Diet management planning is quite difficult to be implemented by the patients, yet if it has not been adhered to, it will have adverse consequences. According to, no one can comply with instructions if he cannot comprehend the instructions given. This condition occurs since health professionals cannot provide complete information to patients. Good health counseling in providing health education must be comprehended by patients treating hemodialysis therapy to improve patient knowledge of the recommended diet. The education officers require providing positive encouragement to patients in controlling their diet. One of the factors supporting adherence is improving the interaction between health education officers and patients. The patients need an explanation of their condition, what causes their condition, and what they can do to solve it. To improve diet adherence on hemodialysis patients, health educators must have good health education. Health education can provide complete information to improve the patient's knowledge in every instruction given, and it is expected that patient adherence can be improved in treating the therapy.

The Patients Adherence of Diet Therapy Treatment after Health Education Counseling in Hemodialysis Unit

The output of patient adherence to diet therapy treatment after health education counseling on hemodialysis patients at Haji Medan Hospital of North Sumatera Government in 2021 informs that the majority of the respondents are adherence as 16 respondents (80.0 %). It indicates that the counseling activity by providing health education capable of improving diet adherence on hemodialysis patients. Health education methods including counseling activities, distributing leaflets, creating posters effectively change the behavior. Health education methods using lectures and discussion can improve the patients' comprehension of managing the proper hemodialysis diet and

improve the patients' adherence to be implemented at home. The material distribution using the booklet can facilitate the patients in receiving information and minimize misunderstandings.¹⁴ According to another factor improving the patients' comprehension is media utilization, including pictures, writing, and sounds. It strengthens respondents to improve adherence. Another factor affecting adherence is the duration of hemodialysis treatment. The output of this study indicates that the patients have treated hemodialysis therapy for 1 - 3 years, impacting the diet adherence of hemodialysis patients. This study is in line with research conducted by that the longer patients treat hemodialysis, the more adherences to health education.¹⁵ The long duration of the patients treats hemodialysis impacts the comprehension, attitudes and diet adherence. Each patient requires a different amount in comprehending the knowledge.¹⁶ the output indicates a significant diet adherence improvement of all respondents due to health education counseling. This activity is capable to increase diet adherence. The leaflet using as supporting media improve adherence. The leaflet is an image or visual media containing a repetition of counseling material provided by using short and clear to be easy to understand, systematically designed by illustrations to attract the readers. The researchers consider that leaflets are very effective as a health education medium. The size is small, and it is easy to be carried. The fluid diet counseling supports the patients in the hemodialysis unit of Haji Medan Hospital to better understand and encourage them to behave positively in managing the fluid supply with their self - awareness. It is expected that they can improve their life quality.

The Influences of Health Education on Patient Adherence of Diet Therapy Treatment in the Hemodialysis Unit

The data analysis explains that patient adherence to diet therapy treatment in hemodialysis before and after health education counseling has changed. The patient adherence before health education counseling, there was 8 patients' adherence, and it improved to 16 patients after health education counseling. While patients were non - adherence before health education counseling, there were 12 patients, and it was reduced to 4 patients after health education counseling. The outputs of statistical tests using the Wilcoxon test inform that $p < \alpha$ as $0.005 < 0.05$, meaning that H_0 is rejected so that there is a significant influence between health education and patient's adherence to diet therapy treatment in the hemodialysis unit at the Haji Hospital Medan, North Sumatra Government in 2021. The output explains that health education is proved to be effective in improving the patients' adherence to diet therapy treatment in the hemodialysis unit at the Haji Hospital Medan, North Sumatra Government, in 2021. In this study, health education using media effectively improved the

knowledge of respondents' diet adherence. Media can support respondents in remembering the information provided because media involves several senses such as sight and feeling senses. The more senses involved in receiving information, the more knowledge can be achieved and remembered. Media involve the sight sense for the respondents must read the information provided, and they can repeat the information without involving the hearing sense. The health education of kidney failure diet by using booklet media has increased significantly. According to WHO quoted by mentioned that behavior change can be achieved by providing information to improve knowledge and to raise awareness. It is expected that they will behave according to their knowledge. One of the health promotions in this study supported by media is by using booklet. The booklet some sheets of paper containing materials for hemodialysis patients' diet packaged attractive and completed with color pictures. If the distributed material is missed or not understood, they can repeat the information by reading the booklet. The community, particularly the hemodialysis patients, has a good education level to understand the information provided in the booklet to improve the respondents' comprehension. The output study indicates that health promotion using media particular booklets can improve the respondents' knowledge. The output also shows that the requirement for various information, reading and prop materials is absolutely necessary to support health education in the hospital. Mentioned that most Indonesian communities are still dominated by oral culture compared to written / reading culture. Referring to this opinion, it is possible that the lack of reading materials and reading interest of the medical officers impacting the health promotion program will not be as the expectation. It can be analyzed that health education using media has a positive effect on improving patient understanding. The simulation interventions such as good methods are capable to improve hemodialysis patients' comprehension. This is in line with the research conducted by mentioning that there is an effect of good methods of health promotion on public knowledge.¹⁷ the diet method purpose of hemodialysis patients is behavior awareness to the daily healthy lives (changing healthy living behavior both physically and mentally). It is expected to improve the better life quality including physical, mental, and social. After receiving health promotion, the knowledge and attitude improvement can change the patient behavior from endangering health behaviors to conducive behaviors for current and future health. Health education becomes a process to change individuals, groups and society towards positive behavior through the learning process. These changes include knowledge, attitudes and skills through the health education process. The behavior changes also include the emotional, knowledge, mind, desires, and real action of individuals, groups and

society. That behavior can change if there is an imbalance between the two potential inside.

CONCLUSION

According to the above Explanation of the Study Outputs and Discussion, it can be concluded as below

- The patients' adherence to diet therapy treatment before health education counseling on hemodialysis patients at Haji Medan Hospital of North Sumatera Government in 2021 informs that the majority of the respondents are non-adherence as 12 respondents (60.0 %).
- The patients' adherence to diet therapy treatment after health education counseling on hemodialysis patients at Haji Medan Hospital of North Sumatera Government in 2021 informs that the majority of the respondents are adherence as 16 respondents (80.0 %).
- There is a significant influence between health education and patients' adherence to diet therapy treatment in the hemodialysis unit at the Haji Hospital Medan, North Sumatra Government, in 2021. The output explains that health education is proved to be effective in improving patients' adherence to diet therapy treatment in the hemodialysis unit at the Haji Hospital Medan, North Sumatra Government, in 2021.

SUGGESTIONS

Based on the Study Outputs, the Researchers Require Giving Several Suggestions as below

- For the health officers the health promotion officer of the hospital should implement PKRS of good diet therapy on hemodialysis patients comprehensively and equally to all patients.
- For the hospital the hospital should improve the health promotion, including health promotion material, health promotion media equipment, *i.e.*, TV spot and leaflet in attractive design on diet therapy adherence on hemodialysis patients and can be distributed. It is also required to improve the health promotion method by using an individual approach to change the patients' behaviors in respecting the special diet therapy

adherence on hemodialysis patients.

- For the next researchers. It is expected that the next researchers will improve the knowledge and provide information of health education on diet adherence by using other methods and producing better output in the future.

ACKNOWLEDGEMENT

A thank you to Universities Ubudiyah Indonesia for providing financial support in this study.

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