

# The Relationship of Individual Characteristics and Implementation of Discharge Planning with Compliance Level of Patients with Chronic Kidney Disease

Short Title: Individual characteristics, Discharge Planning and Compliance Level

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## **ABSTRACT**

*The purpose of this study was to determine the relationship between individual characteristics and discharge planning implementation with the compliance level of chronic kidney disease patients undergoing hemodialysis. A cross sectional design during July - September 2020 with 105 respondents using simple random sampling. The independent variables were individual characteristics and implementation of discharge planning and the dependent variable was adherence. Data were collected using a questionnaire that was tested for validity and reliability, then data were analyzed using Chi Square test with a significance value  $P < 0.05$ . Respondents with the highest adherence were women (88.9%;  $P = 0.015$ ), age range 46 - 55 years (87.8%;  $P = 0.033$ ), married status (81.1%;  $P = 0.031$ ), working (89.5%;  $P = 0.028$ ), Secondary education level (84.2%;  $P = 0.043$ ), good knowledge (85.1%;  $P = 0.026$ ), long hemodialysis > 5 years (93.3%;  $P = 0.016$ ) and had a history of diabetes mellitus (90.9%;  $P = 0.035$ ). The discharge planning element also has significant relation (all  $P < 0.05$ ), including sufficient medication (90.0%), a good environment (88.9%), good treatment (100.0%), good health teaching (87.0%), good outpatient referral (100.0%) and good diet (86.7%). The level of compliance of hemodialysis patients is very important to improve the quality of life of patients, patient compliance is influenced by the demographic characteristics of the individual and discharge planning in the hospital.*

**Keywords:** chronic kidney disease; demographic; discharge planning; hemodialysis

## 1. INTRODUCTION

The prevalence of sufferers of chronic kidney failure is increasing worldwide and is a global health threat(1). Indonesian Renal Registry (IRR) in 2016 states that as many as 98% of people with kidney failure undergo hemodialysis therapy (2,3). In undergoing dialysis, the client must change all aspects of his life by visiting the hemodialysis unit regularly 2-3 times a week(4,5), be consistent with the drugs consumed(5,6), adjust daily fluid intake and modify his diet(7). This complex treatment is a heavy burden for patients undergoing hemodialysis and their families(8,9), often resulting in failure of therapy and worsening prognosis(10,11). The main factor causing treatment failure and worsening condition is patient non-compliance with medication(12,13), hemodialysis measures and daily health management(14).

USRDS data in 2013 contained 661,648 people experiencing end-stage chronic kidney disease(15). According to 2013 Rikesdas data, the number of kidney failure patients in Indonesia is around 0.2 ‰ or 2 per 1000 population, with a total of 499,800 people with chronic kidney disease(9,14). Chronic kidney disease (CKD) was the 27th cause of death in the world in 1990 and increased to 18th in 2010. Research reports a high rate of non-adherence to hemodialysis patients, especially with regard to fluid intake restrictions and dietary restrictions, namely between 30-81.4%(5,8). Inadequate self-management and patient non-compliance with health management such as fluid and dietary restrictions, medication and dialysis implementation can cause serious consequences for hemodialysis patients(7,10), including causing excessive circulatory load, decreased bone health, edema to severe cardiovascular disorders, disorders. cognitive function, increased risk of hospitalization, and even death threats(16).

Therapeutic management of chronic kidney disease is to help slow the progression of the disease(2). In chronic kidney disease patients, the focus of dietary therapy is limiting excessive electrolyte intake. A diet that is restrictive will change the lifestyle and is perceived by the patient as a nuisance and is disliked for many people with chronic kidney failure, thus making many patients neglect (17,18). This non-compliance will cause electrolyte buildup in the body and can lead to death. Adherence in patients with chronic kidney disease can be observed and measured, so that periodic monitoring of non-compliance with hemodialysis patients can be carried out, which includes non-adherence to the hemodialysis program, non-adherence to fluid restriction, non-adherence to taking medication and non-adherence to following a diet program(19–21). Adherence is a very important element in improving the quality of life and health of patients with chronic kidney disease, so it is necessary to observe the factors that affect patient compliance(21,22).

One of the knowledge of patients and families in compliance is formed because of the implementation of education during optimal discharge planning, however, there are still many discharge planning implementations that only provide incomplete patient knowledge, causing patients and families to not understand the importance of maintaining compliance(5,18). This study is important because of the high prevalence of patient non-adherence to health management leading to acute and chronic complications, affecting the length of stay of patients undergoing hemodialysis(19). It can even impact a country's health system on the financing of patient care. The purpose of this study was to determine the

relationship between individual characteristics and discharge planning implementation with the compliance level of chronic kidney disease patients undergoing hemodialysis.

## 2. METHODS

Quantitative research with cross sectional design(23) was carried out during July - September 2020 at Muhammadiyah Lamongan Hospital and Surabaya Haji Hospital. The study population was patients with chronic kidney disease who underwent hemodialysis and were not adherent to treatment. The sample of this study was 105 respondents with a sampling technique using simple random sampling which was divided into 50 respondents at the Muhamadiyah Hospital in Lamongan and 55 respondents at the Haji Hospital, Surabaya. The independent variables of this study are individual characteristics (age, gender, employment status, occupation, education, length of hemodialysis, medical history and knowledge) and implementation of discharge planning (medication, environment, treatment, health teaching, outpatient referrals and diet), while The dependent variable of this study was adherence to chronic kidney disease patients. The data were collected using a questionnaire that was tested for validity and reliability. Data collection was performed using a demographic characteristic data questionnaire and modified discharge planning questionnaire (24)and patient compliance(24). The research was started by conducting licensing and ethical tests. This study has passed the institutional review board from the Faculty of Nursing, Universitas Airlangga, Surabaya with certificate number 2009 / KEPK / 2018. The researcher then determined the respondent and was given a questionnaire with a Likert scale with a score of strongly agree = 4, agree = 3, disagree = 2 and strongly disagree = 1, while unfavorable questions are the opposite. The data were then analyzed using SPSS version 22 software with the data analysis technique using the Chi Square test with a significance value of significant test results if  $P < 0.05$ .

## 3. RESULTS

There were 105 respondents with chronic kidney disease who underwent hemodialysis in hospital, the relationship between the dependent and independent variables was analyzed using chi square. Before inferential analysis, the results of the research data were analyzed using descriptive analysis based on the demographic characteristics of the respondents and research variables.

Data on the demographic characteristics of research respondents in each hospital showed almost the same results. At Muhammadiyah Hospital, Lamongan shows that the majority of respondents are male (49.1%) and in the age range 46-55 years (49.1%). Marital status 87.3% are married and 59.9% of respondents are still working. The level of secondary education is the most dominant (54.5%) with a history of comorbidities that most are hypertension (65.5%) and the length of undergoing hemodialysis. Respondents at Muhammadiyah Lamongan Hospital showed similar characteristics, the majority of respondents were male (66.0%) with 56-65 years of age at most (44.0%). The respondents' marital status indicates that they are married (94.0%) with 80% of the respondents not working. The highest level of education is secondary education (54.0%), the length of hemodialysis is mostly 1-12 months (48.0%) and hypertension (54.0%) is also involved. The client's level of knowledge about

fluid restrictions is the majority of the knowledge level is in the good category at the Muhammadiyah Hospital Lamongan and the sufficient category at the Surabaya Hajj Hospital. This means that the level of client knowledge at Muhammadiyah Lamongan Hospital is better, but there are still 38.2% respondents with sufficient knowledge and 12.7% respondents with less knowledge (Table 1).

The implementation of Discharge planning shown in table 5 shows that the implementation is still in the adequate category in both hospitals, with the Hajj Hospital showing less discharge planning, namely 9 people (18.0%), while in Muhammadiyah Lamongan Hospital only 3 respondents ( 5.5%). Discharge planning that has the most shortcomings is in the process of delivering education to respondents and their families, so that it will affect the knowledge and compliance of respondents in managing kidney failure and the hemodialysis process (Table 2).

Based on table 3, the results show that the level of compliance of respondents in restricting fluids is in the sufficient category in both hospitals, with the Hajj Hospital showing that more respondents have less compliance, namely 15 people (30.0%), while at Muhammadiyah Hospital Lamongan only 3 respondents (12.7%). This shows that the level of compliance of respondents still needs to be improved, because fluid restrictions are things that need attention. Based on the results of the analysis of the answers to the respondents' questionnaires, the highest non-compliance was on fluid and diet restrictions, while for hemodilysis sessions and taking medication, it was still better. Based on the results of interviews conducted with nurses in the Hemodialysis room of Muhammadiyah Hospital in Lamongan, the level of patient compliance still needs improvement because there are still many patients who are getting bored with hemodialysis, so that patient compliance is only around 75%.

The level of compliance of hemodialysis patients based on the results of the analysis showed a significant relationship with patient demographic characteristics. Respondents with the highest adherence were women (88.9%;  $P = 0.015$ ), age range 46 - 55 years (87.8%;  $P = 0.033$ ) and married (81.1%;  $0.031$ ). Respondents who work are more obedient than those who do not work (89.5%;  $P = 0.028$ ). Secondary education level (84.2%;  $P = 0.043$ ) and good knowledge (85.1%;  $P = 0.026$ ) also had higher adherence. Likewise, respondents who had undergone long hemodialysis > 5 years (93.3%;  $P = 0.016$ ) and had a history of diabetes mellitus (90.9%;  $P = 0.035$ ) were also more adherent in undergoing treatment (Table 4).

The discharge planning implementation showed in Table 5 both two hospitals had a significant relationship with patient compliance. The discharge planning element also has a contribution in implementing discharge planning, including medication showing a sufficient level of compliance (90.0%), a good environment (88.9%), good treatment (100.0%), good health teaching (87.0%), outpatient. good referral (100.0%) and good diet (86.7) had a significant association with patient adherence (all  $P < 0.05$ ).

#### **4. DISCUSSION**

The level of compliance of the hemodialysis patient is influenced by the demographic characteristics of the individual and the implementation of discharge planning in the hospital. Characteristics of individual personal consisting of gender, age, marital status, occupation,

education level and knowledge. The personal factor that is most dominant in influencing the compliance of respondents in undergoing treatment and hemodialysis is gender, women show a better level of adherence than men. Women are more likely to maintain health. This is in line with research showing that in general women are more aware and concerned about their health and are more likely to undergo treatment than men(25,26). Because women will often complain about experiencing pain in themselves if there is a change that is felt. Women will be more sensitive and in accordance with the results of research which shows that gender is one of the factors that influence health behavior, including in regulating diet(18,27). Women use health facilities more often than men, and women participate more in health checks, so that women are also more compliant in undergoing restrictions to improve their quality of life.

The age of an individual is also a measure of adherence in undergoing treatment, parents will tend to give up easily because they think that their life is only a short time, in contrast to young people who must continue to fight for their lives, so that adherence also decreases in the elderly group(28,29). The level of compliance also shows better results for married individuals because of the support system from the spouse and family that makes them more comfortable, besides that there is also a reminder when they forget or decrease motivation(3,16).

Respondents who work are more obedient than those who do not work, the reason is that respondents who work will continue to maintain stamina and stability so that they can continue their activities without worsening their condition, so they will maintain their diet, stress patterns, rest and also often consult with health workers (7,11). Patients who are accustomed to undergoing hemodialysis will continue to do it regularly because they feel the effect is better after dialysis is done. The more often it is done, the habits will be formed and the more knowledge will be obtained because it is often educated by health workers(16,29). Individuals with a higher level of education will better understand and be able to maintain health patterns, so that it is not too easy. However, this is not in accordance with a study which says that individuals with higher education tend to ignore and like to disbelieve if they do not experience it directly, while respondents with low education are more likely to receive health education and try to remember what has been taught(24).

The level of patient adherence is most closely related to the level of patient understanding of the disease, procedures and treatment given. The implementation of discharge planning in the hospital is an important thing because it will affect the success rate of therapy(30,31). Discharge planning should pay attention to medication, environment, treatment, health teaching and diet. When the patient is admitted to the hospital, the discharge planning process has started, the patient and family are given education to make them independent when the patient leaves the hospital(32,33). Nurses and other health workers will provide provision regarding fluid restrictions, diet restrictions, medication management and routine controls to the hospital(34,35). This is in line with research that shows that the quality of life of hemodialysis patients requires health restoration efforts, for example following dietary rules, following doctor's recommendations, in the context of restoring health(36,37). Dietary

compliance is the patient's active involvement in following dietary rules so that the amount of electrolytes in the patient's body is not too high, so that the kidneys do not increase their work. The main goals of treating kidney disease patients undergoing hemodialysis are to improve adherence, prevent complications and improve quality of life so that patients can have a longer life time(38,39). This study in the data collection process also has limitations in the study, the limitation obtained by the author is that the condition of community compliance in routine control is also influenced by the current pandemic factor, so that one of the factors of patient non-compliance is fear of the risk of contracting the virus.

## 5. CONCLUSION

The level of compliance of hemodialysis patients is very important to note to improve the quality of life of patients, patient compliance is influenced by the demographic characteristics of the individual and discharge planning in the hospital. The most dominant factor in the personal characteristics of an individual is age, while in the implementation of discharge planning is the treatment provided by health workers.

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## Conflict Of Interest

The authors declare that they have no conflict of interest.

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Table 1. Demographic Characteristics of Research Respondents

Demographic Characteristics	Muhammadiyah Lamongan Hospital (n = 55)		Surabaya Hajj Hospital (n = 50)		Total (n = 105)	
	N	%	N	%	N	%
<b>Gender</b>						
Male	27	49.1	33	66.0	60	57.1
Female	28	50.9	17	34.0	45	42.9
<b>Age</b>						
21-25 Years	1	1.8	3	6.0	4	3.8
26-35 Years	8	14.5	2	4.0	10	9.5
36-45 Years	9	16.4	9	18.0	18	17.1
46-55 Years	27	49.1	14	28.0	41	39.0
56-65 Years	10	18.2	22	44.0	32	30.5
<b>Marital Status</b>						
Married	48	87.3	47	94.0	95	90.5
Single	5	9.1	3	6.0	8	7.6
Widow/ Widower	2	3.6	0	0.0	2	1.9
<b>Occupation</b>						
Working	28	50.9	10	20.0	38	36.2
Does not working	27	49.1	40	80.0	67	63.8
<b>Education</b>						
Basic	10	18.2	11	22.0	21	20.0
Middle	30	54.5	27	54.0	57	54.3
High	15	27.3	12	24.0	27	25.7
<b>Hemodialysis duration</b>						
1-12 Month	12	21.8	24	48.0	36	34.3
> 1-3 Years	11	20.0	10	20.0	21	20.0
> 3-5 Years	24	43.6	8	16.0	32	30.5
> 5 Years	8	16.0	8	16.0	16	15.3
<b>History of Illness</b>						
Hypertention	36	65.5	27	54.0	63	60.0
Diabetes Mellitus	12	21.8	10	20.0	22	21.0
Others	7	12.7	13	26.0	20	19.0
<b>Knowledge</b>						
Bad	7	12.7	7	14.0	14	13.3
Moderate	21	38.2	23	46.0	44	41.9
Good	27	49.1	20	40.0	47	44.8

Table 2. Implementation of Discharge Planning Based on Hospitals on July 15-30, 2020 (n = 105).

<i>Discharge PLanning</i>	<b>Muhammadiyah Lamongan Hospital (n = 55)</b>		<b>Surabaya Hajj Hospital (n = 50)</b>		<b>Total (n = 105)</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>N</b>	<b>%</b>	<b>N</b>
<i>Medication</i>						
Less	32	58.2	34	68.0	66	62.9
Moderate	14	25.5	16	32.0	30	28.6
Good	9	16.4	0	0.0	9	8.6
<i>Environment</i>						
Less	29	52.7	29	58.0	58	55.2
Moderate	20	36.4	18	36.0	38	36.2
Good	7	10.9	3	6.0	9	8.6
<i>Treatment</i>						
Less	28	50.9	33	66.0	61	58.1
Moderate	20	36.4	14	28.0	34	32.4
Good	7	12.7	3	6.0	10	9.5
<i>Health Teaching</i>						
Less	10	18.2	13	26.0	23	21.9
Moderate	32	58.2	27	54.0	59	56.2
Good	13	23.6	10	20.0	23	21.9
<i>Outpatient Referral</i>						
Less	21	38.2	31	62.0	52	49.5
Moderate	25	45.5	18	36.0	43	41.0
Good	9	16.4	1	2.0	10	9.5
<i>Diet</i>						
Less	21	38.2	36	72.0	57	54.3
Moderate	29	52.7	12	24.0	41	39.0
Good	5	9.1	2	4.0	7	6.7

Table 3. Client knowledge of fluid restriction in kidney failure by Hospital on July 15-30, 2020 (n = 105).

<b>Adherence</b>	<b>Muhammadiyah Lamongan Hospital (n = 55)</b>		<b>Surabaya Hajj Hospital (n = 50)</b>		<b>Total (n = 105)</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>N</b>	<b>%</b>	<b>N</b>
<i>Fluid restrictions</i>						
Less	11	20.0	18	36.0	29	27.6
Moderate	36	65.5	27	54.0	63	60.0
Good	8	14.5	5	10.0	13	12.4
<i>Diet restrictions</i>						
Less	3	5.5	14	28.0	17	16.2
Moderate	46	83.6	34	68.0	80	76.2
Good	6	10.9	2	4.0	8	7.6
<i>Medicine</i>						
Less	3	5.5	1	2.0	4	3.8
Moderate	52	94.5	49	98.0	101	96.2
Good	0	0.0	0	0.0	0	0.0
<i>Dyalisis Session</i>						
Less	2	3.6	4	8.0	6	5.7
Moderate	53	96.4	46	92.0	99	94.3
Good	0	0.0	0	0.0	0	0.0

Table 4. Relationship between Demographic Characteristics and Patient Compliance Level

Demographic Characteristics	Adherence		P Value
	Obey	Not Obey	
<b>Gender</b>			
Male	47 (78.3)	13 (21.7)	0.015
Female	40 (88.9)	5 (11.1)	
<b>Age</b>			
21-25 Years	4 (100.0)	0 (0.0)	0.033
26-35 Years	8 (80.0)	2 (20.0)	
36-45 Years	15 (83.3)	3 (16.7)	
46-55 Years	36 (87.8)	5 (12.2)	
56-65 Years	24 (75.0)	8 (25.0)	
<b>Marital Status</b>			
Married	77 (81.1)	18 (18.9)	0.031
Single	8 (100.0)	0 (0.0)	
Widow/ Widower	2 (100.0)	0 (0.0)	
<b>Occupation</b>			
Working	34 (89.5)	4 (10.5)	0.028
Does not working	53 (79.1)	14 (20.9)	
<b>Education</b>			
Basic	16 (76.2)	5 (23.8)	0.043
Middle	48 (84.2)	9 (15.8)	
High	23 (85.9)	4 (14.8)	
<b>Hemodialysis duration</b>			
1-12 Month	28 (77.8)	8 (22.2)	0.016
> 1-3 Years	17 (81.0)	4 (19.0)	
> 3-5 Years	27 (84.4)	5 (15.6)	
> 3-5 Years	14 (93.3)	1 (6.7)	
> 5 Years			
<b>History of Illness</b>			
Hypertention	54 (85.7)	9 (14.3)	0.035
Diabetes Mellitus	20 (90.9)	2 (9.1)	
Others	13 (65.0)	7 (35.0)	
<b>Knowledge</b>			
Bad	11 (78.6)	3 (21.4)	0.026
Moderate	36 (81.8)	8 (18.2)	
Good	40 (85.1)	7 (14.9)	

Table 5. Relationship between Discharge Planning Implementation and Patient Compliance Level

Discharge PLanning	Adherence		P Value
	Obey	Not Obey	
<i>Medication</i>			
Less	52 (78.8)	14 (21.2)	0.019
Moderate	27 (90.0)	3 (10.0)	
Good	8 (88.9)	1 (11.1)	
<i>Environment</i>			
Less	48 (82.8)	10 (17.2)	0.018
Moderate	31 (81.6)	7 (18.4)	
Good	8 (88.9)	1 (11.1)	
<i>Treatment</i>			
Less	45 (73.8)	16 (26.2)	0.005
Moderate	32 (94.1)	2 (5.9)	
Good	10 (100.0)	0 (0.0)	
<i>Health Teaching</i>			

Less	18 (78.3)	5 (21.7)	0.035
Moderate	49 (83.1)	10 (16.9)	
Good	20 (87.0)	3 (13.0)	
<i>Outpatient Referral</i>			
Less	41 (78.8)	11 (21.2)	0.006
Moderate	36 (83.7)	7 (16.3)	
Good	10 (100.0)	0 (0.0)	
<i>Diet</i>			
Less	46 (80.7)	11 (19.3)	0.015
Moderate	35 (85.4)	6 (14.6)	
Good	6 (85.7)	1 (14.3)	