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The Relationship between Nurse Support and Compliance Level of Hemodialysis Therapy in Chronic Kidney Failure Patients in the Dialysis Room of Prof. Dr. H. Aloei Saboe Hospital, Gorontalo City

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ABSTRACT

Chronic kidney failure is a growing health problem and requires regular hemodialysis therapy. The success of therapy is determined by the patient's compliance, but it is still found that patients do not comply with the therapy schedule and recommendations. This study aims to analyze the relationship between nurse support and the level of compliance with hedialysis therapy in patients with chronic kidney failure in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City. The research method uses a quantitative design of correlational analytics through a cross-sectional approach. The independent variable is the nurse's support and the dependent variable is the patient's level of compliance with hemodialysis therapy. The population in this study is all patients with chronic kidney failure who underwent hemodialysis as many as 70 patients with total sampling techniques. Data collection using questionnaires and data analysis using the Chi-Square test. The results of the study obtained a p-value = 0.003 ($p<0.05$). The conclusion of this study is that there is a relationship between nurse support and the level of patient compliance undergoing hemodialysis in patients with chronic kidney failure in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City. It is recommended that nurses improve the quality of support through therapeutic education and communication, as well as that patients be more active in increasing awareness and adherence to therapy.

INTRODUCTION

Chronic kidney failure is a disease characterized by a progressive decline in kidney function that interferes with the kidneys' ability to maintain body balance, including metabolic regulation, fluid and electrolyte balance, and the removal of nitrogen waste (Richmond, 2025).

World Health Organization year (WHO) 2023 expressing chronic kidney disease (Chronic Kidney Disease/CKD) ranks as the 10th highest cause of death in the world with the number of deaths reaching 1.3 million people in 2019, an increase of about 46% compared to 2000. This increase is mainly due to the increasing prevalence of diabetes, hypertension, and aging populations that contribute to the risk of CKD globally.

Reports (WHO) in 2024 It shows that chronic kidney failure patients continue to increase with the number of deaths reaching 1.4 million in 2022, up from 1.2 million in 2010. The condition confirms that chronic kidney disease is consistently one of the top ten causes of death in the world, and shows a significant trend of increasing disease burden in the past decade.

Reports International Society of Nephrology (ISN) Global Kidney Health Atlas 2023 revealed that the Asian region is a contributor to more than 50% of the world's CKD cases, with an estimated prevalence of between 10% and 18% in the adult population. Countries such as China, India, Indonesia, and the Philippines are the largest contributors to the high rate, especially due to the increasing prevalence of hypertension and diabetes mellitus (Nephrology, 2023).

Based on the 2018 National Report on Basic Health Research (Riskesdas) published by the Ministry of Health of the Republic of Indonesia, the prevalence of chronic kidney failure (CKD) in the population aged ≥ 15 years reached 0.38%, an increase from 0.2% in the 2013 Riskesdas. This increase illustrates the increasing burden of chronic kidney disease in Indonesia in the last five years. The highest prevalence was recorded in North Kalimantan (0.64%), followed by North Maluku (0.56%), North Sulawesi (0.53%), Gorontalo (0.52%), and Aceh (0.47%), while the lowest prevalence was found in Papua (0.15%), Bali (0.22%), and Central Java (0.24%). Of all GGK patients, around 19.3% reported having or were undergoing hemodialysis therapy, with the highest proportion in DKI Jakarta (38.7%) and the lowest in Southeast Sulawesi (1.99%).

Prevalence chronic kidney failure in Gorontalo Province was recorded at 0.52%, or equivalent to 7,792 patients, placing the Gorontalo area in the fourth highest place nationally and reflecting the high burden of disease compared to the national average of 0.38% (Ministry of Health of the Republic of Indonesia, 2018).

According to the Gorontalo Provincial Health Office report in 2023, cases of chronic kidney failure (CKD) were found in various regional hospitals. It was recorded that Tani and Fisher Hospital recorded 55 inpatient cases and 11 outpatient cases, Dr. Ir. Iwan Bokings Hospital, Boalemo Regency, there were 4 inpatient cases and 6 outpatient cases, Toto Kabila Hospital recorded 435 inpatient cases and 166 outpatient cases, Dr. M.M Dunda Limboto Hospital recorded 32 hospitalization cases and 3,830 outpatient case visits, and Prof. Dr. Dr. Dr. H. Aloei Saboe, Gorontalo City, recorded 266 hospitalizations and a total of 5,469 outpatient case visits. This condition shows that GGK is a health problem that has spread throughout Gorontalo Province.

Based on this data, Gorontalo city is recorded as the region with the highest number of cases of chronic kidney failure in Gorontalo Province, with the largest contribution coming from Prof. Dr. dr. H. Aloei Saboe Hospital, which recorded a total of 5,469 visits to chronic kidney failure patients undergoing hemodialysis in 2023. This number is the highest compared to other hospitals in Gorontalo province in 2023. The next data shows a trend of increasing total visits, reaching 6,316 visits in 2024 and 5,473 visits in 2025, with the 2025 data being recorded until the reporting period in November 2025.

Data for 2025 also shows the number of active hemodialysis patients every month. The number of patients was recorded as many as 83 patients in January, 76 patients in February, and 53 patients in March. In April, there were 59 patients, then 61 patients in May, 72 patients in June, and 75 patients in July. In August and September, the number of patients was recorded at 77 patients each, and in October the number of patients was again recorded at 83 patients.

The treatment of chronic kidney failure patients undergoing hemodialysis therapy does not only focus on medical measures, but also requires ongoing support from health workers, especially nurses. Nurses have a strategic role because they interact directly and intensely with patients during the hemodialysis process, so they have the potential to have a great influence on the attitude, motivation, and behavior of patients in undergoing therapy (Richmond, 2025).

Nurse support is a form of professional assistance provided to patients, including emotional, informational, instrumental, and appraisal support. Emotional support is manifested through empathy, attention, and a caring attitude of the nurse towards the patient's condition. Informational support is provided through education related to diseases, hemodialysis procedures, and treatment recommendations that must be followed. Instrumental support is in the form of direct assistance during nursing actions, while reward support is given in the form of positive reinforcement and motivation to patients (Pradytia, 2025).

Research shows that nurse support plays an important role in increasing patient readiness to undergo hemodialysis therapy. Mukaromudin et al. (2024) states that the role and support of nurses have a significant relationship with patient behavior in undergoing hemodialysis therapy. Patients who receive good nurse support tend to have a better understanding of their illness, feel cared for, and show a more cooperative attitude during the therapy process.

The results of a systematic review and meta-analysis conducted by Arooj et al. (2025) in the journal Healthcare also shows that the nurse-led care model has a positive impact on the health behavior of chronic kidney disease patients. Nurse support through education, counseling, routine monitoring, and psychosocial support has been shown to increase patient involvement in self-care as well as improve the clinical outcomes of hemodialysis patients.

Good therapeutic interaction between nurses and patients allows for a relationship of mutual trust, so that patients are more open in conveying complaints and difficulties experienced during therapy. This condition makes it easier for nurses to provide guidance and reinforcement that suits the patient's needs, as well as encourage patients to undergo therapy optimally (Phyllis) et al., 2024).

The large number of GGK patients undergoing hemodialysis therapy is inseparable from compliance challenges, the success of therapy is highly dependent on the patient's adherence in following the hemodialysis schedule, dietary arrangements, fluid restriction, and recommended treatment regimen (Murtaqib, 2024).

Adherence to hemodialysis schedules is a crucial aspect in the management of patients with chronic kidney failure, but recent evidence suggests that this adherence is not optimal. Research conducted by Alatawi (2024) in the journal Healthcare (MDPI) reported that only 45.5% of patients had good adherence, while 47.9% were moderate, and 6.6% were poor. Relatively high levels of adherence were found in medication consumption (76%)

and attendance on dialysis schedules (75%), while adherence to diet (67.8%) and fluid restriction (62%) was still lower (Alatawi et al., 2024).

Non-compliance of Chronic Kidney Failure patients is not only influenced by individual factors, but is also a multidimensional problem involving psychosocial aspects, such as knowledge, motivation, coping mechanisms, family support, and health worker support. One of the factors that plays a role in increasing compliance is the support of health workers, especially nurses, who have an important role in providing motivation, education, and assistance during the therapy process (Ervina, 2025).

Patient compliance is an essential component in successful management of chronic kidney failure because it includes regularity in executing all predetermined treatment plans. Efforts to achieve this demand the role of nurses in increasing understanding, motivating, and fostering patient awareness of the consequences of every therapeutic decision undergone (Triana et al., 2022). Comprehensive nursing care can strengthen patient adherence to hemodialysis, thereby supporting the effectiveness of therapy while contributing to improving quality of life (Scott) et al., 2024).

The role of nurses is manifested through the ability to listen attentively to patients' complaints, provide explanations about diseases and therapies, and foster trusting relationships. These efforts contribute to increasing patient adherence to hemodialysis while strengthening nurse professionalism (Stuttgart) et al., 2022).

Based on the initial observation of the researcher through interviews with six chronic kidney failure patients undergoing hemodialysis therapy at Prof. Dr. dr. H. Aloei Saboe Hospital, it was obtained that three patients (50%) showed a tendency to non-compliance with the hemodialysis therapy schedule and procedure. This non-compliance is mainly affected by post-dialysis physical complaints, such as recurrent dizziness, fatigue that lasts up to several hours after the procedure, and pain or soreness in the needle insertion area. This condition makes patients sometimes delay their arrival or miss a therapy session because they feel they need additional recovery time. In addition, patients stated that the duration of hemodialysis which ranged from 4–5 hours per session made them feel bored easily. The three patients also said that support in the form of personal greetings, affirmation before action, or reminders about the schedule for the next session helped improve their comfort, although they did not always get this form of support at every hemodialysis session.

Meanwhile, the other three patients (50%) showed good adherence to the hemodialysis schedule. Patients say that they feel calmer when the nurse gives a brief explanation before the procedure or asks about their condition during the hemodialysis process. This kind of attention makes them feel comfortable and more ready to come on schedule. Patients also mentioned that when communication with the nurse went well, they became more confident to undergo therapy without delaying a predetermined schedule.

This condition shows that the compliance of patients with chronic kidney failure in undergoing hemodialysis therapy in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital still needs attention. The differences in patient experiences indicate that nurse support, especially in the form of clear communication, simple attention, and reinforcement during the course of action, can contribute to the patient's readiness to attend according to the hemodialysis therapy schedule.

Based on this description, the researcher is interested in conducting a study on "The Relationship between Nurse Support and the Level of Compliance with Hemodialysis Therapy in Patients with Chronic Kidney Failure in the Dialysis Room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City".

RESEARCH METHODS

This research was carried out in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City on February 9-11, 2026. Types of quantitative research The research design used in this study is quantitative research with a cross sectional approach. Cross sectional research is a type of research that emphasizes the time of measurement/observation of independent and dependent variable data only once at a time. The data collection method in this study uses giving questionnaires to respondents to be filled out independently self-completed questionnaires, with a sample of 70 respondents. This research instrument used a questionnaire of nurse support and patient compliance in undergoing hemodialysis therapy.

RESEARCH RESULTS

Univariate Results

Characteristics of Respondents Based on Demographic Data

Table 1 Characteristics of Respondents by Gender

No.	Gender	Frequency (n)	Present (%)
1.	Male	32	45,7
2.	Women	38	54,3
Total		**70**	**100**

Based on the table above, the characteristics of respondents based on gender show that the majority of respondents are women as many as 38 people (54.3%), while male respondents amount to 32 people (45.7%).

Table 2. Characteristics of Respondents by Age

No.	Age	Frequency (n)	Present (%)
1.	Adults (26-45 years)	21	30
2.	Early Elderly (46-55 years old)	26	37,1
3.	Late Elderly (56-65 years old)	19	27,1
4.	Senior (>65 years)	4	5,8
Total		**70**	**100**

Based on the table above, the characteristics of respondents based on age showed that the majority of respondents were in the early elderly group (46–55 years) as many as 26 people (37.1%). and at least 4 people (5.8%) in the elderly group (>65 years).

Table 3. Respondent Characteristics Based on

No.	Final Education	Frequency (n)	Present (%)
1.	Not Ending	2	2,9
2.	SD	8	11,4
3.	Junior High School	7	10
4.	High School	25	35,7
5.	College	28	40
Total		**70**	**100**

Based on the table above, the characteristics of respondents based on their last education show that respondents with a college education amounted to 28 respondents (40%), and 2 respondents (2.9%) did not graduate, which is the category with the least number.

Table 4. Characteristics of Respondents Based on Employment Status

No.	Employment Status	Frequency (n)	Present (%)
1.	Not Working	40	57,1
2.	Work	30	42,9
Total		**70**	**100**

Based on the table above, data on respondent characteristics based on employment status was obtained showing that most respondents did not work as many as 40 respondents (57.1%), while respondents who worked amounted to 30 respondents (42.9%).

Table 5. Characteristics of Respondents Based on Marital Status

No.	Marital Status	Frequency (n)	Present (%)
1.	Married	70	0
2.	Unmarried	0	100
Total		**70**	**100**

Based on the table above, all respondents in this study had married status as many as 70 respondents (100%).

Table 6. Characteristics of Respondents Based on the Length of Time They Have Undergone Hemodialysis Therapy

No.	Long Hemodialysis	Frequency (n)	Present (%)
1.	>6 months	5	7,1
2.	6-12 months	15	21,4

3.	1-3 years	30	42,9
4.	3-6 years	10	14,3
5.	6-10 years	10	14,3
Total		**70**	**100**

Based on the table above, respondent characteristics data based on the length of time they underwent hemodialysis therapy showed that the majority of respondents were in the 1-3 year category of 30 respondents (42.9%), while respondents with a duration of hemodialysis <6 months were the least category, namely 5 respondents (7.1%).

Table 7. Distribution of Respondents Based on Nurse Support

Nurse Support	Frequency (n)	Present (%)
Good	40	57,1
Enough	20	28,6
Less	10	14,3
Total	**70**	**100**

Based on the table above, the distribution of nurse support respondents in patients with chronic kidney failure who underwent hemodialysis therapy showed that most of the respondents received nurse support in the good category, namely 40 respondents (57.1%).

Table 8 Distribution of Respondents Based on Compliance with Hemodialysis Therapy

Therapy Compliance	Frequency (n)	Present (%)
Obedient	47	67,1
Non-compliant	23	32,9
Total	**70**	**100**

Based on the table above, the distribution of respondents based on compliance with hemodialysis therapy showed that most respondents had 47 respondents (67.1%), while respondents with non-compliance amounted to 23 respondents (32.9%).

Bivariate Results

Table 9. The Relationship of Nurse Support with the Level of Compliance with Hemodialysis Therapy in the Dialysis Room

Nurse Support	Adherence to hemodialysis therapy				Total	*p-value*
	Obedient		Non-compliant			
	n	%	n	%		
Good	33	82,5	7	17,5	40	0.003 (<0.05)
Enough	11	55	9	45	20	
Less	3	30	7	70	10	
Total	47	67,1	23	32,9	70	

Based on the table above, the bivariate analysis shows that respondents with the support of good category nurses mostly have adherence to the compliant category of hemodialysis therapy, namely 33 respondents (82.5%), while respondents who do not comply amounted to 7 respondents (17.5%).

In respondents with sufficient nurse support, it was found that 11 respondents were compliant (55%), while respondents who were non-compliant were 9 respondents (45%).

Furthermore, in respondents with poor nurse support, most respondents had non-compliance, namely 7 respondents (70%), while respondents who complied were only 3 respondents (30%).

The results of the statistical test using the Chi-Square test obtained a p-value = 0.003 ($p < 0.05$), so it can be concluded that there is a significant relationship between nurse support and hemodialysis therapy adherence.

DISCUSSION

Nurse Support for Chronic Kidney Failure Patients Undergoing Hemodialysis Therapy in the Dialysis Room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City

Based on the results of the study on patients with chronic kidney failure who underwent hemodialysis therapy in the Dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City, it was found that the majority of respondents received nurse support in the good category, namely 40 respondents (57.1%), respondents with the support of nurses in the sufficient category amounted to 20 respondents (28.6%), while the poor category was the least proportion, namely 10 respondents (14.3%). These findings show that in general, nurses have provided optimal support in the hemodialysis service process, although there are still some patients who feel that support is not fully optimal.

The service situation in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital Gorontalo City shows the availability of 15 units of hemodialysis machines with a total of 9 nurses. In the practice of hemodialysis services, a nurse often treats more than one patient at the same time during the therapy process which lasts about 4–5 hours. This workload has the potential to limit the intensity of interaction between nurses and patients, especially in providing psychosocial support such as therapeutic communication, motivation, and in-depth health education to patients.

Pasaribu's research (2022) states that nurses in the hemodialysis unit have complex responsibilities, including monitoring dialysis procedures, nursing measures, and providing health education to patients. High workloads can affect the quality of interaction between nurses and patients, so the provision of nursing support cannot always be done optimally. Research conducted by Kuswandi (2024) also shows that the workload of nurses can affect the quality of therapeutic communication provided to patients, because the high workload can limit the time of interaction between nurses and patients in nursing services.

In the context of the nurse support dimension, the limited interaction time has more effect on emotional support and informational support, as these two forms of support require intensive communication between nurses and patients. Emotional support such as empathy, attention, and motivation requires good interpersonal relationships, while informational support in the form of education about therapy schedules, dietary arrangements, and fluid restriction requires repeated and consistent explanations. This can explain that there are still a small number of respondents who consider nurse support to be in the poor category, even though overall nurse support in this study is in the good category.

These findings are in line with the Social Support theory of House (1981) Cohen & Wills (1985) which states that interpersonal support plays a role in shaping individual health behaviors through increased motivation, confidence, and ability to cope with stress. In the context of hemodialysis services, nurses are the health workers who interact with patients the most, so they have a strategic position in influencing patient compliance behavior.

The Health Promotion Model (HPM) theory developed by Pender (2015) explains that health behavior is influenced by interpersonal factors, including support from health workers. Such support can affect the perception of benefits, reduce perceived barriers, and increase an individual's commitment to a health action plan. In this case, nurse support can strengthen the patient's belief that hemodialysis therapy is important to maintain quality of life and prevent complications.

Mukaromudin's research (2024) states that the role of nurses is significantly related to the compliance of patients with chronic kidney failure in undergoing hemodialysis therapy. Fitria's research (2024) shows that the role of nurses as educators contributes to patient adherence in dietary regulation and fluid restriction. Meanwhile, Fatemaluo's research (2021) confirms that nurse support as a care giver affects the patient's psychological condition and increases the patient's readiness to undergo long-term therapy.

Analysis of the dimensions of nurse support shows that emotional support provided by nurses such as friendliness, empathy, and motivation can reduce patients' boredom and anxiety during chronic and recurrent hemodialysis therapy. Informational support through clear and consistent education helps patients understand the importance of adherence to therapy schedules, diet, and fluid restrictions. Instrumental support in the form of direct assistance during the hemodialysis process increases the patient's sense of safety and comfort. Meanwhile, award support in the form of positive reinforcement and appreciation for patients' efforts can increase patients' commitment and confidence in undergoing therapy.

Optimal and comprehensive nurse support on emotional, informational, instrumental, and reward aspects has proven to be important in improving compliance with chronic kidney failure patients undergoing hemodialysis therapy. Therefore, improving the quality of therapeutic interactions, effective communication, and consistency of education by nurses needs to be developed as part of a strategy to increase the success of hemodialysis therapy on an ongoing basis.

Patient Compliance in Undergoing Hemodialysis Therapy in Chronic Kidney Failure Patients in the Dialysis Room of dr. H. Aloe Saboe Hospital

Based on the results of research on chronic kidney failure patients who underwent hemodialysis therapy in the dialysis room of Prof. dr. H. Aloe Saboe Hospital, it was found that respondents' compliance was divided

into 2 categories, namely compliant and non-compliant. Univariate analysis showed that as many as 47 respondents (67.1%) were in the compliant category, while 23 respondents (32.9%) were in the non-compliant category in undergoing hemodialysis therapy. These findings show that the distribution of patient compliance levels is dominated by the compliant category, but there are still respondents in the non-compliant category.

The results showed that 47 respondents (67.1%) underwent hemodialysis therapy as scheduled, complied with fluid restrictions, followed dietary settings, and carried out medical instructions given by nurses consistently. On the other hand, 23 respondents (32.9%) showed behavior of delaying or skipping hemodialysis sessions, not complying with fluid and diet restrictions, and experiencing boredom, physical fatigue, and decreased motivation to undergo therapy. These variations in compliance behavior suggest that hemodialysis patient compliance is not uniform and is influenced by various factors.

The statistical test showed a value of $p = 0.003$ ($p < 0.05$), which means that there is a significant relationship between nurse support and patient compliance in undergoing hemodialysis therapy. This shows that nurse support is one of the important factors that contribute to the compliance of chronic kidney failure patients in undergoing regular and continuous therapy.

The findings of this study are in line with the Health Promotion Model (HPM) which explains that compliance is a health behavior that is influenced by internal and external factors. In HPM, the individual's perception of the benefits of therapy and perceived barriers is an important factor in determining compliance behavior. Compliant respondents tended to have a positive perception of the benefits of hemodialysis, so they continued to undergo therapy regularly despite facing physical limitations and lifestyle changes.

Non-compliant respondents showed perceived barriers, such as physical fatigue, saturation of long-term therapy, and decreased motivation. These barriers can reduce the perception of therapeutic benefits, so that respondents become less consistent in undergoing hemodialysis. This condition is in accordance with the concept of HPM which states that the greater the obstacle felt by the individual, the lower the individual to maintain healthy behavior.

The Health Promotion Model theory also emphasizes the role of interpersonal support, including support from health workers. Nurse support through the provision of education, information, and assistance during therapy plays a role in shaping the patient's understanding of the importance of hemodialysis regularity. Respondents who received optimal nursing support tended to be better able to understand the benefits of therapy and overcome perceived barriers, thus demonstrating better adherence behaviors (Masoudi et al., 2020).

The results of this study strengthen the theory that hemodialysis patient compliance is influenced by the interaction between the perception of benefits, perceived barriers, and the support of nurses as health workers who play a direct role in the treatment process. Nurse support is an important factor in helping patients maintain adherence to hemodialysis therapy, especially in patients who experience burnout and fatigue from long-term therapy.

Good nurse support, such as providing health education, motivation, and effective communication, can increase patients' understanding of the importance of adherence to hemodialysis schedules, fluid restriction, and dietary arrangements. Patients who receive optimal support from nurses tend to have stronger motivation to undergo therapy regularly than patients who feel less attention and assistance from nurses.

Previous research by Alatawi (2024). It shows that the role of nurses as educators and counselors has a contribution to improving hemodialysis patient compliance. Continuous education and a good therapeutic relationship between nurses and patients can help patients overcome boredom and fatigue, so that patients are better able to maintain adherence in undergoing long-term hemodialysis therapy.

3. The Relationship between Nurse Support and the Level of Compliance with Hemodialysis Therapy in Chronic Kidney Failure Patients in the Dialysis Room of Prof. Dr. dr. H. Aloei Saboe Hospital

Based on the results of the study, it was obtained that in the support of nurses in the good category amounting to 40 respondents, the majority of respondents showed compliance in undergoing hemodialysis therapy, namely 33 respondents (82.5%), and respondents who did not comply with 7 respondents (17.5%). The high adherence to the category of support for good nurses shows that the four dimensions of support measured, namely emotional, informational, instrumental, and appreciative support, run optimally and reinforce each other in influencing patient behavior.

The emotional support provided by nurses through empathy, attention, warm communication, and willingness to listen to patients' complaints plays a role in reducing stress and anxiety during long-term hemodialysis therapy. This is in line with the Social Support theory of House (1981) and the stress-buffering model of Cohen & Wills (1985) which explains that emotional support can be a stress buffer in individuals with chronic illnesses. Patients who feel cared for and valued tend to have higher motivation to maintain adherence to therapy.

Informational support in the form of education on the importance of regular dialysis schedules, fluid restriction, diet, and medication plays a role in increasing patients' understanding of the benefits of therapy and the risk of non-compliance. In the framework of Rosenstock's (1974) Health Belief Model, information from health workers serves as cues to action that encourage individuals to perform appropriate health behaviors. The results of this study are in line with Mukaromudin's (2024) research which states that education and the active role of nurses in providing health information are significantly related to the level of compliance of chronic kidney failure patients

undergoing hemodialysis, especially in the aspects of regularity of therapy schedules and fluid restriction.

The instrumental support provided by the nurse through direct assistance during the hemodialysis process, such as preparation for actions, monitoring vital signs, observation of clinical conditions, and assistance in overcoming complaints during therapy plays a role in increasing the patient's sense of security and comfort. The real help provided consistently helps patients more easily adapt to long-term hemodialysis therapy procedures so that patients become more regular in undergoing therapy. Based on the theory of Self-Care put forward by (Marilyn E. Parker, n.d.), nurses have a role in helping individuals meet their self-care needs when patients experience limitations in managing their health conditions. In patients with chronic kidney failure, direct assistance from the nurse during the therapy process is included in the supportive-educative system that aims to maintain the patient's ability to carry out the treatment regimen.

Appraisal support provided by nurses through positive reinforcement of the patient's success in following dialysis schedules, fluid restriction, and diet helps patients assess that the behavior carried out is appropriate and provides meaningful results. Positive feedback from nurses can increase patient motivation to maintain consistent adherence to therapy. According to the theory of social support put forward by Social House (1981), appraisal support plays a role as a positive evaluation of individual abilities so that it can strengthen health behaviors in chronic disease patients. The results of Kim & Cho's (2021) research also show that reinforcement of health workers is related to increased self-care and therapeutic adherence in patients undergoing hemodialysis.

Based on the results of the study, there were 40 respondents in the category of good nurse support, 33 respondents (82.5%) were compliant and 7 respondents (17.5%) were non-compliant in undergoing hemodialysis therapy. The high level of compliance in this category shows that the four dimensions of support measured, namely emotional, informational, instrumental, and appraisal support, run optimally and reinforce each other in influencing patient behavior.

Although in the category of good nurse support, there were 7 respondents (17.5%) who did not comply, of the 7 respondents, 4 respondents did not comply with fluid restrictions, 2 respondents did not comply with diet, and 1 respondent did not comply with the regularity of the hemodialysis schedule. This shows that non-compliance is not in the presence of therapy, but rather in the regulation of daily lifestyles such as fluid restriction and diet which are indeed more difficult to maintain in the long term.

The results of the study showed that of the 7 non-compliant respondents, there were 3 respondents with elementary education, 2 respondents in junior high school, and 2 respondents in high school. This condition suggests that the level of education can affect the patient's understanding of fluid restriction rules and diet even if the nurse has provided education. In addition, there were 5 male respondents and 4 respondents still working, which shows that daily activities and work demands can affect the patient's regularity in maintaining diet and fluid restriction.

Based on the theory of health behavior from (Pakpahan, n.d.) the education level is a predisposing factor that affects the ability of individuals to understand health information so that it has an impact on the health behaviors carried out. Patients with lower levels of education tend to require more repeated education in order to be able to consistently implement therapeutic recommendations.

The theory of self-efficacy from Albert Bandura (1997), explained that an individual's ability to maintain healthy behavior is influenced by self-confidence and habits formed in daily life. In hemodialysis patients, fluid restriction and diet are the parts of therapy that require the most self-control, so they are more susceptible to not being complied with even though the support of health workers is good.

The results of this study are also in line with the research of Kim & Cho (2021) which states that the adherence of hemodialysis patients most often decreases in terms of fluid restriction and diet because they are influenced by the patient's daily habits and activities. Safitri's research (2023) shows that factors such as motivation, self-efficacy, and social support are significantly related to fluid and dietary restriction adherence in hemodialysis patients, where motivation variables allow patients to maintain healthy behaviors despite being faced with dense daily activities.

Based on the results of the study, in the nurse support category, there were only 20 respondents, of which 11 respondents (55%) were compliant and 9 respondents (45%) were non-compliant in undergoing hemodialysis therapy. This distribution shows that the support provided by nurses is available, but not optimal in forming consistent compliant behavior. The proportion of non-compliance, which still reaches almost half of the number of respondents, indicates that the quality and intensity of support play an important role in the stability of patient compliance.

In 11 respondents (55%) who complied, support in the form of basic education, supervision during action, and communication related to hemodialysis schedules was still able to help patients maintain the regularity of therapy. However, in this category, emotional support and positive reinforcement have not been provided intensely and continuously, so the obedient behaviors that are formed have not been completely stable in the long term.

Of the 9 respondents (45%) who did not comply, non-compliance was more predominant in fluid restriction and diet than in the absence of hemodialysis schedules. This suggests that external controls such as hospital schedules are easier to adhere to, while self-control of behavior in daily life requires stronger internal motivation. Of the 9 respondents, 6 respondents (66.7%) are still working, so activities and work demands have the

potential to affect consistency in fluid restriction and dietary arrangements.

The Health Belief Model Theory developed by Irwin M. (Rosenstock, 1974) states that health behavior is influenced by an individual's perception of vulnerability, severity, benefit of action, and perceived barriers. In the category of sufficient support, patients have understood the benefits of therapy, but still feel obstacles in the implementation of fluid and dietary restrictions, mainly due to work factors and daily habits. Without consistent reinforcement from health workers, these barriers can be more dominant than the perception of benefits.

The Self-Care Deficit Theory of (Marilyn E. Parker, n.d.), explains that individuals need the support of the nursing system when self-care capabilities are not optimal. In hemodialysis patients with sufficient support, the support system provided is not fully compensatory or optimally supportive-educational, so patients still experience deficits in diet management and fluid restriction.

The results of this study are also in line with Alatawi's (2024) research which shows that although adherence to dialysis schedules is relatively high, adherence to fluid and dietary restrictions tends to be lower because they are influenced by the patient's daily behavior and self-management factors. In addition, Lenggogeni (2024) research found that hemodialysis patients' compliance in managing diet and fluid restriction is greatly influenced by self-management skills, internal motivation, and support provided consistently by health workers and families.

In the category of insufficient nurse support, 7 respondents (70%) were non-compliant and 3 respondents (30%) were compliant in undergoing hemodialysis therapy. Based on the characteristics of the length of undergoing hemodialysis and the level of education, respondents who did not comply showed quite diverse variations.

In the non-compliant group, there was 1 respondent (14.3%) with less than 6 months of hemodialysis and the last education of S1. Furthermore, in the range of 6-12 months there were 3 respondents (42.9%), consisting of 2 respondents with S1 education and 1 respondent with elementary education. In the range of 1-3 years, there was 1 respondent (14.3%) with the last education of S1. Meanwhile, in the range of 3-6 years there were 2 respondents (28.6%), where both had the last education of S1.

These data show that non-compliance with the category of poor nurse support occurs not only in respondents with low education or who have recently undergone hemodialysis, but also in respondents with higher education and who have been undergoing therapy for a long time. This indicates that education factors and the length of time they undergo hemodialysis do not necessarily guarantee patient compliance.

This condition is in line with the Self-Efficacy theory from Bandura (1997) which states that an individual's belief in his or her ability to manage health conditions greatly influences obedience behavior. Although the respondents' education is relatively high, without optimal external support such as nurse support, obedient behavior is not necessarily formed consistently.

In addition, these results are also in line with Alatawi (2024) research which shows that low social support is associated with increased non-compliance in hemodialysis patients. Thus, it can be concluded that in the category of lack of nurse support, patient non-compliance is more dominant (70%) and is influenced by a combination of internal and external factors, where nurse support continues to play an important role in strengthening patient compliance behavior.

Overall, the results of this study show that the better the nurse support that the patient receives, the higher the level of compliance in undergoing hemodialysis therapy. Consistent and comprehensive nursing support, including informational, emotional, and instrumental support and rewards plays an important role in helping patients maintain compliance, especially in patients undergoing long-term hemodialysis therapy.

Based on the results of the univariate analysis, female respondents amounted to 38 respondents (54.3%), while male respondents amounted to 32 respondents (45.7%). The dominance of female respondents in this study showed that patients with chronic kidney failure who underwent hemodialysis therapy at Dr. dr. H. Aloei Saboe Hospital were more likely to come from the female group. In the context of compliance with hemodialysis therapy, gender can affect the patient's health behavior. Differences in social roles, family responsibilities, and psychological conditions between men and women can contribute to regularity in undergoing therapy. However, patient compliance is not solely determined by gender, but rather is influenced by a combination of other factors such as nurse support, health conditions, and personal motivation.

The results of this study are in line with Alhamad's (2023) research which states that gender is one of the factors related to patient compliance in undergoing hemodialysis therapy, where differences in characteristics and social roles between men and women can affect adherence behavior to the therapy regimen.

Age is one of the important characteristics in this study. The age distribution of respondents in this study was in the range of 35–72 years, with the largest age distribution being in the adult and elderly age groups. This age range shows that hemodialysis therapy is more undergone by patients in productive age to old age. Age can affect the patient's adherence to hemodialysis therapy. Elderly patients tend to have physical limitations and decreased immunity, so they need greater support in undergoing therapy. Meanwhile, patients of productive age are often faced with work activities and family responsibilities that can affect the regularity of therapy. Therefore, the nurse support approach needs to be adjusted to the patient's age conditions so that compliance can be maintained.

The results of this study are in line with the research of Win et al. (2025) who stated that age is related to patient compliance behavior in undergoing hemodialysis therapy, where the age difference is related to physical

condition, activity level, and the patient's ability to adapt to long-term therapy (Chan et al., n.d.).

Another characteristic that also affects compliance is the level of education. The results of the analysis showed that respondents with higher education amounted to 28 respondents (40.0%), followed by respondents with high school education as many as 25 respondents (35.7%), junior high school as many as 7 respondents (10.0%), elementary school as many as 8 respondents (11.4%), and did not finish school as many as 2 respondents (2.9%). The level of education is related to the patient's ability to understand health information. Patients with higher education tend to have an easier time understanding the explanations of the procedure, benefits, and risks of non-compliance with hemodialysis therapy. However, patients with low education can still achieve good compliance if they receive clear, repeatable, and tailored education to the patient's ability to understand. Therefore, the role of nurses in conveying information in a simple and easy-to-understand manner is an important factor in improving patient compliance.

The results of this study are in line with the research of Dsouza (2023) which shows that educational interventions increase the knowledge and compliance of hemodialysis patients, where patients who receive education have an increase in adherence to better therapy patterns than patients who do not receive the same education. The health education provided aims to improve patients' understanding of the importance of managing therapy regimens, including diet, fluids, and dialysis schedules, so that the regularity of therapy can improve after increased knowledge.

Based on employment status, 40 respondents (57.1%) were employed while 30 respondents (42.9%) were not employed. The number of respondents who work is more than those who do not work, which shows that patients with chronic kidney failure who undergo hemodialysis therapy at Dr. dr. H. Aloei Saboe Hospital still have work activities outside the therapy schedule. Employment status can affect the patient's compliance in undergoing hemodialysis therapy. Patients who work have the potential to experience time constraints, physical fatigue, and schedule conflicts between work and therapy, which can have an impact on the regularity of undergoing hemodialysis. In contrast, patients who are not working have relatively greater time flexibility to follow the recommended therapy schedule. Therefore, nurse support in the form of schedule reminders, education, and effective communication is important to help working patients maintain compliance in undergoing hemodialysis therapy.

The findings of this study are in line with the research of Win et al. (2025) which states that work status is related to the compliance of hemodialysis patients, where working patients tend to face time limitations and physical fatigue that can affect the regularity of undergoing hemodialysis therapy.

Marital status is also a social aspect that plays a role in patient compliance. Based on the results of the analysis, all respondents in this study amounted to 70 respondents (100%) and all of them were married. There were no respondents with unmarried, widowed, or widowed status. This condition shows that all respondents have a life partner who has the potential to provide social support while undergoing hemodialysis therapy. Marital status is related to the social support that patients receive, especially support from their spouses in the form of reminders of therapy schedules, emotional support, and assistance in daily activities. This support plays a role in helping patients maintain regularity and compliance in undergoing hemodialysis therapy. The results of this study are in line with Alhamad's (2023) research which states that marital status is related to hemodialysis patient compliance, because patients who have a partner tend to receive social and emotional support that can help maintain adherence to therapy schedules.

Although all respondents were married, patient compliance levels still varyed. This shows that the existence of a partner alone does not necessarily guarantee optimal compliance, so additional support is needed from health workers, especially nurses. The role of nurses in providing education, motivation, and continuous monitoring remains an important factor in improving patient compliance with hemodialysis therapy.

Clinical factors such as length of hemodialysis also play a role in shaping adherence behaviors. Based on the results of the study, respondents who underwent hemodialysis for 1–3 years amounted to 30 respondents (42.9%), followed by 6–12 months as many as 15 respondents (21.4%), more than 3 years as many as 10 respondents (14.3%), ≥5 years as many as 10 respondents (14.3%), and less than 6 months as many as 5 respondents (7.1%). The length of time undergoing hemodialysis affects the patient's compliance level. Patients who have been undergoing therapy for a longer period of time tend to have a better understanding of the importance of regularity of therapy, but are also at risk of experiencing psychological burnout and fatigue.

Patients who have just undergone hemodialysis are still in the adaptation stage and need intensive education and mentoring. Therefore, continuous nurse support is indispensable to maintain patient compliance, both in the initial and advanced phases of hemodialysis therapy. The results of this study are in line with the research of Khumaeroh & Fauzia (2023) which states that the length of hemodialysis is related to patient behavior and compliance, where patients who have undergone therapy for a longer period of time tend to have better experience and understanding, although they are still at risk of experiencing therapy saturation.

Overall, the results of this study show that patient adherence to hemodialysis therapy is influenced by a combination of nurse support and respondent characteristics. This shows that the characteristics of the respondents such as age, education level, employment status, and length of treatment for hemodialysis play a role as a predisposing factor that can affect the patient's health behavior. Meanwhile, nurse support plays a role as a

reinforcing factor that can strengthen the formation of compliance behavior in undergoing hemodialysis therapy regularly and continuously, as explained in the theory of health behavior put forward by (Pakpahan, n.d.), which states that individual characteristics such as age, gender, education, and work are predisposing factors that can affect the formation of a person's health behavior. Thus, differences in social roles, family responsibilities, and psychological conditions between men and women can contribute to regularity in undergoing therapy.

Based on table 4.9, the results of bivariate analysis using the Chi-Square test show that there is a significant relationship between nurse support and patient compliance level in undergoing hemodialysis therapy in patients with chronic kidney failure in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital. Based on the results of the Chi-Square test that has been carried out in this study, a p-value = 0.003 ($p < 0.05$) was obtained, so that H0 was rejected and H1 was accepted, which shows that there is a meaningful relationship between nurse support and patient compliance in undergoing hemodialysis therapy.

The results of this study are in line with the research of Alatawi (2024) which shows a positive relationship between the social support felt by patients, including support from health workers, and adherence to the overall hemodialysis therapy regimen, including regularity of dialysis schedules, fluid restriction, and dietary arrangements. These results reinforce the findings of this study that nurse support as part of social support has an important role in improving hemodialysis patient adherence.

The findings of this study are also consistent with Irene Rondonuwu's (2025) research on factors that affect the compliance of chronic kidney failure patients in undergoing hemodialysis. The study showed that the role of the nurse perceived well by the patient was significantly related to the level of compliance ($p = 0.006$), where patients who rated the role of the nurse positively had a higher level of compliance than patients who rated it less. These results further confirm that the support and role of nurses are factors that contribute to patient compliance in undergoing hemodialysis therapy.

CONCLUSION

Based on the results of the study on the support of nurses with the level of compliance to undergo hemodialysis therapy in patients with chronic kidney failure in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City, the researcher can conclude as follows:

Nurse support for chronic kidney failure patients undergoing hemodialysis therapy in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital Gorontalo City is in the poor, adequate, and good categories, with most respondents receiving nurse support in the good category.

The level of compliance of patients with chronic kidney failure in undergoing hemodialysis therapy also varied, i.e. non-compliance and compliance, with most respondents in the compliant category.

There was a significant relationship between nurse support and patient compliance in undergoing hemodialysis therapy in the dialysis room of Prof. Dr. dr. H. Aloei Saboe Hospital, Gorontalo City.

ADVICE

For health workers, especially nurses in the hemodialysis unit, it is expected to improve the quality of support to patients comprehensively through strengthening the four dimensions of support, namely emotional, informational, instrumental, and appreciation support. Nurses need to provide consistent education on the importance of regular therapy, fluid restriction, and diet, accompanied by empathetic therapeutic communication and positive reinforcement of the patient's efforts in undergoing therapy. Improving the quality of interaction and consistency of support is expected to strengthen patient motivation and compliance in undergoing long-term hemodialysis.

For patients undergoing hemodialysis therapy, it is expected to be more active in seeking information, consulting with health workers, and increasing awareness of the importance of therapy adherence to prevent complications. Patients are also expected to be able to build internal motivation and self-confidence in managing fluid restrictions, diet, and regularity of dialysis schedules. The patient's active participation in the treatment process can support the success of therapy and improve the quality of life.

For researchers, it is recommended to develop studies with a more in-depth design, such as longitudinal or quasi-experimental studies, to determine the effectiveness of interventions to increase nurse support on patient compliance over a certain period of time. In addition, the next researcher can add other variables that have the potential to affect adherence, such as self-efficacy, intrinsic motivation, family support, length of hemodialysis, and patient psychological factors, so that a more comprehensive picture of the factors that affect therapy adherence in patients with chronic kidney failure is obtained.

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