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Contributing factors to hemodialysis adherence in Aceh, Indonesia[☆]

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Abstract

Objective: The objective of this study was to identify the dominant factors and their relationships that influence hemodialysis adherence.

Methods: This study used a cross-sectional method with 110 respondents who underwent hemodialysis treatment in Aceh Hospital of Indonesia. The samples were chosen using consecutive sampling. The questionnaires and Medical Record documents were used as instruments to obtain the data for this study. The data were analyzed using the chi-square test and logistic regression.

Results: The percentage of patients who adhered to hemodialysis was 60%. There were significant relationships between hemodialysis adherence and satisfaction (*p*-value = 0.046), self-efficacy (*p*-value = 0.000), acceptance (*p*-value = 0.009), and social support (*p*-value = 0.004). The analysis of logistic regression shows that the most dominant factors that influence hemodialysis adherence are self-efficacy (OR = 8.589), acceptance (OR = 8.063) and social support (OR = 2.985).

Conclusions: Despite a low cost and easy access, hemodialysis adherence in Indonesia is still low. There is a need to improve self-efficacy and acceptance of dialysis, which can be achieved by drawing on social support.

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Introduction

End-Stage Renal Disease (ESRD) is a health problem, with an increasing rate of occurrence worldwide.[1,2] In 2010, about 2–6 million people in the world were treated for ESRD, with one in three patients losing their lives ornot receiving renal

replacement therapy.[3] The rate of ESRD cases in Indonesia has more than doubled compared to the previous year. In 2014, it was reported that the number of ESRD patients was 11,689, which rose to 30,544 in 2015. The ESRD patients who undertook hemodialysis (HD) in Indonesia were recorded as many as 18,613 (89%) compared to the other cases.[4]

End-Stage Renal Disease patients need renal replacement therapy, including dialysis and renal transplantation.[2,5] Renal transplantation is an ultimate form of renal therapy. However, the limited number of renal donors renders hemodialysis the most efficient and practical method of treating ESRD patients.[6] HD is a renal treatment that involves maintaining the normal function of the kidneys for removing the waste matter from the body and maintaining the high water quality and electrolytes balance.[5,6] National Kedney Foundation (NKF) has stated that hemodialysis has succeeded in increasing the life expectancy of ESRD patients from 5 to over 20 years. The quality of life and the rate of life expectancy are influenced by HD adequacy in ESRD patients in accordance with the recommendation. To achieve HD adequacy in ESRD patients, they are required to modify their lifestyle, particularly to assure complete adherence to HD.[7] HD adherence has been identified as a problem, mainly because of its inconsistent measurement parameter and definition; thus, the prevalence is still in high estimation.[8] Measurement parameter in HD sessions requires full attendance without fail. Adherence data in Australia show that 90.1% of patients regularly attend HD treatment and 56.9% of them go through scheduled treatment, whereas 31.1% of patients rarely attend the treatment or at least once in 12 weeks.[9] Malaysia has a high number of adherence cases too, with clinics' data indicating 91% and patients' reports pointing to 91.5%.[10] A study on HD adherence in Indonesia shows that the percentage of patients who adhere to HD is as much as 78.1%.[11]

Low HD adherence will increase the risk of life-threatening complications, such as anemia of chronic disease, brain dysfunction, congestive heart failure, leukopenia, hemorrhage, infection, osteoporosis, and pulmonary complications.[12] Low HD adherence will cause a buildup of fluid and waste inside the body. Ignoring one or more HD sessions per month will increase the death rate between 25 and 30%.[13] Comorbidity is another problem, which occurs as a result of low adherence and creates complications in relation to readmission, additional treatment day, individual productivity, and patients' psychological condition. Moreover, the national health system spends a large amount of money on patients' treatment.[14]

Adherence is a self-care behavior undertaken by an individual to improve his or her health, prevent illness, or follow the treatment or rehabilitation recommended for the illness.[15] Self-care behavior in maintaining adherence is influenced by various factors. Adherence discrepancy is caused by a set of complex characteristics regarding patients' behavior and/or the use of different measurement tools.[9,10,16,17] Factors that influence adherence include the therapy, patients' condition, medical team, health-care system, and socioeconomic status.[17] Some studies point out further causes, such as patients' health beliefs, self-efficacy, social support, unfavorable nurse-patient relationship,[18] life satisfaction,[19,20] and therapy acceptance.[21]

Method

The data were collected for two weeks (12 days), using consecutive sampling from ESRD patients under hemodialysis treatment. The data were obtained using questionnaires and medical records. The completion of the questionnaires began after the initiation of dialysis and continued when the respondents felt comfortable to continue completing them. The recruitment of the respondents and the steps of this study had been explained in advance. This study involved 110 respondents who were ESRD patients, undergoing HD treatment for more than six months with HD scheduled for two sessions a week and for five hours a session. The participants agreed to participate in this study and were able to communicate and understand both spoken and written Indonesia. The exclusion criteria were applied to the patients who suffered from major depression, as well as to those who withdrew from the study while completing the questionnaires, felt uneasy about completing the questionnaires, or were unable to complete the questionnaires because of intradialytic hypotension/hypertension, headache, vomiting, hypothermia, shortness of breath, etc. After the screening, the remaining respondents did not report that they suffered from major depression or felt uncomfortable, arising from the dialysis side effects. Thus, the researchers were able to use the total number of the participants ($N = 110$).

This study used the patients' hemodialysis attendance lists of the past three months as an instrument for adherence.[9] The other instruments used included Satisfaction With Life Scale (SWLS),[22] CKD Self-Efficacy,[23] Acceptance and Action Questionnaire-II (AAQ-II),[24] MOS-social support survey,[25] and the medical record data regarding comorbidity and acute complications during HD. The validity and reliability of those instruments were as follows: SWLS with a Cronbach's alpha score of 0.779 and r value measured $>r$ table. The modification of CKD self-efficacy consisted of 13 questions with a Cronbach's alpha score of 0.838 and r value $>r$ table. AAQ-II was reliable with a Cronbach's alpha score of 0.821 and valid with r value $>r$ table. While MOS-SSS obtained r value $>r$ table, the reliability score of Cronbach's alpha equaled 0.952.

Results

The respondents' characteristics including age, gender, HD period, life satisfaction, self-efficacy, acceptance, social support, and HD adherence are presented in Table 1. The results of bivariate show that there is a significant relationship between HD adherence and life satisfaction (p-value = 0.046), self-efficacy (p-value = 0.000), acceptance (p-value = 0.009), and social support (p-value = 0.003). The respondents with a high rate of life satisfaction are 2.435 times more likely to adhere to undergoing HD than the respondents who are not satisfied with their life. The respondents with a high rate of self-efficacy are 11.780

Table 1 Respondents' characteristics and bivariate relationship with HD adherence (N = 110).

Variable	f	%
Age		
18–40 years old	14	12.7
40–60 years old	72	65.5
>60 years old	24	21.8
Gender		
Male	68	61.8
Female	42	38.2
Period of HD		
<1 year	21	19.1
1–5 year	69	62.7
6–10 year	17	15.5
>10 year	3	2.7
Life satisfaction		
Dissatisfied	39	35.5
Satisfied	71	64.5
Self-efficacy		
Low self-efficacy	23	20.9
High self-efficacy	87	79.1
Acceptance		
Low acceptance	57	51.8
High acceptance	53	48.2
Social support		
Support available	12	10.9
Support unavailable	98	89.1
Adherence		
Do not adhere	44	40
Adhere	66	60

Table 2 Final modeling of variables related to hemodialysis adherence.

Variable	B	Wald	p value	OR 95%CI
Self-efficacy	2.150	0.627	0.001	8.589 2.513–29.360
Acceptance	2.087	0.880	0.018	8.063 1.436–45.263
Social support	1.094	0.474	0.021	2.985 1.178–7.563
Constant	−3.677	1.002	0.000	

times more likely to adhere to undergoing HD than the respondents with a low self-efficacy level. The respondents with a high acceptance level are 3.095 times more likely to adhere to undergoing HD than those with a low acceptance level. Finally, the respondents who enjoy social support are 9.412 times more likely to adhere to undergoing HD than the respondents who do not receive any social support.

Multivariate relationship in HD adherence

The multivariate results in Table 2 illustrate the dominant factors that influence hemodialysis adherence, which include self-efficacy, social support, and acceptance. OR value from the final independent variable modeling shows that the closest variable to HD adherence is self-efficacy with OR 8.589 (95% CI OR: 2.513–29.360); this is followed by acceptance level with OR 8.063 (95% CI OR: 1.436–45.263) and social support with OR 2.985 (95% CI OR: 1.178–7.563). The result of the final modeling shows that the variables that influence hemodialysis adherence are self-efficacy, acceptance, and social support. The conclusion drawn using the equation is that every increasing value of self-efficacy, acceptance, and social support is likely to increase the hemodialysis adherence of ESRD patients by 84%.

Discussion

HD adherence demonstrates complete attendance during all the dialysis sessions.[26] In fact, HD adherence can be determined based on the full HD attendance rates (i.e., 100%) from the dialysis sessions scheduled by the hospital.[9] In this study, the percentage of attendance for a 12-week period before data collection was considered. The results of this study show that the majority of the respondents (60%) adhered to undergoing HD. This proportion is below the rate reported in a Jakarta hospital, which found that 71.3% of the patients adhered to undergoing HD. It is also different from the 2013 HD adherence records in Australia (90.1%)[9] and Malaysia (90.1%).[10] HD adherence can be influenced by the side effects of HD treatment. HD is a painful and tiring procedure for patients. They need to visit the HD unit regularly and undergo various procedures, such as vascular access procedure and rapid fluid removal during hemodialysis treatment. These render hemodialysis stressful for patients, affecting their HD adherence.[10]

The majority of the ESRD patients have a high level of self-efficacy (53%). The statistical test results illustrate a significant relationship between self-efficacy and HD adherence. The results of this study are supported by other studies, which strongly suggest a significant relationship between self-efficacy and adherence.[27] Self-efficacy is a strong predictor of the extent to which a positive behavior has been formed, as required by intentional adherence. Self-efficacy can be formed and revised from time to time. Self-efficacy is also formed by cognition from the obtained information and counseling. Precise information and experience tend to influence the formation of self-efficacy in health management.[6,9,28] Self-efficacy helps patients choose and commit themselves to maintaining their health.[29] Healthy behavior can be formed through forging a positive self-efficacy of the recommended actions. The psychological condition of ESRD patients who undergo HD for a lifetime influences their decision to undergo the regimen or dismiss it and seek other alternatives, mainly because patients tend to deny the existence of the disease at the beginning. Thus, self-efficacy will predict their treatment adherence, health attitude, physical activities, and ability to do self-management effectively. Self-caring patients who undergo HD with high self-efficacy can engage in physical

activities and improve their psychosocial functions.[30] Self-efficacy predicts adherence to self-care; therefore, self-efficacy is a mediator for change in the quality of life.

The results of this study also demonstrate the significant relationship between ESRD patients' acceptance and HD adherence (*p*-value = 0.003). The results show that HD adherence tends to increase in the patients who welcome the diagnosis and recommendation. The acceptance of illness and long treatment is necessary to improve the quality of life. The results of the qualitative study show that the patients accept the treatment and their condition when they are unable to change the situation and reduce their dependency on the treatment. The patients tend to accept the new reality of their lives and move on by following the health workers' recommendations.[28] The acceptance of one's limitation can also be influenced by psychological adaptation, acceptability of illness, proper social support, health examination, monitoring, and self-management.[31] Patients' role during HD adequacy is very important and complex. Undergoing HD needs acceptance and behavior modification.[32] Acceptance can be in the form of happiness, satisfaction, or obligation. Acceptance is an attitude exhibited by an individual after having had either a pleasant or an unpleasant experience. Acceptance is reflected by a positive attitude and appreciated through individual values. Acceptance can also be conceived as an effective means of achieving change, which acts as a mechanism for behavior change.

Based on the result of this study, the proportion of social support of the ESRD patients who underwent HD is 89.1%. This result illustrates a significant relationship between social support and adherence with a *p*-value of 0.002. This coheres with the other studies that point out a significant relationship between social support and adherence with a *p*-value of 0.000.[33] Social support can be obtained from friends, families, and health professionals. Family members have an emotional or genetic relationship with the patients. Thus, they can significantly influence patients' involvement in their treatment.[34]

Social support has a positive impact on the adherence factors of the regimen. Older patients tend to ask for support during HD treatment. They are also afraid of losing love and being rejected by their family.[35] Patients who just undergo hemodialysis treatment receive more social support and have a higher adherence level.[9] Patients with strong social support from their partners, family members, friends, colleagues, or society tend to display a better health level.[36]

The factor that most powerfully influences ESRD patients' adherence to undergoing hemodialysis is self-efficacy, followed by social support and acceptance. If a respondent has a high level of self-efficacy, social support, and acceptance, their hemodialysis adherence will increase as much as 85.6%. In order to increase patients' hemodialysis adherence, this study advises nurses to increase patients' self-efficacy and treatment acceptance by incorporating social support.

Conflict of interests

The authors declare no conflict of interest.

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