Research Article

Probing the Relationship Between Treatment Regimen Compliance and the Quality of Life in Hemodialysis Patients: A Descriptive-Analytic Study

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Abstract

Background: Non-adherence to treatment regimens can bring about negative effects on the quality of life of hemodialysis patients.
Objectives: The present study was conducted to explore the relationship between compliance with treatment regimens and the quality of life in these patients.
Methods: This descriptive-analytic study investigated 68 hemodialysis patients who had referred to Imam Khomeini Hospital of Zabol, Southeast of Iran. The subjects were chosen via convenience sampling. Data were collected using a demographic questionnaire, a self-constructed scale for treatment regimen compliance, and the kidney disease quality of life short form (KDQOL-SF). Descriptive statistics, Pearson correlation coefficient, and *t*-test were used to analyze the data by SPSS 22.
Results: The results showed that 77% of patients moderately adhered to treatment regimens, and the mean quality of life in hemodialysis patients was 56.36 ± 17.41. Pearson correlation coefficient revealed a positive significant relationship between the quality of life and compliance with treatment regimens in the study population (P = 0.02).
Conclusions: According to the findings of this study, it is recommended that appropriate educational programs should be designed to improve the quality of life in hemodialysis patients by encouraging their adherence to treatment regimens.

Keywords: Treatment Regimen Compliance, Quality of Life, Hemodialysis, End-Stage Renal Disease

1. Background

End-stage renal disease (ESRD) is a severe form of chronic kidney disease (CKD) that can lead to irreversible renal impairment (1). Among alternative kidney treatments, hemodialysis is the most prevalent in Iran and around the world (2). At the end of 2014, the number of patients with dialysis was estimated to be 27,457 in Iran, of which 94% were treated by hemodialysis. The incidence of hemodialysis in Sistan and Baluchistan province at the end of this year (2014) was 300 - 400 per 1 million (3). Although hemodialysis can extend the life expectancy of CKD patients, its various complications are a global concern for these individuals and require appropriate interventions (4).

Compliance with dietary, medication, and fluid regimens is vital to CKD patients (5), such that recovery in hemodialysis patients is not only dependent on taking medications but also observing dietary and fluid restrictions. Failure to adhere to these requirements is associated hypervolemia, increased toxic substances in the body, cardiovascular problems, and premature death, all of which can deteriorate the quality of life of these patients (6).

The quality of life refers to feeling good and comfortable both physically and psychologically. Promoting this indispensable characteristic relates to the development and maintenance of physical, emotional, and rational functioning. In this context, chronic diseases, including CKD, have an enormously negative impact on one's health and the quality of life (7). The results of numerous studies propose that the quality of life in hemodialysis patients is lower than that of healthy individuals (8-10). A

study reported that the development of CKD and the onset of dialysis reduce the quality of life of these individuals. On the other hand, Esmaili et al. observed a favorable quality of life and Gibson et al. found a high quality of life in these people (11).

Following the diet means that different behaviors of the patient (including dietary and fluid restrictions, lifestyle changes, and dialysis follow-up) are in line with the recommendations made by healthcare providers (12). Compliance with the treatment regimen is influenced by factors such as personal beliefs, cultural and social characteristics, and one's ability to resist drinking water and certain other fluids. Although adherence to treatment regimens can play a substantial role in improving the health and well-being of patients undergoing hemodialysis, the rate of compliance is very low in these people (13, 14). Rambod et al. (15) reported that failure to follow the regimen in hemodialysis patients is widespread so that 86% of patients do not abide by some facets of their dietary restrictions, and the average rate of non-compliance is close to 50% among Iranian patients. Evidence suggests that compliance with dietary and fluid restrictions can help maintain recovery, decrease treatment costs and the risk of complications, and promote the quality of life of hemodialysis patients (16, 17). In the study of Pour Shaban et al. (18), it was found that modifying the diet of non-dialysis people with chronic kidney disease helps reduce mortality and the complications caused by increased toxins in the body. Given that most hemodialysis patients undergo the treatment procedure 3 times a week, compliance with the regimen is an integral part of the management of these people, which deeply affects their quality of life (19). Similarly, Guerra-Guerrero et al. (9) suggested that the quality of life of hemodialysis patients could be improved by increasing their treatment regimen compliance. Mukakarangwa et al. (20) noted that following the treatment regimen was crucial in controlling and adapting to kidney failure since it has a very strong impact on the quality of life of affected individuals. Thus, in this research, roughly 50% of people were not adapted to their treatment regimen and were absent from at least one dialysis session, leading to diabetic complications such as hypotension, cramp, and fatigue. Lissete et al. (2017) also reported that non-compliance with the treatment regimen can entail serious health problems for the patient and trigger symptoms of depression and irritation which, in turn, can affect treatment adherence. On the other hand, implementing educational programs aimed at raising the awareness of patients about the treatment regimen, which can ameliorate the quality of life of these individuals (20). In the study of Naalweh et al. (21), there was a significant positive correlation between adherence to the treatment regimen and

serum phosphate level in hemodialysis patients. Another research indicated that organizing educational programs for hemodialysis patients may help increase the rate of adherence to the treatment regimens and prevent [a number of] dialysis complications (21). Another study by Cotugno et al. (22) on patients with phenylketonuria highlighted the need to abide by dietary regimens in order to ameliorate the quality of life of affected individuals.

2. Objectives

The present research was motivated by the contradictory results of various studies, the fact that low quality of life can be a negative factor in the follow-up of the treatment regimen, and the lack of a study to investigate this relationship among dialysis patients admitted to the Center for Special Patients of Imam Khomeini Hospital of Zabol.

3. Methods

This is descriptive-analytic research approved by the Ethics Committee and Vice-Chancellery for Research of Zabol University of Medical Sciences (Zbmu.1.REC.1396.233). The authors received the letter of introduction from the School of Nursing and Midwifery of this university and submitted it to the official in charge. A total of 68 hemodialysis patients who referred to Imam Khomeini Hospital of Zabol in 2017 were selected via convenience sampling. The eligibility criteria included filling out the informed consent form, 18 - 45 years of age, diagnosis of CKD by the specialist, having at least 3 months of hemodialysis experience, undergoing 3 dialysis sessions per week, minimum reading and writing literacy, ability to complete the questionnaire, and the lack of cognitive disorders.

On the first part of data gathering, a demographic questionnaire (covering age, gender, marital status, occupational status, educational level, income, residence, and history of hemodialysis) was used along with a self-constructed scale for assessing treatment regimen compliance. Designed by the authors, this questionnaire comprises 23 items, which evaluate compliance with the treatment regimen in hemodialysis patients under four areas of dietary restrictions, fluid restrictions, medication, and regular visit for dialysis. To assess its content validity, 10 faculty members of the Department of Internal Surgery (School of Nursing and Midwifery, Zabol University of Medical Sciences) reviewed it and their suggestions were incorporated. The reliability of this instrument was confirmed by Cronbach's alpha (0.91). The total score of this scale was set between 0 and 92, with higher scores representing

a better adherence to treatment regimens. In the second part of data collection, the so-called kidney disease quality of life- short form (KDQOL-SF) was employed. This tool is made of a general and a specific dimension for quality of life. The general component covers eight areas, including general health perceptions, physical functioning, role limitations caused by physical health problems, role limitations caused by emotional health problems, pain, emotional well-being, social functioning, and energy/fatigue. Each dimension is scored between 0 and 100, a higher score indicates a higher quality of life. The reliability of this scale has been verified in Iran (Cronbach's alpha: 85%) (23).

For one week in the morning and evening shifts, the researcher attended the health center. After selecting the qualified samples, introducing herself, and explaining the purpose of the study to the participants, the researcher obtained their written consent and assured them about the confidentiality of their information. Half an hour after the completion of hemodialysis, they filled the questionnaires. The collected data were analyzed by SPSS 22 and descriptive statistics, Pearson correlation coefficient, and *t*-test were used.

4. Results

Based on the results of statistical analysis, the mean age of patients was 42.22 years and the majority of the participants were in the age group of 18 - 45 years. Also, the majority of the participants were male (65%) and married (53%) (Table 1).

Based on the results, the mean of total adherence to treatment regimens in hemodialysis patients was 43.95 ± 17.67. Also, among its four dimensions, the lowest score belonged to dietary restrictions and the highest score was associated with a regular visit for dialysis (Table 2).

The mean of total quality of life was 56.36 ± 17.41 in hemodialysis patients. Particularly, the mean of the quality of life was 57.33 ± 21.17 in the general dimension and 47.94 ± 17.17 in the specific dimension. Among the eight dimensions of the quality of life, the lowest score was related to role limitations caused by physical health problems (43.21 ± 19.09), while social functioning received the highest score (64.58 ± 16.31) (Table 3).

The results demonstrated a positive significant relationship between adherence to the treatment regimen and general dimension of the quality of life (r = 3.38, P = 0.02). This relationship also occurred between adherence to the treatment regimen and the specific dimension of the quality of life (r = 4.17, P = 0.03). Accordingly, it could be inferred that following the treatment regimens has a positive significant correlation with the total score of the quality of life

Table 1. Frequency Distribution of Qualitative Variables and the Mean and Standard Deviation of Quantitative Variables in Hemodialysis Patients

Variable	No. (%) or Mean ± SD
Gender	
Male	41 (65)
Female	22 (35)
Marital status	
Single	10 (15.87)
Married	53 (84.13)
Education	
Below high school diploma	5 (7.9)
High school diploma	54 (85.71)
Academic degrees	4 (6.34)
Occupational status	
Employee	13 (20.63)
Self-employed	9 (41.28)
Unemployed	41 (65.07)
Age	42.22 ± 9.4
Dialysis experience	9.66 ± 4.00

Table 2. Examination of Treatment Regimen Compliance and Its Dimensions

Treatment Regimen Compliance	Mean ± SD
Compliance with dietary restrictions	11.17 ± 8.65
Compliance with fluid restrictions	11.46 ± 8.24
Medication compliance	12.12 ± 9.90
Regular visit for dialysis	17.18 ± 9.28
Total	43.95 ± 17.67

Table 3. Assessing the Quality of Life and Its Eight Dimensions

Quality of Life	Mean ± SD
General health perceptions	52.17 ± 14.54
Physical functioning	56.64 ± 18.42
Role limitations caused by physical health problems	43.21 ± 19.09
Role limitations caused by emotional health problems	58.81 ± 15.82
Pain	55.59 ± 17.76
Social functioning	64.58 ± 16.31
Energy/fatigue	52.55 ± 13.34
Emotional well-being	60.37 ± 11.22
Total score of the general dimension	57.33 ± 21.17
Total score of the specific dimension	47.94 ± 17.17
Total	56.36 ± 17.41

(r = 3.96, P = 0.02); thus the latter boosts one's compliance

with treatment regimens.

5. Discussion

The findings showed a positive correlation between treatment regimen compliance and the quality of life in hemodialysis patients. Several studies have also reported that measuring the quality of life in patients with chronic diseases will improve the level of care provided to these individuals and the relationship between the treatment team and the beneficiaries of medical and nursing services. Based on the results, most patients had moderate compliance with the treatment regimen. This is consistent with the results of Rafiee Vardanjani et al. (24) and Masror Roudsari et al. (25). Rafiee Vardanjani et al. (24) reported moderate dietary compliance, the chronic nature of the disease, economic problems, and the lack of patients' awareness as important factors affecting the quality of life. Hadi et al. (26), indicated that drug compliance was lower among patients with hypertension. This variation may be due to differences in the statistical population, measurement tools, methodology, and sample size.

The results also revealed that the quality of life in hemodialysis patients is generally low. However, this is not compatible with the study by Peyrovi et al. (12), in which CKD patients had a good quality of life. Similarly, the results of the current study do not match with those reported by Davoodi et al. (27), which suggested a favorable quality of life in hemodialysis patients. More specifically, the quality of life was greater in people who had experienced psychological problems such as depression and anxiety to a lower extent.

The results of this study showed that the higher one's compliance with treatment regimens is, the greater the quality of life will be. Also incompatible with the present research is the observation made by Nunes (28) regarding the effects of antihypertensive therapy on the quality of life. In that clinical trial, it was found that treatment compliance does not significantly enhance the quality of life. Given that the research was conducted in 2001, it can be argued that the reason for this lack of consistency is technological development and the introduction of drugs with fewer complications, inasmuch as drug side effects are one of the main causes of poor quality of life (28). According to the results of the present study, there is a significant relationship between adherence to treatment regimens and all dimensions of the quality of life. Conversely, Shabany-Hamedan et al. (29) proposed the absence of such an association (29). The reason for these differences can be related to dissimilarities in terms of underlying illnesses, statistical population, methodology, measurement tools,

and sample size. Gerasimoula et al. (8) suggested that demographic characteristics and compliance with treatment regimens strongly affect the quality of life in hemodialysis patients.

Adherence to treatment regimens happens when the patient acts in accordance with the advice given by healthcare providers. This compliance can mitigate the patient's vulnerability and reduce complications associated with hemodialysis. Moreover, adherence to dietary and fluid restrictions and drug regimens reduces the symptoms and side effects of medication; consequently, it promotes patients' quality of life and life expectancy and decreases mortality rates associated with disease complications (11, 30). More recently, Alves et al. (31) confirmed the positive correlation between the quality of life and drug compliance, suggesting that non-adherence to medication regimens could aggravate the quality of life of patients due to complications such as readmission and imposition of extra treatment costs. Several studies have also reported that treatment interventions aimed at improving lifestyle and sleep quality of hemodialysis patients help prevent some adverse effects of medication, which deteriorate the quality of life of these individuals (19-22). Guerra-Guerrero et al. (9) reported that follow-up and adherence to the treatment can yield a positive impact on the quality of life.

Given the abovementioned discussion, it is strongly necessary to develop tailored educational interventions to raise the awareness of hemodialysis patients with regard to their present situation and, specifically, their need for medication compliance so that they could better adapt their treatment process.

5.1. Conclusions

Considering the observed significant relationship between adherence to treatment regimens and all dimensions of the quality of life, it is recommended that healthcare providers, policy-makers, and financial authorities cooperate in taking practical steps to promote compliance with treatment regimens in order to uplift the quality of life in hemodialysis patients.

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Footnotes

Rahdar and Jasem Alahyari: study design; Ahmadreza Siasary: data collection.

Conflict of Interests: None of the authors have any conflict of interest to declare.

Ethical Approval: This research approved by the Ethics Committee and Vice-Chancellery for Research of Zabol University of Medical Sciences (Zbmu.1.REC.1396.233).

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