

# The Relationship between Quality of Life and Health Locus of Control Beliefs in Hemodialysis Patients

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## ABSTRACT

**Background:** Chronic kidney disease as a major health problem can create physical, psychological, economic, and social problems for patients and generally affect their quality of life. However, health beliefs and behaviors of these patients can affect their health condition too. The purpose of this study was to determine the relationship between the quality of life and health locus of control beliefs in hemodialysis patients.

**Methods:** A cross-sectional correlation research design was used to conduct the study. The research population included all hemodialysis patients admitted to Shahid Hashemi Nejad Hospital. One hundred hemodialysis patients were recruited by convenience sampling. The patients' information was collected from their medical records. The WHO quality of life (WHOQoL) questionnaire and multidimensional health locus of control scale (MHLC) were used to collect data about main variables of the study. The data were analyzed by SPSS 16 software using descriptive and inferential statistics.

**Results:** The mean and standard deviation of quality of life score was  $48.7 \pm 14.7$ ; the highest mean score was reported for environmental satisfaction domain ( $60 \pm 21$ ), and social domain received the lowest mean score ( $44 \pm 24$ ). The mean and standard deviation related to health locus of control beliefs was  $53 \pm 11$ . There was a statistically significant relationship between the quality of life and health locus of control beliefs ( $P=0.008$ ), but the correlation was weak ( $r=0.2$ ).

**Conclusion:** The quality of life has a significant correlation with health locus of control beliefs. Therefore, it is necessary to provide hemodialysis patients with education to improve and modify their health awareness and attitude.

## Keywords:

Health beliefs, Quality of life, Renal failure, Hemodialysis

## 1. Background

Chronic kidney disease (CKD) is one of the major public health problems throughout the world. The US National Kidney Foundation defines CKD as kidney damage or a glomerular filtration rate less than 60 ml/min/1.73 m<sup>2</sup> of body surface for 3 months or more. CKD is a progressive and irreversible disorder that eventually leads to uremia (Johnson et al. 2004). CKD endangers not only physical health, but also other aspects of health. Unless

receiving a healthy kidney, these patients are saved from a premature death using modern methods of therapy such as hemodialysis. Yet, these therapies involve a wide range of physical, psychological, economic, and social problems. In general, the disease affects quality of life (Nasiri et al. 2013). According to statistics, in Iran, 1200 to 1600 people are diagnosed with CKD annually (Zaman-Zadeh et al. 2007). Patients with end stage renal disease usually have a high blood pressure, as well as cardiovascular disease, which affects their quality of life or reduces their life expectancy. Thus, improving the quality of life is a

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fundamental component in the treatment of these patients (Théophile 2012). Quality of life means the gap between expectations and experience of the quality of life. Typically, patients with similar clinical conditions report different life qualities. Assessment of the life quality helps the health care team understand patients' view of health, their ability to function and the sense of well-being, and consider strategies to improve the patients' quality of life (Shafi-Mohammad et al. 2009). Nurses equipped with this sort of knowledge direct their care towards improving the patients' quality of life. Assessment of quality of life of hemodialysis patients helps to identify difficulties and special needs of these patients. Patients' perceived quality of life makes the measures taken for the patient care more effective; this can affect the treatment and adoption of the appropriate treatment. (Nasiri et al. 2003).

It has been found that the patients' health can be controlled by beliefs and convictions (Tyvfyl 2012). To change people's behavior, it is essential to learn about their beliefs, which entails educational-health models. The health belief model (HBM) has been widely used in research and clinical practice. HBM is a psychological model, which predicts people's health behavior based on their beliefs and opinions (Zigheimat et al. 2008). HBM was proposed in 1960s as a framework for discovering why some people have disease prevention behaviors (even though they are not sick) and some people fail to take preventive behaviors. This model is one of the most comprehensive psychosocial views to explain health-related behaviors.

It has been found that by improving quality of life in dialysis patients who have higher control on their beliefs, less disturbance is observed in the disease and treatment process, hence less symptoms and complications are experienced (Borhani et al. 2010). The study of mTheofilou (2012) titled "Quality of life and mental health in hemodialysis and peritoneal dialysis patients: the role of health beliefs", showed differences in health beliefs of two groups, HD patients focused more on the dimension of internal health locus of control than PD patients; this dimension was associated with better QoL ( $P < 0.0001$ ) and general health ( $P = 0.03$ ) in the total sample. On the contrary, the dimension of important others in health locus of control was associated with higher depression ( $P = 0.02$ ).

According to another study conducted in 2009, the following purposes were taken into account: (1) describing health behaviors and health-related quality of life (HRQoL) of Latina and Asian-American breast cancer survivors (BCS), (2) estimating possible culturally driven predictors of health behaviors and HRQoL, and (3) comparing pathways for predicting health behaviors and

HRQoL between the two groups. The result of this study showed that Asian Americans reported higher emotional and physical well-being scores than Latina-Americans. Confirmatory factor analysis demonstrated the adequacy of the two factor model ("powerful others" and "socio-cultural factors") in the cultural health belief construct for Latina and Asian-American BCS. In the structural model, Latinas and Asian Americans showed different pathways in the predicted relationships among the variables. For Latina-Americans, doctor-patient relationship was positively related to exercise, and in turn, influenced physical and emotional well-being. For Asian Americans, treatment decisions and the "socio-cultural factor" were significantly related to stress management (Lim et al. 2009).

In spite of contextual factors effect on health locus of control beliefs, there is little information regarding this relationship in Iran. The aim of this study was to determine the relationship between the quality of life and health locus of control beliefs in hemodialysis patients.

## 2. Materials and Methods

A cross-sectional correlation research design was used to conduct the study. The research population included all patients admitted to the biggest and most specialized dialysis center, Shahid Hashemi Nejad Hospital, located in Tehran, Iran. The patients were recruited in the study by convenience sampling method ( $n = 100$ ). The inclusion criteria were as follows: age between 18 and 75 years old, not having mental illness, Persian literacy, and receiving hemodialysis for at least 6 months.

The data were collected after the research ethics committee of Tehran University of medical sciences approved the study. The patients were asked to sign an informed consent, stating that participation in the study is voluntary and that the participant has been informed about the purpose of the study and his/her questions have been answered. Three questionnaires were used to collect the data: Demographic questionnaire, the World Health Organization quality of life questionnaire (WHOQoL), and multidimensional health locus of control scale (MHLC).

WHOQoL assesses 4 domains of physical health, psychological health, social relationships, and environmental satisfaction with 24 questions. The first two questions do not belong to any of the domains and assess health status and quality of life generally. Each question is assigned a 5 point score from 1 to 5. Likert five options for different questions were as follows: question 1 and 15 (very bad, bad, neither good nor bad, good, and very good), questions 2 and 16 to 25 (very dissatisfied, dissatisfied, nei-

**Table 1.** Frequency distribution and percentage of demographic variables (n=100).

Variable	Frequency (Percent)
<b>Age (years)</b>	
29-18	36 (36%)
59-30	38 (38%)
75-60	26 (26%)
<b>Sex</b>	
Female	42 (42%)
Male	58 (58%)
<b>Job</b>	
Unemployed	47 (47%)
State	25 (25%)
Free	28 (28%)
<b>Marital Status</b>	
Single	39 (39%)
Married	61 (61%)
<b>Diabetes</b>	
Positive	22 (22%)
Negative	78 (78%)
<b>Blood pressure</b>	
Positive	49 (49%)
Negative	51 (51%)
<b>Heart disease</b>	
Positive	23 (23%)
Negative	77 (77%)
<b>Underlying disease (diabetes, hypertension, coronary heart disease)</b>	
Positive	65 (65%)
Negative	35 (35%)
<b>Type of insurance</b>	
No Insurance	2 (2%)
Health Care	28 (28%)
Social Security	59 (59%)
Other insurance	11 (11%)
<b>Income</b>	
Without income	47 (47%)
Less than 300 US \$	18 (18%)
300 to 600 US \$	14 (14%)
More than 600 US \$	21 (21%)
<b>Treatment Term with hemodialysis</b>	
Less than 5 years	66 (66%)
More than 5 years	34 (34%)
<b>Education</b>	
Under Diploma	28 (28%)
Diploma	41 (41%)
Higher education	31 (31%)

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ther satisfied nor dissatisfied, satisfied and very satisfied), questions 3 to 14 (never, little, moderate, high, and very high), and question 26 (never, rarely, sometimes, often, and always). Questions 18, 17, 16, 15, 10, 4 and 3 are related to physical domain; questions 26, 19, 11, 7, 6 and 5 are designed to assess psychological domain of quality of life; questions 22, 21 and 20 measure social relations domain; and questions 25, 24, 23, 14, 13, 12, 9 and 8 have to do with environmental satisfaction.

Quality of life score range is 4 and 20, as score 4 represents the worst quality of life and 20 shows the best one. The scores were changed into a 0-100 scale to make comparison easy. Reliability and validity of the Persian

version of the questionnaire has been confirmed by Nejat et al. (2006). They reported Cronbach's  $\alpha$  and in-traclass correlation  $>0.7$ , except for social relationships ( $\alpha=0.55$ ). The convergent validity of the questionnaire was found to be desirable. Correlation matrix also showed satisfactory results in all domains except for social relationships (Nejat et al. 2006).

To measure health beliefs, multidimensional health locus of control scale (MHLC) was used. This scale was designed by Wallston et al. in 1992 to determine patients' beliefs about health. The scale includes 3 components titled internal locus of control (IHLC: Internal Health Locus of Control), external health locus of control of others

**Table 2.** Mean and standard deviation of quality of life in patients with chronic renal failure undergoing hemodialysis.

Domains	Mean	SD
Physical	54	21
Psychological	53	20
Social	44	24
Environmental	60	21
Quality of life	48.7	14.7

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(PHLC: Powerful Other Health Locus of Control), and health locus of control of outside chance (CHLC: Chance Health Locus of Control). IHLC determines the degree of individual's belief that internal factors and behaviors account for the health, PHLC assesses the degree of individual's belief that health is determined by other people, and CHLC assesses the degree of individual's belief that health depends on chance, luck, fortune, or fate. The scale uses Likert scale with 6 options graded from 1 to 6 (1=disagreed, 6=very much agreed). The questionnaire has 3 forms of A, B, C, each of which composed of 8 questions and each component consist of 6 items.

Forms A and B were published in 1978 and form C, which can be used for certain diseases or conditions, in

1994. They are completed within 10 to 14 minutes. Forms A, in particular, and B are used for healthy people in the evaluation of general health and form C is used for special occasions and can be used instead of forms A and

B for those with health and medical problems such as diabetes, cancer, etc. In this study, form C was used.

The total score in each subgroup is the sum of scores of the items in each subgroup. None of the items needs reversing before adding up. All the subgroups are independent of each other. In MHLC, no specific score is the cutoff point and the mean and median are used to measure the Z-Score. In Iran, the reliability and validity of the Persian version of the questionnaire is reported by Ghofrani-pour et al (2006).

The data were analyzed by SPSS 16 using descriptive and inferential statistics. Descriptive statistics comprised absolute and relative frequency distributions, mean, and standard deviation. Pearson correlation test was used to examine relationship between main variables of the study.

**Table 3.** Correlation coefficient of quality of life and health beliefs.

Quality of life	Health beliefs	Pearson relationship coefficient (r)	P value
Physical	Internal	0.2	0.02
	Chance	-0.1	0.1
	Power of others	0.26	0.007
	Doctor	0.47	>0.001
	Others	-0.01	0.85
Psychological	Internal	0.1	0.04
	Chance	-0.1	0.11
	Power of others	0.45	>0.001
	Doctor	0.47	>0.001
	Others	0.2	0.3
Social	Internal	0.01	0.2
	Chance	0.03	0.75
	Power of others	0.1	0.2
	Doctor	0.2	0.02
	Others	-0.01	0.9
Environmental	Internal	0.1	0.09
	Chance	0.01	0.9
	Power of others	0.42	>0.001
	Doctor	0.5	>0.001
	Others	0.1	0.1

Relationship between quality of life and health beliefs:  $r=0.2$   
P value=0.008

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### 3. Results

Table 1 shows demographic characteristics of the participants. As shown in this table, the majority of participants were male (58%), between 30 and 59 years (38%), married. (61%), and unemployed or disabled (47%). Also, most of patients (65%) had at least one underlying disease (hypertension, diabetes, or coronary heart disease), and 66% had history of hemodialysis for The mean and standard deviation of quality of life total score was  $48.7 \pm 14.7$ ; the mean score and standard deviation for environmental satisfaction domain was  $60 \pm 21$ , the mean score and standard deviation for psychological dimension was  $53 \pm 20$  and social domain received the lowest mean score ( $44 \pm 24$ ) (Table 2). According to the findings, the lowest and the highest mean scores were reported in social domain and environmental satisfaction domain, respectively.

The mean and standard deviation of total score of health locus of control beliefs in hemodialysis patients was  $53 \pm 11$  and the mean score and standard deviation for IHLC, CHLC, and PHLC components were reported  $32 \pm 18$ ,  $61 \pm 24.5$  and  $67 \pm 15$ , respectively. The component, accounted for the highest score of health belief was PHLC. It is to be noted that PHLC has two subcategories, the mean score and standard deviation of which were  $77 \pm 17.5$  and  $57 \pm 23$ , respectively.

The health locus of control beliefs had linear correlation with quality of life ( $P=0.008$ ), meaning that with an increase in health locus of control beliefs, the quality of life also increases, or conversely, but the relationship between the two is weak ( $r=0.2$ ). All quality of life domains had a statistically significant relationship with PHLCV component of health locus of control. Although, the physical and psychological domains of quality of life were significantly correlated with IHLC, but the relationships were weak.

### 4. Discussion

According to the findings, the lowest and the highest mean scores among quality of life domains were reported for social domain and environmental satisfaction domain, respectively. Based on these results, in total, the quality of life in hemodialysis patients is low, consistent with the result of Harirchi and colleagues (2004), Abbas Zadeh et al. (2010) and Tayebi et al. (2010).

But, the results of Shafipour et al. (2009) were inconsistent with the results of this study, as they reported that most patients had moderate quality of life. Also, Ismaeili et al. (2005), stated that 73.1% of their study sample had

moderate quality of life that is inconsistent with the results of the current study.

According to Healsted & Tsay (2002), hemodialysis produces a wide range of fundamental changes in the way of life of many patients to such an extent that it affects their physical and social functioning and quality of life. They further mentioned that many of these health problems caused by end-stage renal failure would lead to decreased physical performance, life satisfaction, and quality of life and that the quality of life in patients with end-stage renal failure has dramatically declined compared to the ordinary people.

Also, mental disorders are more common in patients with a long history of dialysis than in ordinary people. This factor has a negative impact on their survival. The higher the level of anxiety and depression in these patients, the lower their quality of life is (Tagay et al. 2007). The stress caused by symptoms can reduce quality of life; for dialysis affects patients on different levels of physical, mental, and social health, bringing about restrictions in their lifestyle (Niu et al. 2005). Thus, according to this study and some other studies, these people have low quality of life. However, the difference between the present study and other studies may be due to the use of different questionnaires.

The low quality of life in the social domain may be attributed to low or inappropriate social support from family, friends, responsible institutions, and even hospitals where they are being treated. Harirchi et al. (2004) stated in their study that family counseling services provided by specialists could be one of the steps to improve the quality of life of these patients as they help them cope with, understand and adapt to the current situation, hence providing job security fitting their physical conditions (Harirchi et al. 2004). Also, Jourabchi et al. (2010), have noted that providing proper social support may also play an important role in improving the quality of life in hemodialysis patients. In addition, conducting psychological and social counseling to resolve family problems of hemodialysis patients can effectively reduce the stress caused by stressful family factors (Jourabchi et al. 2010).

In Theofilou's study (2012), higher scores were observed on 'internal' and 'chance' domains of health locus of control beliefs followed by 'doctor' and 'others' subcategories of "power" domain. However, in the present study, 'doctor' and 'others' have higher scores. According to the researcher's observations, and contrary to the patients responses (inner dimension) about having no involvement in the development or progression of the disease, most of them were directly responsible for their conditions (e. g.,

untimely and irregular use of anti-hypertensive drugs, no observance of diabetic diet, irregular visiting of the doctor, and disregarding medical advice).

During sickness, because of low self-esteem and loss of efficiency and productivity, individuals' attitudes may change. These people consider themselves to be controlled by outside rather than inside factors (as being overpowered by conditions rather than creating the conditions). As a result, they consider the doctor or others (external factors) more responsible for the disease than themselves (internal factors). According to Sengul et al. (2010), quoted from Machendach, "The patients with chronic diseases who believe in external factors such as 'chance' and 'doctor' are more likely to have disabilities." In the patients with chronic low back pain, it has been shown that the quality of life and health beliefs are related (Sengul et al. 2010).

Negative beliefs (e. g., chance, physician, and family), adversely affects the quality of life (Direct link) (Sengul et al. 2010). Thus, educational courses should be provided for those who believe in the influence of external factors on the disease process, on subjects of causes of renal disease, lifestyle, and the like, so that they change their attitudes.

Furthermore, reliance on the power of others may be due to depressed mood of these patients. Previous studies have also noted that in patients with end-stage renal failure, depression symptoms are evident. Afshar et al. (2010), suggests that psychiatric disorders in the individuals with chronic disease, especially in patients with end-stage renal failure, are very common. These disorders, including mood disorders, especially depression, organic brain disease, schizophrenia, and personality disorders, cause 1.5 to 3 fold increase in the rate of hospitalization in hemodialysis patients compared to patients with other chronic diseases, hence causing higher death rates (Afshar et al. 2010). In their study, Afshar et al. (2010) showed that 70% of patients treated with dialysis suffered from some degree of depression.

Besides, the difference of the results of this study with other studies may be due to cultural differences and different attitudes of people. For example, in Iran, most people like to blame someone else rather than themselves and these attitudes are transmitted from generation to generation; thus, using mutual educations for these people are suggested. First, the families of these people must be trained to correct their health beliefs and then, the health systems should teach the very patients how to promote their health beliefs. Borhani et al. (2010) referred to the necessity of paying more attention to the role of notifica-

tion and creation of proper health beliefs by health professionals.

Some authors believe that the detection of systems of health beliefs help health professionals take a proper care plan, which covers various beliefs (Christensen 2006). Regarding the value of health beliefs, the authors argue that in order to strengthen preventive behaviors, besides being aware of the behaviors, the patient should believe that preventive behavior has maintained his/her health and protected him/her against disease consequences, hence encouraging them to show appropriate behaviors (Dietrich 1996). The Asian-Americans patients treated for breast cancer believed that family and culture play an important role in their health; these people probably make decision on their health based on the idea that "my doctor is my partner" (lim et al. 2009).

According to the findings, the quality of life in hemodialysis patients were directly correlated with the control of internal health locus of control belief and had the highest relationship with powerful others health locus of control and its subcategory, 'doctor'. In Theofilou's study (2011), the investigation of the relationship between health control dimensions and quality of life showed that internal health locus of control is directly correlated with the quality of life, especially with the mental health and general quality of life. The internal health beliefs may help patients cope with problems arising from illnesses, have a positive assessment of quality of life, thereby, reducing problems and psychological issues (Theofilou 2011).

In the present study, in all domains of quality of life, a strong relationship with powerful others health locus of control and its subcategory (doctor) was observed. The differences between the results of this study with other studies may be due to the average level of education and personality differences of the participants. Those who participated in the current study had a lower education level than the participants in the other studies. The results of this study indicate that health beliefs positively affect the quality of life in hemodialysis patients. Education and training in terms of health beliefs, particularly in the internal aspect is not very costly, so, educational classes for patients are recommended to be planned and held.

The results of this study showed that the quality of life has a significant correlation with health locus of control beliefs. Therefore, it is necessary to hold training classes in order to improve and reform the health awareness and attitudes of hemodialysis patients. It is recommended to conduct further studies regarding the factors affecting health locus of control beliefs in hemodialysis patients as

well as the effect of patient education on health locus of control beliefs.

## Conflict of interest

The authors declare no conflict of interests.

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