



## On the consideration of well-being and quality of life in hemodialysis patients

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### ABSTRACT

**Background:** Since identifying different aspects of well-being and its relationship with quality of life of the patients affected by chronic kidney disease is a very important issue, this study aims at considering the relationship between well-being and quality of life in hemodialysis patients referring to Zahedan University of Medical Sciences' affiliated hospitals in 2016.

**Methods:** In this descriptive analytic study, population included all individuals who referred regularly to hemodialysis section of Zahedan hospitals (129 Patients). As our data-gathering instruments, we used two questionnaires: a well-being questionnaire and a kidney disease quality of life (KDQOL) questionnaire. The data were analyzed using independent t-test, ANOVA, and Pearson correlation coefficient through SPSS v. 19.

**Results:** The patients' mean score of well-being was  $138.95 \pm 21.9$  and their mean score of quality of life was  $43.62 \pm 6.38$ . According to the findings of this study, there was a reverse correlation between emotional aspect and limitation of emotional role, but their relationship was statistically significant ( $p = 0.02$ ,  $r = -0.27$ ); there was a statistically significant relationship between social aspect and social performance ( $p = 0.04$ ,  $r = 0.24$ ); there was a statistically significant relationship between mental aspect and social performance ( $p = 0.004$ ,  $r = 0.32$ ); there was a reverse correlation between emotional aspect and burden of kidney disease, but their relationship was statistically significant ( $p = 0.012$ ,  $r = -0.28$ ); similarly, there was a reverse correlation between physical aspect and burden of kidney disease, but the relationship between them was statistically significant ( $p = 0.03$ ,  $r = -0.20$ ). Moreover, the relationship between spiritual aspect and sexual performance was statistically significant ( $p = 0.05$ ,  $r = 0.22$ ). The relationship between mental aspect and sexual performance as well ( $p = 0.03$ ,  $r = 0.25$ ).

**Conclusion:** The results revealed that there is a relationship between different aspects of Well-being and quality of life of the hemodialysis patients. Therefore, paying enough attention to these patients' needs can have positive consequences and promote their quality of life; finally, we will experience a decrease in their death rate and treatment costs.

**Keywords:** Well-being; Hemodialysis, Quality of life

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### 1. Introduction

Nowadays, chronic kidney disease has been increasing due to various factors [1]. One of the most rampant methods of treatment in patients affected by acute or chronic kidney failure is hemodialysis in which to physical procedures take place simultaneously: a) cleaning the material such as blood urea and entering them into that the dialysis solution; b) sending materials such as calcium to patients' blood from the dialysis solution [2,3]. According to the reports of nephrology and urology research center and kidney implantation of Iran, there was about 29000 individuals affected by chronic kidney disease (CKD) in 1385, and 14,000 of them were receiving hemodialysis treatment. According to the existing reports and statistics, this disease is prevailing in Iran[4].

Due to their lifetime increase, the number of these patients is increasing; but this disease influences their life and in its progressive stages, it can affect their performance and change their quality of life. Dialysis and other treatment methods have somehow decreased the diseases' symptoms and improved the patients' life status. However, the patients quality of life is influenced by the disease's complications and most of the patients become disable [5].

The decrease in life quality of the hemodialysis patients may influence different dimensions of their life. That is, the decrease of quality of life from physical perspective can change the individual's performance status, so that his/her daily activities are affected by these conditions

and his/her ability to do the daily routines diminishes [6]. Furthermore, the incidence of chronic kidney failure can lead to individual's dependence on others, low self-esteem, and the feeling of loneliness, and it can affect the socio-mental aspect of an individual's quality of life [7].

One of the issues presenting in hemodialysis patients is that feeling of Well-being. Well-being is something greater than not being ill. That's to say, having logics, independence, and self-confidence can be defined as Well-being [8]. Rilerdon considers health promotion as a way to reach Well-being; in addition, Rif and Singer emphasizes on the balance among Well-being aspects as a way to reach Well-being[8]. Well-being means that we accept an individual as a valuable person and know his or her feelings. Moreover, he or she is free to express the feelings such as anger, anxiety, fear, and pleasure [8,9]. Well-being is a multidimensional procedure which includes mental, social, physical, and emotional health. This concept takes into account the positive attitude toward body [8, 10]

Kidney failure or end-stage renal disease (ESRD) is among the chronic diseases with great complications in which paying attention to welfare feeling and mental aspects of the affected patients is of great significance [11]. One of the effective factors on Well-being of hemodialysis patients is stress. The presence of stress in life can be attributed to various factors[12]. One of the Well-being aspects is social aspect: if a person feels well socially, he or she enjoys being with others

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**Table 1.** Demographic data of participants

	Variable	Number (Percentage)
Age	26-45 years old	44(34)
	46-65 years old	62(48.2)
	Above 65 years old	23(17.8)
Gender	male	76(58.9)
	female	53(41.1)
Marital status	married	79(61.3)
	single	50(38.7)
Education	Illiterate or elementary education	56(43.4)
	Guidance or high school education	54(41.9)
	Academic education	19(14.7)
Job	jobless	70(54.3)
	employed	29(22.5)
	retired	30(23.2)
Rate of family income	low	66(51.2)
	moderate	31(23.8)
	high	32(25)
Dialysis duration	1-5 years	82(63.6)
	6- 10 years	40(31)
	11-15 years	7(5.4)

**Table 2.** The relationship between Well-being aspects and sections of participants' QOL based on general scales and other domains of QOL in Hemodialysis patients

Quality of life sections	Well-being aspect	Subjective aspect	Spiritual aspect	Physical aspect	Social aspect	Emotional aspect	
Physical sections	Physical performance	r=0.09 P=0.45	r=0.15 P=0.18	r=0.03 P=0.78	r=0.05 P=0.69	<b>r=-0.076</b> <b>P=0.5</b>	
	Limitation of physical role	r=-0.05 P=0.69	r=-0.017 P=0.9	r=-0.06 P=0.62	r=-0.05 P=0.44	<b>r=-0.09</b> <b>P=0.42</b>	
	pain	r=-0.22 P=0.06	r=-0.15 P=0.2	r=-0.12 P=0.3	r=-0.15 P=0.2	<b>r=-0.094</b> <b>P=0.4</b>	
	Understanding general health	r=0.08 P=0.5	r=0.06 P=0.6	r=0.02 P=0.86	r=-0.09 P=0.46	<b>r=0.17</b> <b>P=0.14</b>	
	Emotional wellness	r=0.05 P=0.69	r=0.07 P=0.6	r=0.09 P=0.42	r=-0.11 P=0.32	<b>r=0.04</b> <b>P=0.7</b>	
	Limitation of emotional role	r=-0.17 P=0.13	r=-0.16 P=0.15	r=-0.14 P=0.22	r=-0.14 P=0.22	<b>r=-0.27</b> <b>P=0.02</b>	
	Subjective sections	Social performance	r=0.32 P=0.004	r=0.2 P=0.09	r=0.17 P=0.13	r=0.24 P=0.04	<b>r=0.21</b> <b>P=0.06</b>
		Energy/fatigue	r=0.03 P=0.83	r=0.03 P=0.8	r=0.06 P=0.9	r=0.3 P=0.82	<b>r=0.045</b> <b>P=0.7</b>

and provides a positive relationship with others. This aspect of wellness includes social cooperation, social acceptance, and social integrity [8, 13], another aspect the Well-being is physical aspect which includes having a flexible, energetic, and strong body with a healthy heart [13]. In addition, feeling well emotionally includes life satisfaction and positive effects in life [8]. Another Well-being aspect is spiritual aspect which has to do with the goals and meanings (sense) of life [14,15]. Spiritual Well-being includes honesty, forgiveness, hope, mercifulness, following a goal in life, and accepting comprehensive and unique concepts [14,16]. Studies indicated that there is a relationship between spiritual Well-being and decrease of depression, increase of self-confidence, and decrease of disability [17]. Moreover, hemodialysis can have negative effects on general health and Well-being of the patients; in addition, it can have negative influence on physical performance, mental status, and social relationships. Hemodialysis complications are not limited to physical and mental aspects, but they include emotional aspect as well [5]. Chronic diseases, such as chronic kidney disease (CKD) which has a progressive trend, are mostly known as disabling diseases and in spite of great developments such as hemodialysis and kidney transplantation

in treatment of chronic kidney failure, quality of life of these patients is jeopardized seriously, and in most of the cases, it is lower than the natural condition [18].

As defined by World Health Organization, quality of life is an individual's understanding of his or her status in life, value system in which he or she is living, goals, expectations, standards, and priorities. So, it is completely an individualistic concept which is not observable for others [19]. Quality of life can be influenced by various factors such as individual and social factors, diseases, and individual's clinical status. End-stage renal disease and its treatments leave the patient exposed to various physical, social, mental, and economical problems and generally, influence their quality of life [20].

Identifying Well-being aspects and their relationship with patients' quality of life is very important. Different dimensions of Well-being such as mental, social, physical, emotional, spiritual, and subjective aspects and their effects on different aspects of quality of life should be taken into consideration in order for the patients to be able to achieve their goals. In spite of considerable medical achievements and high prevalence of dialysis, death, and hospitalization rates during the last recent 20 years, no comprehensive study has been conducted on

**Table 3.** The relationship between Well-being aspects and sections of participants' QOL based on specific scales and other domains of QOL in Hemodialysis patients

Quality of life sections	Well-being aspects	Subjective aspect	Spiritual aspect	Physical aspect	Social aspect	Emotional aspect
Kidney disease sections	Symptoms and problems the effect of KD on life	r=0.07 P=0.54	r=0.11 P=0.34	r=0.12 P=0.28	r=0.04 P=0.7	<b>r=0.1</b> <b>P=0.38</b>
	Burdon of kidney disease	r=0.16 P=0.2	r=0.09 P=0.4	r=-0.20 P=0.03	r=-0.22 P=0.05	<b>r=-0.28</b> <b>P=0.012</b>
	Job status	r=0.12 P=0.27	r=0.14 P=0.23	r=0.07 P=0.54	r=0.05 P=0.66	<b>r=0.09</b> <b>P=0.45</b>
	Cognitive performance	r=0.06 P=0.6	r=0.07 P=0.54	r=0.14 P=0.23	r=0.08 P=0.46	<b>r=0.05</b> <b>P=0.65</b>
	Social relation quality	r=0.03 P=0.8	r=-0.03 P=0.8	r=0.012 P=0.12	r=0.014 P=0.9	<b>r=-0.11</b> <b>P=0.35</b>
	Sexual performance	r=0.25 P=0.03	r=0.22 P=0.05	r=0.08 P=0.46	r=0.17 P=0.13	<b>r=0.1</b> <b>P=0.37</b>
	sleep	r=0.11 P=0.34	r=0.02 P=0.86	r=0.19 P=0.1	r=0.05 P=0.66	<b>r=0.05</b> <b>P=0.69</b>
	Social support	r=0.16 P=0.2	r=0.15 P=0.2	r=0.19 P=0.09	r=0.1 P=0.34	<b>r=0.05</b> <b>P=0.64</b>
	Morale by the personnel	r=-0.13 P=0.24	r=0.07 P=0.52	r=0.014 P=0.9	r=-0.07 P=0.52	<b>r=-0.12</b> <b>P=0.28</b>
	Patient's satisfaction	r=0.1 P=0.38	r=0.05 P=0.68	r=0.05 P=0.64	r=-0.07 P=0.54	<b>r=-0.03</b> <b>P=0.81</b>

considering the relationship between Well-being and quality of life in hemodialysis patients in Iran. Therefore, the current study was designed and implemented to consider the relationship between Well-being and quality of life in hemodialysis patients referring to Zahedan University of Medical Sciences' affiliated hospitals.

## 2. Methods

This was a descriptive analytic study conducted on 129 hemodialysis patients referring to the hospitals of Zahedan University of Medical Sciences. The study samples included all hemodialysis patients in Khatam al-Anbia and Ali ibn-Abitaleb hospitals in Zahedan in 2016. The criteria for entering in the study included: hemodialysis patients who have been receiving treatment since six months ago, the patients who receive dialysis treatments at least two times a week, patients with the minimum age of 18 and having no mental or conceptual disorder, and having consents to participate in this study. The exit criteria included having a known mental disease or performance disability (musculoskeletal disorders), nursing personnel, and unwillingness of the patients to take part in the study. In order to account for the ethical issues, a recommendation letter was sent to hemodialysis section of Khatam al-Anbia and Ali ibn-Abitaleb hospitals from vice chancellor of research in Zahedan University of Medical Sciences, and the comprehensive information about the study's purposes was provided for the patients. In addition, the patients were assured about the confidentiality of the data and results.

The data-gathering instruments were two questionnaires: the first one was about Well-being which had two parts: the first part was about demographic information such as age, gender, marital status, education, job, economical status, background diseases, and duration of dialysis. The second part of the questionnaire was about the Well-being of hemodialysis patients which was designed by Adams et al. this part has 36 questions which are divided into 6 aspects (8). The questionnaire scale is a 6-point Likert scale from "completely agree (6)" to "completely disagree (1)". This instrument has 36 questions which are divided into six aspects with 6 questions in each. They are mental

scale aspect (the number of questions 1, 7, 13, 19, 25, 31), emotional scale aspect (questions 2, 8, 14, 20, 26, 32), social scale aspect (questions 3, 9, 15, 21, 27, 33), physical scale aspect (questions 4, 10, 16, 22, 28, 34), spiritual scale aspect (questions 5, 11, 17, 23, 29, 35), and subjective scale aspect (questions 6, 12, 18, 24, 30, 36) respectively.

The second questionnaire was about evaluating quality of life of the hemodialysis patients. To do so, the standardized questionnaire and quality of life of hemodialysis patients (KDQOL) was used. reliability and validity were measured and confirmed with Cronbach's alpha 0.9 [21].

KDQOL questionnaire is a combination of SF-36 and special factors of the patients affected by kidney disease. It has two aspects: general aspect of quality of life and specific aspect of quality of life. The general aspect of quality of life includes two physical and mental sections and eight domains. The domains of general aspect of quality of life include physical performance (10 questions), playing physical role (four questions), physical pain (three questions), general health (six questions), general understanding of health (six questions), playing emotional role (three questions), social performance (two questions), and vitality and joy (eight questions).

The specific aspect of the questionnaire has 9 domains including general status relating to health (three questions), physical performance relating to health (12 questions), limitation related to kidney disease (11 questions), job status (three questions), mental problems related to health (six questions), sexual performance (two questions), sleep status (scoring from 0 to 100), social support (four questions), and satisfaction of care and the section's personnel (three questions). The score of this questionnaire is from 0 to 100; the highest score shows the greatest quality of life.

Data-gathering methods were through interview and the questionnaire. For illiterate patients, some trained questioners completed the data gathering procedure. Finally, in order to analyze the data, we made use of SPSS software especially descriptive statistical tests such as mean, standard deviation, and some analytic

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tests such as chi-square test, independent t-test, ANOVA, and Pearson correlation coefficient. The significance level was set in 0.05 ( $P$  value $<0.05$ ).

### 3. Results

In this study, 129 individuals with the average age(SD) of  $52 \pm 11.8$  years took part. Table 1 shows the demographic information of the participants.

In the current study, the mean score of participants' Well-being was  $138.59 \pm 21.9$ . The mean score of well-being in mental aspect was  $24.6 \pm 3.9$ , emotional aspect  $21.8 \pm 4.9$ , social aspect  $24.4 \pm 4.5$ , physical aspect  $22.9 \pm 4$ , spiritual aspect  $22.1 \pm 4.5$ , and subjective aspect was  $23.1 \pm 3.6$ . The lowest mean score belonged to emotional aspect and the highest score belonged to mental aspect. From the quality of life perspective, the patients' QOL mean score was  $43.62 \pm 6.38$ . The relationship between well-being aspects and sections of participants' QOL based on general scales and other domains of hemodialysis patients' quality of life are provided in Table 2. According to the results of this study, there is a reverse correlation between well-being emotional aspect and limitation of the emotional role (in QOL' subjective section), but it is statistically significant ( $p=0.02$ ,  $r=-0.27$ ). Moreover, there is a statistically significant relationship between well-being social aspect and social performance (in QOL' subjective section), ( $p=0.04$ ,  $r=0.24$ ). In addition, it was reported that there was a statistically significant relationship between well-being subjective aspect and social performance (in QOL' subjective section), ( $p=0.004$ ,  $r=0.32$ ).

The relationship between well-being and section of participants' QOL based on specific scales and other domains of hemodialysis patients' quality of life are provided in Table 3. According to the findings of the current study, there is a reverse correlation between well-being emotional aspect and burden of kidney disease in quality of life sections, but it is statistically significant ( $p=0.012$ ,  $r=-0.28$ ). Moreover, there is a reverse correlation between Well-being physical aspect and burden of kidney disease in quality of life sections, but this relationship is statistically significant ( $p=0.03$ ,  $r=-0.20$ ); In addition, there was a statistically significant relationship between well-being spiritual aspect and sexual performance ( $p=0.05$ ,  $r=0.22$ ). This is the case for the relationship between well-being subjective aspect and sexual performance as well ( $p=0.03$ ,  $r=0.25$ ).

### 4. Discussion

According to the present study's findings, regarding the participants' total Well-being score, their status was greater than average level. This finding matches the results of the study conducted by Tol et al [11] on patients affected by type-2 diabetes. The lowest mean score belonged to emotional aspect and the highest one belonged to mental aspect, but in Tol's study, the lowest mean score was for mental aspect and the highest one was for spiritual aspect which does not correspond with the current study's finding.

Understanding and evaluating the quality of life of the patients affected by end-stage renal disease (ESRD) is very significant, because hemodialysis patients experience a great deal of disorder in their life quality [22]. In this study, the mean score of the participants' quality of life was relatively low which is indicative of low quality of life in these patients. In Baraz's study, it was reported that the quality of life of hemodialysis patients in Iran is in lower than that in some other countries[23]. Similarly, in some other studies, the mean score of hemodialysis patients was reported to be lower than the normal score of the society. This finding indicates the low quality of life of these patients [24].

In comparison with the mean and standard deviation of QOL score in hemodialysis patients in Abaszadeh's study conducted in Kerman [25],

the low mean score of the total QOL in this study can be attributed to differences in geographical conditions, weather, and lifestyle [26]. According to present study's findings, there is a reverse correlation but significant relationship between Well-being emotional aspect and the limitation of emotional role in QOL subjective sections. To justify this issue, we can say that if patients are supported emotionally and feel great emotionally, they can tolerate the disease more easily and do not encounter with problems while playing their emotional roles. Moreover, there was a specifically significant relationship between Well-being social aspect and social performance (in QOL subjective sections). For the justification of this fact, we can mention that being supported socially and having a social Well-being can have positive effects on playing social roles and individuals' social performance [11]. Furthermore, findings indicated that there was a statistically significant relationship between Well-being subjective aspect and social performance (in QOL subjective sections). That is to say, individuals who feel great subjectively have high academic knowledge and education, and they are well-prepared to encounter with the disease. Therefore, they are successful in playing their social roles and have a better social performance [11]. Another finding of the current study was that Well-being emotional aspect and burden of kidney disease in QOL sections are reversely correlated but their relationship is a statistically significant. Regarding to this issue, we can say that being supported emotionally and feeling great emotionally makes the patients accept their disease and their own conditions. Therefore, this issue will decrease the burden of kidney failure in hemodialysis patients. Since there is not enough information and study available in this regard, we cannot make a comparison.

Moreover, a statistically significant relationship was reported between Well-being physical aspect and burden of kidney disease in QOL sections, but there was a reverse correlation between them. In order to justify this fact, we can say that having a strong body and feeling great can make the tolerance of physical problems resulting from kidney failure much easier; therefore, the burden of this disease will decrease in individuals. However, due to lack of the studies and investigations on this matter, we can make no comparisons.

In addition, there was reported a statistically significant relationship between Well-being spiritual aspect and subjective aspect as well as the patients' sexual performance. That is to say, individuals who feel greatest spiritually have greater and stronger faith in God and they can tolerate the disease more easily, and their life expectancy is higher than others. Moreover, this issue has a positive effect on their sexual performance as well [27]. In addition, patients with subjective wellness have probably higher education and subjective performance; so, this matter influences their sexual performance[28]. Again, due to lack of studies in this regard, we cannot make a comparison with other studies.

Since there are not enough studies and investigations in this regard, we cannot firmly claim that different aspects of Well-being have some influences on quality of life of hemodialysis patients, and we need more investigations and interventions on this issue. One of the major strong points of the present study is that studies conducted based on the above-mentioned instruments are very rare; therefore, we hope that this study becomes a starting point for more investigations in this regard. However, the main weak point of this study is that due to lack of similar studies conducted by these instruments, it was difficult or impossible to compare the obtained results with other findings.

Finally, it is hoped that the present study becomes a springboard for gaining more knowledge about the effects of wellness on promotion of quality of life in hemodialysis patients.

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