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Quality of life of patients undergoing hemodialysis

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ORIGINAL ARTICLE

QUALITY OF LIFE OF PATIENTS UNDERGOING HEMODIALYSIS

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Abstract

Introduction: Chronic Renal Failure (CRF) is a chronic disease, which has a negative impact on the quality of patients' life. The study of factors affecting the quality of life of these patients is necessary to investigate the impact of the disease in a biological, psychological and social level.

Aim: The purpose of this research study was to investigate the satisfaction of patients undergoing chronic hemodialysis and their perceptions of their quality of life.

Material and Method: The study sample consisted of patients undergoing chronic hemodialysis at a Dialysis Unit in Athens. The study lasted from January 2016 to March 2016. To measure the health related quality of patients' life, the Greek version of the questionnaire WHOQOL-BREF of the World Health Organization was used. The completion of the questionnaires was made by the method of the structured interview. A total of 70 questionnaires were completed.

Results: According to the study results, most of the patients considered the quality of their life as good (48.6%), while the 8.5% described it as bad or very bad. The lowest satisfaction rates associated with issues of physical health and independence with mean (12.89 ± 2.23) and the highest with social relations (14.68 ± 1.50).

Conclusion: The effect of Chronic Renal Failure on the physical, psychological and social background of patients on dialysis is an essential factor in creating a tailor-made holistic treatment program, adjusted to the specific needs of each patient.

Key words: Quality of life, satisfaction, dialysis unit, hemodialysis, renal failure.

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INTRODUCTION

Chronic Renal Failure (CRF) is a chronic disease, which has a negative impact on the quality of patients life, and more specifically on their psychological well-being and their social and economic condition.[1-3] The CRF as a clinical entity and the way of its treating are potential causes of loss of the patient's profession, income and social status. At the same time, the restrictions on diet, occupation and leisure significantly affect the social life and interpersonal relationships of these patients.[4]

The quality of life in patients undergoing dialysis is related to the level of health services in each country. At the same time, it depends on age, gender, social and economic status of each patient and the level of academic education, while it is influenced by factors related to this disease, such as early referral to a nephrologist, regular monitoring and biological disorders related to the primary disease or other diseases.[1,5]

The latest developments in the field of nephrology and dialysis treatment aim at the survival of patients and the improvement of the quality of their life. For this purpose, scientifically acceptable tools have been created in order to study the quality of life in the context of personal experiences and assessment of the external factors affecting the quality of life, such as the standards of patients living, the accessibility to health services and social support services.[6,7]

The study of factors affecting the quality of patients life and the influence of this disease on physical, psychological and social aspects of life of patients on dialysis, constitutes a key factor in creating a personalized holistic treatment program, adjusted to the specific needs of the patients with Chronic Renal Failure.[8]

PURPOSE

The purpose of this research study was to investigate the satisfaction of patients undergoing chronic hemodialysis and their perceptions about the quality of their life.

MATERIAL AND METHOD

This is a descriptive study, which was conducted at the Dialysis Unit in a public hospital in Athens and lasted from January 2016 to March 2016. The dialysis unit has 23 beds from which 21 are active. The study sample consisted of 70 patients undergoing chronic hemodialysis. All participants were informed that their participation was completely voluntary and the study results would be confidential. A written informed consent was obtained from all participants to participate in the study

The inclusion criteria were:

1. Age over 18 years
2. Receiving dialysis treatment for at least 6 months
3. Diagnosis of Chronic Renal Failure (CRF)
4. Ability to speak and understand the Greek language
5. Do not suffer from psychiatric diseases

For the commencement of the study official permission was granted by the Hospital's Ethics Committee.

Data collection

For data collection, the Greek version of the WHOQOL-BREF questionnaire of the World Health Organization was used, which consists of 30 questions, of which 28 are grouped into four areas or subscales (physical health, mental health, social relations and environment). The remaining two questions assess the individual perception of participants about the overall quality of their life and their general health.

Each subscale is assessed by a five-point Likert scale giving a rating score, that the higher the better quality of life suggests. The average results of individual sectors / units multiplied by the number 4, giving a range from 4 to 20 for each sector. [7,9,10] For the use of the questionnaire, it was ensured the approval by the Aeginition Hospital group who is responsible for the Greek version.

Primary, the questionnaire included additional questions for the record of:

1. The demographic characteristics of the patients (age, marital status, education level, occupation, place of residence)
2. The health status regarding latest health problems (comorbidity) and
3. A general assessment of the level of their health

For the collection of data the method of structured interview was used.

Statistical Analyses

Data analysis for this study was conducted using IBM SPSS for Windows (version 19.0, Inc., Chicago, IL, USA). Both descriptive and inferential statistics was used. More specifically, the frequency distribution of the variables was estimated, as well as the position and dispersion parameters (mean, standard deviation, minimum and maximum value) of the quantitative variables. Pearson's correlation coefficient, independent samples t-test and one-way analysis of variance (ANOVA)were used for the assessment of possible correlations between the variables. The score of WHOQOL-BREF questionnaire (Greek version) was used as an outcome of the under research correlations. All reported p-values were two-tailed, and a p-value<0.05 was considered statistically significant.

RESULTS

Sample Characteristics

Descriptive statistics of seventy patients undergoing chronic hemodialysis are presenting in Table 1. 67.1% of them were male and 32.9% female. The age range was from 43 to 87 years old, with mean 68.53 (sd=12.479). 71.4% of the patients were married and the 90.0% had 1 or more children. Regarding the educational level, half of participants had elementary school education or below. The majority of sample was pensioners 80.0%, household or unemployed were the 8.6%, and the 11.4% were employed in the private sector. 20.0% of the patients were living alone while 80.0% with others. 52.9% of the participants stated that they dealing with an additional health problem while 47.1% didn't. Regarding the self-assessment of their health status, the 47.1% stated that it was "very good or

good", 42.9% "either bad or good", and 10.0% "very bad or bad" (Table 1).

Quality of Life in the Hemodialysis Patients

Table 2 shows the descriptive statistics of WHOQOL-BREF (30-items Greek version) domains scores.For the "Overall QoL/General health" (2 items) of WHOQOL-BREF the score ranged from 1.00 to 5.00 and the mean was 3.23 (sd=0.760). The highest mean value was observed for the domain of "Social relationships" (14.68 ±1.501), followed by "Environment" (14.15 ±1.384), "Psychological health" (13.98 ±1.846), and "Physical health" (12.90 ± 2.230) domains (Table 2).

Correlation between the Quality of Life and Patients' Characteristics

Bivariate analysis (Table 3) was performed to explore the relationship between the WHOQOL-BREF domains scores (dependent variables) and the patients' characteristics (independent variables). Female showed higher mean score than male in the "Social relationships" (15.48±2.012 vs 14.29±0.987, p=0.013), and "Environment" (14.65 ± 1.335 vs 13.90±1.353, p=0.032) domains. The decrease in age of patients was statistically significant associated with an increase in both "Physical health" (r=-0.254, p=0.034) and "Psychological health" (r=-0.338, p=0.004) scores, and a decrease in "Environment" score (r=0.400, p=0.001). Married patients had lower mean score in the "Social relationships" domain than single patients (14.33 ± 0.999 vs 16.00 ± 3.298, p=0.014) and divorced or widowed patients (14.33 ± 0.999 vs 15.41 ± 1.696, p=0.011). Divorced or widowed patients had higher mean score in the "Environment" domain than single patients (15.07 ± 1.100 vs 12.90 ± 0.548, p=0.002) and married patients (15.07 ± 1.100 vs 14.00 ± 1.374, p=0.006). Regarding the educational level, was found that patients with more than 9 years of study had higher mean score in the "Social relationships" (15.71 ± 2.052 vs 14.30±1.025, p=0.009), "Environment" (14.95 ± 1.235 vs 13.85±1.327, p=0.003), and "Overall QoL/General health" (3.47 ± 0.424 vs 3.14±0.837, p=0.031) than patients with less years. Patients who were working showed higher mean score in both domains "Physical health" (14.85±0.695 vs 12.65± 2.238, p<0.001) and "Psychological health" (15.60 ± 0.428 vs 13.77 ± 1.857, p<0.001). Patients who were living alone had higher mean score in the "Social relationships" domain (15.54±1.795 vs 14.47 ± 1.353, p=0.015) but lower mean score in the "Overall QoL/General health" (2.79±0.777 vs 3.34 ± 0.721, p=0.014) than patients who were living with others. Patients who did not state an additional health problem had higher mean score in the "Physical health" (14.31 ± 1.391 vs 11.64± 2.093, p<0.001), "Psychological health" (14.67 ± 1.318 vs 13.37 ± 2.042, p=0.002), and "Overall QoL/General health" (3.52 ± 0.824 vs 2.97 ± 0.600, p=0.002) than patients who did it. Also, they were found statistically significant positive correlations between "Physical health" (r=0.469, p<0.001), "Psychological health" (r=0.265, p=0.027), "Overall QoL/General health" (r=0.289, p=0.015) and self-assessment of health status among patients undergoing in chronic hemodialysis (Table 3).

DISCUSSION

QOL is becoming an important outcome measure after the initiation of renal replacement therapies.

The major therapeutic goal is to improve the functioning ability of these patients so that they can enjoy life to its fullest possible extent.[11] The study's results illustrate how physical, psychological, social functioning, environmental, and general health were affected in CRF patients.

The present study utilized the WHOQOL-BREF to evaluate QOL in CRF patients because it has more cross-culture and cross-disease comparability than other specific instruments, such as SF-36 and Kidney Disease Questionnaire. WHOQOL-BREF includes physical, psychological, social relations and environment domains. In particular, the last two are more special than other measures of QOL. In different countries, public policies, customs and cultures affect the social relations and environment, which are two important components of QOL.[12]

In present study bivariate analysis was performed to explore the relationship between the WHOQOL-BREF domains scores(dependent variables) and the patients' characteristics (independent variables). Female showed higher mean score than male in the "Social relationships" (p=0.013), and "Environment" (p=0.032) domains. This contradicts with other study's results where female hemodialysis patients showed significantly lower quality of life than did male patients in the psychological and environmental dimensions of WHOQOL-BREF. The majority of female patients felt that they were a burden to their families and were apprehensive about their bodily image and appearance. This might have contributed to the lower QOL scores in the environmental and psychological domains in female ESRD subjects.[11] Other investigators have also reported lower health-related QOL in women than in men.[13,14] However, the exact cause for the lower QOL in female ESRD patients is not clear. But it is possible that factors such as biological or cultural and biases in the provision of care or differences in the physicians' attitude towards female patients might have contributed to the lower QOL scores.[15,16]

It was found that chronic renal failure (CRF) patients, who were younger, scored higher on both "Physical health" (p=0.034) and "Psychological health" (p=0.004) and lower in "Environment" (p=0.001).The age group of the respondents has a significant association with the environment domain of WHOQOL-BREF. The result is comparable to that obtained in a United State (US) study who found that satisfaction with life scores (a global, subjective measure of quality of life) correlated with advancing age.[17] The reason for this finding is that younger individuals may be more worried and troubled by having a diagnosis of CKD which may negatively affect their ability to fulfill major role obligations and also reduce their life expectancy.

Married patients had lower mean score in the "Social relationships" domain than single patients (p=0.014) and divorced or widowed patients (p=0.011). Similarly in a study, a divorced status was also found to be associated with a lower quality of life on the environmental domain.[18] This finding may be related to the lack of social support in the face of a life threatening illness.

These results are similar to other studies on the relationship between perceived social support and quality of life on hemodialysis patients where the researchers found a statistically significant relationship between perceived social support and health-functioning, socioeconomic,

psychological/spiritual, and family subscales of QOL.[18-20] Similarly, in another study reported that satisfaction with life score correlated with level of social support. The presence of adequate social support for patients with chronic illnesses in general is known to reduce the burden resulting from the illness. [17]

Regarding the educational level, it was found that patients with more than 9 years of study had higher mean score in the "Social relationships" (p=0.009), "Environment" (p=0.003), and “Overall QoL/General health” (p=0.031) than patients with less years. This result is consistent with another study where subjects with higher education reported significantly higher QOL scores in the environmental dimension.[11] The results of this study are also consistent with findings of previous studies that reported a positive relationship between the level of school education and the QOL.[21] Higher school education is known to play an essential role in raising the awareness of chronic diseases and in a better coping ability with chronic disease.[22]

Employment status also found to influence the QOL. Employed hemodialysis subjects revealed higher score in social domain (p=0,015) but lower score in total quality of life/general health (p=0,014). This is consistent with other study where the overall QOL of employed hemodialysis patients, was substantially better than that of the retired and the unemployed groups. Employed patients scored better in their physical, psychological, and environmental health domains.[11] Similarly other studies reported better QOL scores in employed patients in the physical functioning, mental health, and social functioning domains. [21,23,24] Financial independence, to some extent, might have contributed to the higher QOL scores in the employed group. In addition, better mobility, work capacity, and less restriction in daily activities are possible factors contributing to the better QOL scores in the aforementioned domains. Employment has been found to be a vital factor improving the QOL of ESRD patients. [25]However, another study did not find any difference in the QOL of employed and unemployed hemodialysis subjects.[26]

Patients who reported no extra health problem presented higher scores in physical health domain (p<0,001),in psychological health (p=0,002) and in overall quality of life/general health p=0,002 in comparison with those who reported having extra health problems. Also, statistically significant positive correlations found between “Physical health” (p<0.001), “Psychological health” (p=0.027), “Overall QoL/General health” (p=0.015) and self-assessment of health status among patients undergoing in chronic hemodialysis. These results are consistent with results from another study showing that the presence of complications resulting from CKD was found to have a significant association with low scores on the Health Satisfaction and physical health domain of WHOQOL-BREF.[18] This is also comparable to a study using Kidney disease Quality of Life (KDQOL) instrument among CKD patients where history of cardiovascular co morbidities and anemia were found to be associated with lower health related quality of life (HRQOL) scores.[27] Similarly, in a US study among CKD patients using the Medical Outcomes Study Short Form-36 (SF-36): a standard QOL instrument, it was reported that hemoglobin level was associated positively with

higher mental and physical QOL scores in all individual and component scales of SF-36 except pain.[28]A few studies have reported diabetes as a co-morbidity of ESRD resulting in significantly lower QOL scores.[29,30] However, a negative relationship was observed between physical functioning and the number of comorbidities. Other studies also observed a negative relationship between comorbidities and the QOL.[21,31] An increase in the number of comorbidities may worsen the QOL of patients due to physical, psychological, and emotional reasons.[21]

WHO-QOL BREF questionnaire was used to predict patients' outcome and detect changes in quality of life (QOL). Investigating the impact of CRF treatment on patients' quality of life is recognized as an important outcome measure. The aim in patients with chronic medical conditions like CRF, is to reduce disease burden and suffering, aiming to improve the overall well being and quality of life of the patient. Results from the study, emphasizing the importance of evaluating the quality of life (QOL) of chronic renal patients on hemodialysis would help health care providers in routine monitoring of patient's perception of their well being and offer better patient care.

CONCLUSIONS

The quality of life of patients undergoing dialysis is directly related to the level of health services in each country. At the same time it depends on the social and economic status of the patient, age, sex, and education level. It is also affected by factors associated with the disease, such as other health problems and access to appropriate health services.

The results of this study contribute to the existing knowledge and are the trigger for further investigation of the quality of life of patients on hemodialysis. On a practical level, the results can reinforce the decisions of health professionals to provide appropriate care, adapted to the individual needs of patients undergoing chronic hemodialysis.

Therefore, further study is essential on the social environment and culture in order to be explored in depth all the factors affecting the quality of life of hemodialysis patients.

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ANNEX

Table 1: Sample characteristics (n=70).

Characteristics		**n**	**(%)**
Gender	Male	47	(67.1%)
	Female	23	(32.9%)
Age (years)	Mean±St. Dev.	68.53± 12.479	
	Min – Max	43 – 87	
Marital status	Single	5	(7.1%)
	Married	50	(71.4%)
	Divorced	7	(10.0%)
	Widowed	8	(11.4%)
Existence of children	Yes	63	(90.0%)
	No	7	(10.0%)
Education (years)	≤ 6	35	(50.0%)
	9	16	(22.9%)
	≥ 12	19	(27.1%)
Occupation	Private sector	8	(11.4%)
	Household	3	(4.3%)
	Unemployed	3	(4.3%)
	Pensioner	56	(80.0%)
Living alone	Yes	14	(20.0%)
	No	56	(80.0%)
Additional health problem	Yes	37	(52.9%)
	No	33	(47.1%)
Self-assessment of health status	Very bador bad	7	(10.0%)
	Either bad or good	30	(42.9%)
	Very good or good	33	(47.1%)

Table 2: Scores of the WHOQOL-BREF (30-items Greek version) domains among hemodialysis patients (n=70).

WHOQOL-BREF Domains	Item Amount	Mean	St. Dev.	Possible Range	Actual Range
Physical health	9	12.90	2.230	4.00 - 20.00	8.40 - 16.00
Psychological health	6	13.98	1.846	4.00 - 20.00	8.60 - 16.60
Social relationships	5	14.68	1.501	4.00 - 20.00	12.00 - 18.40
Environment	8	14.15	1.384	4.00 - 20.00	10.50 - 17.00
Overall QoL/General health	2	3.23	0.760	1.00 - 5.00	1.00 - 5.00

WHOQOL: World Health Organization Quality of Life.

Table 3: Correlation between WHOQOL-BREF domainsand patients' characteristics.

Characteristics	Physical health	Psychological health	Social relationships	Environment	Overall QoL/ General health
Gender					
Male	12.92 ± 2.451	13.87±1.746	14.29±0.987	13.90±1.353	3.20±0.577
Female	12.85±1.744	14.21±2.058	15.48±2.012	14.65 ± 1.335	3.28±1.053
t	0.148	-0.713	-2.670	-2.194	-0.342
p	0.883	0.478	**0.013**	**0.032**	0.735
Age (years)					
r	-0.254	-0.338	0.118	0.400	0.042
p	**0.034**	**0.004**	0.331	**0.001**	0.729
Marital status					
Single (1)	11.78 ± 0.965	13.20 ± 1.789	16.00 ± 3.298	12.90 ± 0.548	2.80 ± 1.095
Married (2)	13.00 ± 2.442	14.05 ± 1.833	14.33 ± 0.999	14.00 ± 1.374	3.34 ± 0.752
Divorced/Widowed (3)	12.95 ± 1.705	14.01 ± 1.972	15.41 ± 1.696	15.07 ± 1.100	3.00 ± 0.598
F	0.674	0.481	5.764	6.545	2.074
p	0.513	0.621	**0.005**	**0.003**	0.134
Post Hoc Test (LSD)			(2)<(1)	(3)>(1)	

			p=0.014 (2)<(3) p=0.011	p=0.002 (3)>(2) p=0.006	
Children					
Yes	12.89 ± 2.251	14.01 ± 1.868	14.54 ± 1.261	14.22 ± 1.399	3.24 ± 0.729
No	12.99 ± 2.205	13.77 ± 1.757	16.00 ± 2.693	13.50 ± 1.118	3.14 ± 1.069
t	-0.108	0.317	-1.421	1.311	0.313
p	0.914	0.752	0.203	0.194	0.756
Education (years)					
≤ 9	12.75±2.346	13.79±1.922	14.30±1.025	13.85±1.327	3.14±0.837
> 9	13.28 ± 1.888	14.49 ± 1.558	15.71 ± 2.052	14.95 ± 1.235	3.47 ± 0.424
t	-0.882	-1.426	-2.851	-3.136	-2.209
p	0.381	0.158	**0.009**	**0.003**	**0.031**
Employment status					
Working	14.85±0.695	15.60 ± 0.428	14.40 ± 0.855	14.00 ± 1.604	3.50 ± 1.604
Not working	12.65± 2.238	13.77 ± 1.857	14.72 ± 1.567	14.17 ± 1.367	3.19 ± 0.589
t	5.865	6.518	-0.563	-0.317	0.536
p	**<0.001**	**<0.001**	0.575	0.752	0.608
Living alone					
Yes	13.11 ± 1.708	14.15±2.114	15.54±1.795	14.75±1.451	2.79±0.777
No	12.85±2.353	13.94±1.792	14.47 ± 1.353	14.00 ± 1.338	3.34 ± 0.721
t	0.389	0.376	2.484	1.854	-2.532
p	0.699	0.708	**0.015**	0.068	**0.014**
Additional health problem					
Yes	11.64± 2.093	13.37 ± 2.042	14.83 ± 1.887	13.97±1.645	2.97 ± 0.600
No	14.31 ± 1.391	14.67 ± 1.318	14.52 ± 0.895	14.34 ± 1.005	3.52 ± 0.824
t	-6.329	-3.195	0.897	-1.117	-3.169

p	**<0.001**	**0.002**	0.374	0.268	**0.002**
Self-assessment of health status					
r	0.469	0.265	-0.154	-0.092	0.289
p	**<0.001**	**0.027**	0.204	0.449	**0.015**

Datashownasmean±st. dev. WHOQOL: World Health Organization Quality of Life.