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The Impact of Sociodemographic and Psychological Variables on Quality of Life in Patients With Renal Disease: Findings of a Cross-Sectional Study in Greece

Paraskevi A. Theofilou[a, b]

Abstract

Background: Renal failure is a chronic disease that can have serious effects on patients' quality of life (QoL). The objective of this study was to investigate the relationship of QoL to sociodemographic variables (gender, age, education, marital status) as well as clinical variables (self-reported mental health, depression and anxiety) in end-stage renal disease patients (ESRD). For this purpose, measures assessing QoL as well as mental health were used.

Methods: A total of 144 in-centre haemodialysis (HD) and continuous ambulatory peritoneal dialysis (CAPD/PD) patients were administered the WHOQOL-BREF, GHQ-28, CES-D and STAI questionnaires.

Results: Age was found to have an effect on QoL's physical and social domains, while education on the environment domain. Marital status was observed to have a relationship with the psychological and social domains.

Conclusions: Being female, older, less educated and divorced/widowed may relate to a more compromised QoL in ESRD requiring individualized interventions.

Keywords: End-stage renal disease; Hemodialysis; Peritoneal dialysis; Quality of life; Sociodemographic variables

Introduction

Renal failure is a chronic disease that can have serious effects on many patients' quality of life (QoL) and specifically on their social, financial and psychological well-being [1-4]. End-stage renal disease (ESRD) patients in different treatment modalities have been reported to experience serious deficits of QoL [5-9]. In particular, patients with several years in heamodyalis (HD) treatment modality, compared to patients in peritoneal dialysis (PD) treatment, were found to experience poorer QoL regarding physical health, social relationships and environment [10-12]. The burden of the disease on the patient and the family is high, corresponding to an increased research interest in QoL issues for these patients in the context of different treatment modalities [13].

Regarding the effect of sociodemographic variables on patients' QoL and mental health, gender is reported to have an effect; so female patients present higher scores of depression and trait anxiety and lower scores in positive affect [14-17]. Male patients are reported of having more social activities and interests and better QoL [14, 18, 19].

Further, older patients present lower levels of physical well-being and higher scores of depression [17, 20-27]. Regarding the effect of socioeconomic status, patients in the lower range face many problems, including poorer mental and general health and lower social well-being [28, 29], whereas higher economic and educational level is associated with higher health-related QoL [18, 30]. Concerning marital status, being married is related to better physical well-being [24].

The present study might contribute to the existing body of knowledge indicating the influence of sociodemographic and clinical characteristics on patients' QoL as well as the significant interventions which can be developed by the health professionals in order to support end-stage renal disease patients. The objective of this study was to investigate the relationship of QoL to sociodemographic variables (gender, age, education, marital status) as well as clinical variables (self-reported mental health, depression and anxiety) in end-stage renal disease patients (ESRD). For this purpose, measures assessing QoL as well as mental health were used.

Materials and Methods

A sample of 144 patients was recruited from a General Hos-

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[a]Department of Psychology, Panteion University, Eratous 12, 14568, Athens, Greece
[b]Corresponding address: Eratous 12, 14568, Athens, Greece.
Email: theofi@otenet.gr

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Table 1. Sociodemographic Characteristics of the Sample (N = 144)

	Male N = 86 (59.7%)	Female N = 58 (40.3%)
Age (years) Mean (SD)	59.90 (16.88)	61.84 (11.68)
Marital status		
Single	18 (20.9%)	7 (12.1%)
Married	65 (75.6%)	42 (72.4%)
D/W/R*	3 (3.5%)	9 (15.5%)
Total	86 (100%)	58 (100.0%)
Education		
Elementary	29 (33.7%)	33 (56.9%)
Secondary	35 (40.7%)	21 (36.2%)
University	22 (25.6%)	4 (6.9%)
Total	86 (100.0%)	58 (100.0%)

*D/W/R: Divorced/Widowed/Roommate

pital in the broader area of Athens, consisting of 84 patients (58.3%) undergoing in-centre haemodialysis (HD) and 60 patients (41.7%) in continuous ambulatory peritoneal dialysis (PD). Differences of QoL between these two groups of patients have been investigated and reported (4). Selection criteria included: 1) > 18 years of age; 2) Ability of communication in Greek; 3) Diagnosed with end-stage renal disease; 4) Dialysis treatment at least for a year; 5) Satisfying level of cooperation and perceived ability.

The rate of response was very high, reaching 99%. Thus, the total sample includes almost all patients of these three units, consisting of 86 males (59.7%) and 58 females (40.3%), with a mean age of 60.6 years ± 14.9. Participants were Greek adults having signed a consent form for participation. All subjects had been informed of their rights to refuse or discontinue participation in the study according to the ethical standards of the Helsinki Declaration. Ethical permission for the study was obtained from the scientific committees of the participating hospitals. Full descriptive data of the sample are presented in Table 1.

Measurements with the following instruments

WHOQOL-BREF is a self-report 26-item QoL inventory developed by the World Health Organization [31]. The items comprise a 4-domain model: a) physical health; b) psychological health; c) social relationships and d) environment. Also, a facet of two items is included referring to overall QoL/health. The Greek version is a 30-item form with 4 new national items referring to: 1) nutrition; 2) satisfaction with work; 3) home life and 4) social life [32]. Higher scores indicate a better QoL. The Greek version of WHOQOL-BREF provided satisfactory psychometric properties supporting its use within general and pathological populations and in the context of national and crosscultural QoL measurement.

General Health Questionnaire (GHQ-28) version is a widely used self-report measure designed to detect psychiatric problems in general settings [33], which has been standardized in Greek populations [34]. It includes four subscales: a) somatic symptoms; b) anxiety/insomnia; c) social dysfunction and d) severe depression. Higher scores indicate a worse general condition of health. All the validity indices of GHQ-28 (sensitivity, specificity, positive predictive value, negative predictive value and overall misclassification rate) were quite satisfactory, thus confirming the validity of the questionnaire in its Greek version [34].

Trait Anxiety Inventory (STAI 2), and it consists of 20 items referring to self-reported trait anxiety [35]. The instrument is standardized in Greek populations [36]. Higher scores indicate the presence of state and trait anxiety.

Center for Epidemiologic Studies Depression Scale (CES-D) is a 20-item self-report measure of depression [37, 38]. According to Fountoulakis et al., it is suggested that for Greek populations a value above 9.03 is indicative that a

Table 2. Hierarchical Regression Analysis: Sociodemographic and Clinical Variables Affecting Quality of Life (QoL) Domains and Overall QoL/Health

Dependent QoL variables	Independent variables	B	SE	t	P-value	Adjusted R^2
Physical	Gender	-0.03	0.49	-0.06	NS	-0.00
	Age	-0.07	0.01	-4.04	0.00*	0.14
	Education	0.42	0.34	1.24	NS	0.14
	Marital Status	0.14	0.56	0.25	NS	0.13
	GHQ-28 (total score)	-2.30	0.95	-2.41	0.01*	0.55
	CES-D (depression)	-0.08	0.03	-2.42	0.01*	0.58
	STAI/2 (trait anxiety)	-0.02	0.03	-0.73	NS	0.58
Psychological	Gender	-0.80	0.40	-1.99	0.04*	0.06
	Age	-0.01	0.01	-1.24	NS	0.07
	Education	0.41	0.27	1.50	NS	0.07
	Marital Status	0.98	0.45	2.18	0.03*	0.07
	GHQ-28 (total score)	-1.40	0.76	-1.83	NS	0.62
	CES-D (depression)	-0.12	0.02	-4.24	0.00*	0.69
	STAI/2 (trait anxiety)	-0.07	0.03	-2.42	0.01*	0.71
Social relationships	Gender	0.09	0.55	0.17	NS	-0.00
	Age	-0.06	0.02	-2.85	0.00*	0.05
	Education	0.65	0.37	1.72	NS	0.05
	Marital Status	1.49	0.62	2.39	0.01*	0.10
	GHQ-28 (total score)	1.57	1.05	1.48	NS	0.19
	CES-D (depression)	-0.12	0.04	-3.20	0.00*	0.29
	STAI/2 (trait anxiety)	-0.05	0.04	-1.41	NS	0.30
Environment	Gender	-0.47	0.36	-1.32	NS	0.10
	Age	-0.00	0.01	-0.35	NS	0.09
	Education	0.69	0.24	2.82	0.00*	0.14
	Marital Status	-0.35	0.40	-0.88	NS	0.14
	GHQ-28 (total score)	1.40	0.69	2.01	0.04*	0.18
	CES-D (depression)	-0.05	0.02	-2.12	0.03*	0.23
	STAI/2 (trait anxiety)	-0.08	0.02	-2.97	0.00*	0.30
Overall QoL/health	Gender	0.06	0.17	0.36	NS	-0.00
	Age	-0.00	0.00	-0.40	NS	-0.00
	Education	0.16	0.11	1.39	NS	-0.00
	Marital Status	0.16	0.19	0.84	NS	-0.01
	GHQ-28 (total score)	-0.17	0.33	-0.51	NS	0.26
	CES-D (depression)	-0.02	0.01	-2.24	0.02*	0.30
	STAI/2 (trait anxiety)	-0.01	0.01	-1.31	NS	0.31

*P < 0.05; N = 144.

subject can be classified as depressed [39].

The Greek translation of the CES-D scale as well as the STAI inventory is both reliable and valid and is suitable for clinical and research use with satisfactory properties.

Results

The values of the two gender groups were found to pass the normality distribution, with the use of Kolmogorov-Smirnov Z test. The effects of sociodemographic variables on the patients' QoL were examined through a regression analysis model. Gender, age, education and marital status were introduced in the model as independent variables and the WHOQOL domains and overall QoL as dependent. The variable of marital status, in order to be included in the analyses, was recoded in three categories, that is single, married and divorced/widowed.

Age was found to have an effect on QoL's physical and social domains, gender on psychological domain, while education on the domain of environment. Marital status was observed to have a relationship with the psychological and social domains (Table 2).

Further regression analyses were conducted investigating the possible relationship of mental health variables with QoL, thus introducing in the model the participation of depression, trait-anxiety and total GHQ-28 score as independent variables (Table 2). Results indicated that depression had an effect on all QoL domains and on the overall QoL/health facet. Trait anxiety was observed to affect the psychological health and environment domains. The GHQ-28 total score affected the domains of physical health and environment.

Discussion

Investigating the effect of sociodemographic and mental health variables on QoL, the results suggest that there are significant relations of these variables to QoL. Age seems to affect the patients' physical health and social relations domains, bringing into focus the negative effect of older age in important aspects of these patients' quality of life.

These findings are in agreement with several studies indicating that older patients present lower levels of physical well-being and higher levels of depression [17, 20-27].

Gender seems to have a relation to the psychological domain, suggesting that psychological health, which is considered a major component, could represent QoL. Positive feelings, that were reported to be the best predictor in overall QoL [40], may be affected by gender differences, making female patients with end-stage renal disease more vulnerable to QoL deficits.

This finding is in agreement with several studies on chronic diseases, presenting female patients feeling more depressed than males [14-17], with a higher prevalence of trait anxiety [14, 16] and being more socially restricted, while their everyday life and level of functioning were negatively affected [29, 41].

Education appears to have an effect on the environment domain, suggesting that more educated patients hold more positive perceptions about their environment. It seems that they may have an advantage in monitoring adequately different aspects of their external world leading thus to a more favourable evaluation of it. Also, this may be interpreted that more educated patients seem better equipped to create for themselves a more satisfactory environment, with better health services, finances, recreation and other related aspects. In overall, patients with lower socioeconomic profiles or lacking in education (which is generally taken as an indicator of social status), are reported in the literature facing problems in their psychological well-being, social relationships and general health [18, 28-30].

As for marital status, it seems that it affects the psychological and social domains of QoL, suggesting that better psychological and social well-being can be associated with family conditions and living with a partner. On the basis of these findings, married patients seem to experience a better QoL. Similar evidence in the literature indicates that the status of marriage in these patients may be significantly correlated with an enhanced physical well-being [24].

These results provide useful indications that certain variables referring to the patient's sociodemographic profile may affect favourably or unfavourably his/her QoL. In the present study, being male, younger, more educated and married appeared to have a favourable effect on several aspects of the patients' QoL. The findings are in agreement with evidence in the literature indicating that sociodemographic factors may to some extent contribute to the explanation of overall QoL [42]. According to Sprangers et al [43], independent of the kind of illness, being female, older, less educated and living without a partner are connected with a lower QoL.

In overall, our findings provide evidence which can be useful to health professionals and managers of health services offered to end-stage renal disease patients. Tailored interventions can be developed to support female but also male patients, those who are older, less educated, living alone, depressed, anxious, in an effort to address issues of compromised QoL. Psychological and psychoeducational interventions, as well as health promotion educational programmes, may be considered for renal patients bringing into focus specific aspects of their negatively perceived mental health, like being depressed, or having suicidal ideation.

Regarding limitations in the study, it is noted that patients were recruited from three renal units and were a convenience sample. Thus, it was not possible to have an adequate control on demographic or clinical variables. Evidence provided by the results of this study can be further extended

by the control of the above variables and the use of even larger samples. Also, limitations of the study may include the lack of investigating the effect of clinical factors such as duration and adequacy of dialysis, hemoglobin level or other clinical parameters (comorbid conditions such as diabetes or cardiovascular disorder) on the patients' perceptions of quality of life.

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