

## Original Research Article

# Quality of life, depression and self-perceived burden among geriatric and non-geriatric hemodialysis patients

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## ABSTRACT

**Background:** Many hemodialysis patients need support at various levels from their relatives while performing their daily activities. The 'burden' of these needs of patients on their relatives and their negative effects on their lives have been shown in the literature. The aim of the study was to evaluate the 'care burden' in terms of the patient.

**Methods:** The patient who had received hemodialysis for at least 3 months was included in the study. A patient identification form including demographic data and medical history data was prepared. The Perceived care burden scale, Beck depression scale and WHO Quality of life questionnaire were applied to the patients.

**Results:** A statistically significant positive correlation was found between SPBS and BDI ( $p < 0.001$ ,  $r = 0.820$ ). A statistically significant negative correlation was observed between the perceived care burden and all sub-dimensions of the quality of life scale ( $p < 0.001$ ). The frequency of comorbidity in the geriatric group was higher than non-geriatric group. A statistically significant positive correlation was found between comorbidity and QOL ( $p < 0.001$ ). The median scores of all sub-dimensions of the QOL scale were lower in geriatric group and there were significance differences except environment dimension.

**Conclusions:** The self-perceived burden on caregivers of hemodialysis patients was positively associated with depression and negatively associated with QOL. Decrease in QOL was more pronounced in geriatric patients.

**Keywords:** Perceived care burden, Quality of life, Depression

## INTRODUCTION

Patients on maintenance dialysis must deal with a multitude of physical and emotional symptoms. Due to the difficulties caused by the disease and the treatment, hemodialysis patients often required to take support from other people, especially family members.<sup>1</sup> Family members, who assist in patient care, may experience many negative objective and subjective results of caregiving including psychological problems, health problems, socioeconomic problems, deterioration in family relationships and a sense of burnout.<sup>2</sup> All these negative situations faced by family members (unpaid caregivers) are defined as 'caregiver burden' and the effects of this

burden to their caregiver's life have been extensively examined in the literature. The number of studies on the caregiver burden has been reported that the quality of life (QOL) in caregivers of hemodialysis patients related to burden of caregiving.<sup>3,4</sup>

Being a burden to a family member can be interpreted as meaning that feeling guilty because of caring needs, so it can link to depression and reduction in QOL. Cousineau and colleagues developed a scale for measuring chronic patient's feelings of being a burden to their caregivers and confirmed that the scores of this Self-perceived burden scale (SPBS) were negatively correlated with functional status index and QOL of patients.<sup>5</sup> Although the burden in

people who provide care for hemodialysis patients in Turkey has been evaluated, as far as we know, there are no studies investigating the perception of caregiver burden.

The aims of the study were to evaluate the 'care burden' in terms of the hemodialysis patients by using the SPBS and analyzed to identify the relationship with patients' characteristics, depression and QOL. In a second step, comparison of geriatric and non-geriatric patients' results.

## **METHODS**

This study was a descriptive, cross-sectional, correlational study. The study sample was composed of 135 patients from several dialysis centers in the city of Sakarya, Turkey. The criteria for inclusion were: undergoing regular dialysis at least three months, being 18 years old or older, not having a physical or psychiatric disorder that would prevent the interview, able to speak and understand Turkish.

### **Data collection**

Research tools were consisted of four sections, including demographic data checklist, the SPBS, WHO Quality of Life Questionnaire (WHOQOL) and Beck depression inventory (BDI). Data were collected in dialysis center, half of patients before dialysis session and the other half after dialysis session and for approximately 20 minutes for each patient.

### **Data collection tools**

Patient's demographic data checklist was consisted of age, sex, marital status, education, working status, relatives who assist patients' care, primer cause of end stage renal disease, duration of dialysis, weekly dialysis frequency and the Charlson comorbidity Index was used to assess the burden of comorbid conditions.<sup>6</sup>

The SPBS aims to assess the degree to which patients perceive themselves as a burden on other people. Respondents are instructed to think about the people who help with day-to-day activities such as shopping for groceries, getting medicine, preparing meals, and transporting to the dialysis center and answer the questions about those people. The instructions to include only people, who are not paid, such as a friend, family member, or child, are explicit. The SPBS has two versions: a long 25-item version and an abbreviated 10-item version. Every item has a five-point Likert scale ranging from: 1 (almost never) to 5 (almost always). The higher score meant more perception of burden. Long and abbreviated-short versions have demonstrated good internal consistency by obtaining Cronbach's alpha of 0.92; and 0.85, respectively.<sup>5</sup> Turkish validation studies have been reported in patients with heart failure.<sup>7</sup> The WHOQOL was used to measure the QOL of hemodialysis patients. It consists of 26 items, scored on a 5-point Likert scale and has four main dimensions: physical health, psychological, social relationships, and

environment. Obtained scores were converted into 100 in every dimension. The least and most scores, in any dimension, were 0 and 100, respectively. These four dimensions were shown to be valid measures of overall QOL and health. The higher score indicates a better QOL. WHOQOL-BREF is cross-culturally sensitive and has good, excellent reliability and validity. Turkish validation studies have been reported by Eser et al.<sup>8</sup>

The BDI is a 21-item self-reported inventory to measure severity of depressive symptoms. The 21 items are answered on a four-point Likert scale, in which 0 represents the absence of a problem and 3 represents the extreme severity of a problem. The total score ranges from 0 to 63. BDI scores were classified as follows: 0-13, no depression; 14-19, mild depression; 20-28, moderate depression; 29-63, severe depression. The BDI is documented as a valid index of depression and BDI scores correlate well with the diagnostic criteria for depression and validity and reliability studies for Turkish have been reported.<sup>9</sup>

### **Data analyze**

Statistical analyses were performed using SPSS 21. The Kolmogorov-Smirnov test was used to assess normality of distribution. Median (minimum-maximum) for metric variables, and frequency (percent) for categorical variables were given as descriptive statistics. Among the groups, the significance of the difference was evaluated by Mann-Whitney U test. The Spearman method was conducted to analyze correlation between SPBS and other study parameters. The results were reported with a confidence interval of 95% and an assumed significance level of  $p < 0.05$ .

### **Ethical consideration**

Ethics approval for this study was obtained from Sakarya University Faculty of Medicine Non-Interventional Ethics Committee. All procedures followed the tenets of the Declaration of Helsinki. Patients were informed about the study and were assured of confidentiality. Informed written consent was obtained from all patients before their participation in the study. Data were collected in March-April 2017. Questionnaires were performed during hemodialysis session and researchers read the questionnaire verbatim to people who were unable to self-complete the questionnaire without assistance.

## **RESULTS**

In our study, 74 patients (54.8%) were men; 64 patients (45.2%) were female. The median age of the patients was observed to be 65 (min: 33; max: 91). The median dialysis duration of study population was 27 month (min: 3; max: 232). The median Charlson Comorbidity Index score, 5.9 (min; 2; max; 10), indicating a high burden of comorbid conditions. The median number of medications was 5 per patient (min: 2; max: 14). The characteristics of the

patients are shown in Table 1. The patients' SPBS scores were determined median 25 (min: 10; max: 50). The BDI scores were evaluated as the median score 10 (min: 1; max: 39) and were above 14 in 32% of the patients. In the quality of life scale, the physical area was measured as median 57.14 (min: 21.43; max: 82.14), the psychological area as median 58.33 (min: 20.83; max: 99.17), the social area as median 58.33 (min: 8.33; max: 91.67), and the environmental area as median 65.62 (min: 15.63; max: 96.88). The correlation between SPBS scores and other study parameters were investigated. A statistically significant positive correlation was found between SPBS and BDI ( $p<0.001$ ,  $r=0.820$ ). A statistically significant negative correlation was observed between the perceived care burden and all sub-dimensions of the quality of life scale ( $p<0.001$ ). There was a significant correlation between the duration of dialysis and SPBS scores

( $p=0.004$ ,  $r=0.248$ ). There was significant correlation between the age of the patient and SPBS scores ( $p<0.001$ ,  $r=0.362$ ) (Table 2).

When the geriatric (71 patients) and non-geriatric (64 patients) groups were compared, there was no significant differences between SPBS scores, dialysis duration, number of medications and BDI scores ( $p=0.160$ ,  $p=0.570$ ,  $p=0.626$ ,  $p=0.20$ , respectively). The frequency of comorbidity in the geriatric group was higher than non-geriatric group. A statistically significant positive correlation was found between comorbidity and QOL ( $p<0.001$ ). The median scores of all sub-dimensions of the QOL scale were lower in geriatric group and there were significance differences except environment dimension (Table 3).

**Table 1: Patients' characteristics.**

Characteristics	N	Percentage (%)
<b>Age (years)</b>		
18-64	64	47.4
≥65	71	52.6
<b>Gender</b>		
Male	74	54.8
Female	61	45.2
<b>Marital status</b>		
Married	104	77
Widowed or divorced	21	15.6
Single	10	7.4
<b>Education status (year)</b>		
0	17	12.6
1-4	51	37.8
5-8	44	32.6
≥9	23	17
<b>Working status</b>		
Retired	66	48.9
Not worker	54	40
Worker	15	11.1
<b>Relatives who assist in patients' care</b>		
Wife/husband and children	50	37
Wife/husband	47	34.8
Children	30	22.2
Parents	6	4.4
Other relatives	2	1.5
<b>Primary cause of ESRD (End stage renal disease)</b>		
Hypertension	51	37.8
Diabetes mellitus	45	33.3
Other causes	39	28.9
<b>Duration of hemodialysis (months)</b>		
3-6	18	13.3
7-12	16	11.9
13-36	43	31.9
>36	58	43
<b>Weekly dialysis frequency</b>		
1	2	1.5
2	20	14.8

Continued.

Characteristics	N	Percentage (%)
3	113	83.7
<b>Charlson comorbidity index</b>		
0-5	52	38.5
6-7	66	48.9
8-9	17	12.6
<b>Number of medications</b>		
<4	60	44.4
5-6	42	31.2
7-8	25	18.5
≥9	8	5.9

**Table 2: Correlation of age, duration of hemodialysis, Charlson comorbidity scores, Quality of life and Beck depression index scores with the Self-perceived burden scale.**

Parameters	Median (min; max)	Correlation with SPBS
Age (years)	65 (min: 33; max: 91)	p<0.001 r=0.362
Duration of hemodialysis	27 (min: 3; max: 232)	p=0.004 r=0.248
Comorbidity scores	5.9 (min: 2; max: 10)	p=0.013 r=0.213
Beck depression inventory	10 (min: 1; max: 39)	p<0.001 r=0.820
WHOQOL physical health	57.14 (min: 21.43; max: 82.14)	p<0.001 r=-0.642
WHOQOL psychological	58.33 (min: 20.83; max: 99.17)	p<0.001 r=-0.635
WHOQOL social relationships	58.33 (min: 8.33; max: 91.67)	p<0.001 r=-0.592
WHOQOL environment	65.62 (min: 15.63; max: 96.88)	p<0.001 r=-0.689

**Table 3: Comparison of geriatric and non-geriatric patients' characteristics, BDI, DSI, SPBS and WHOQOL results.**

Parameters	Non-geriatric		Geriatric		P value
	Median	Min-max	Median	Min-max	
Age (years)	55	33-64	72	65-92	p<0.001
Dialysis duration (months)	28.5	3-232	26.5	3-183	p=0.570
Charlson comorbidity index	4.4	2-7	6	3-10	p=0.007
Number of medications	5	2-13	5	2-14	p=0.626
BDI scores	9	1-39	10	1-39	p=0.20
WHOQOL physical health	64.64	32.14-82.14	50.25	21.43-76.44	p<0.001
WHOQOL psychological	63.25	20.83-99.17	50.25	25.75-87.54	p<0.001
WHOQOL social relationships	65.83	25-91.67	50.25	8.33-91.37	p=0.008
WHOQOL environment	68.75	15.63-96.88	62.5	28.13-96.88	p=0.030
SPBS scores	21	10-50	27	11-50	p=0.160

Note: BDI: Beck depression index; WHOQOL: WHO Quality of life questionnaire; SPBS: Self-perceived burden scale.

## DISCUSSION

The present study demonstrated that self-perceived burdens of hemodialysis patients were associated with depression and quality of life. The strengths of the correlations between self-perceived burden and quality of life and depression were all moderately high.

In a study conducted on 141 hemodialysis patients, 46.2% of the patients had depression and it was found to be related to the SPBS scores. In this study, a strong relationship was found between the patients' quality of life and their SPBS scores, which was consistent with our result.<sup>10</sup> In another study conducted on hemodialysis patients, were found significant relationships between quality of life, depression and SPBS scores. This study is

not only composed of patients with unpaid caregivers but also patients without unpaid caregivers were included. When the two groups were compared, it was found that patients with unpaid caregiver had higher comorbidity, BDI scores and worse physical function.<sup>11</sup> Similar to hemodialysis patients, a relationship has been shown between the self-perceived burden and depression in cancer patients. The fact that chronic and needy patients see themselves as a burden also affects family relationships.<sup>12</sup>

We did not define the caregiver with certainty in our study. While conducting SPBS, we asked the patients to think about their relatives who helped them in their daily work. Nevertheless, the geriatric and non-geriatric groups we formed in our study were similar to the caregiver and

without caregiver patient groups of this study. Not surprisingly, comorbidities, BDI scores were higher and median quality of life values were lower in the geriatric group of our study. The elderly hemodialysis patients are more likely to be functionally and cognitively impaired compared to younger patient. Dialysis Doctors should take care of individual needs and use geriatric components to meet the needs of this advanced elderly population.<sup>13</sup> Depression is common in hemodialysis patients, and it was found frequently in our study (32% of all patient). Although the median value of BDI score of the geriatric group was higher than the non-geriatric group, no statistically significant difference was found. However, according to our study, depression was found to be high in geriatric patients with a rate of 38% (BDI>14). In a recent study evaluating 173 patients in which the frequency of depression in elderly hemodialysis patients was evaluated, the frequency of depression was found to be 22.5%.<sup>14</sup>

The fact that patients see themselves as a burden can make them depressed. Or they may see themselves as a burden because they are depressed. It is difficult to distinguish between these, but it can be said that they are moderately correlated. We found no associations among perceived caregiver burden with gender, marital status, working status, level of education and type of relatives who assist in patients' care.

High comorbidity rate in hemodialysis patients has been shown in many studies, and it has been shown that comorbidities increases with age, as in our study. This high comorbidity rate causes high burden of symptoms and that contributes to the marked impairments in QOL in this population. Decrease in quality of life is expected in chronic diseases, this decline is more pronounced in hemodialysis patients, who are dependent on a healthcare institution for 2 or 3 days a week-patients.<sup>15</sup> Family support can facilitate to deal with these difficulties and linked to improvement in QOL. It has been observed that family support has positive effects on quality of life and even lifespan, especially for patients with a high need of care.<sup>16</sup>

As a matter of fact, family members play an important role in the success of hemodialysis treatment and are considered as part of the dialysis team. It may be useful to educate family relatives, who support the care of the patient, on disease management. It should be kept in mind that patients' relatives may also need support in issues such as burnout, depression and anxiety.<sup>17</sup> Although many studies documents burden of caregiving and its psychological or physical effects on the caregivers, very few studies have examined the role of self-perceived burden of hemodialysis patients' caregivers.

## CONCLUSION

In our study, it was observed that there is a relationship between self-perceived burden and depression and quality of life.

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