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Social support, religiosity, and quality of life among haemodialysis patients in Aseer region, Saudi Arabia

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Abstract

Background Chronic kidney disease patients on haemodialysis (HD) experience negative consequences in the quality of life (QOL), which is affected by factors such as perceived social support and spirituality/religiosity. The purpose of the study was to assess perceived social support, religiosity, and QOL among HD patients in Aseer, Saudi Arabia.

Results A total of 162 HD patients were included in the study. Patient ages ranged from 18 to 64 years with mean age 44.6 ± 11.9. Duration of HD was <5 years among 41.4% of patients, and ≥10 years in 21%. Perceived social support was high among 79.6% of patients. Religiosity score ranged from 26 to 52 (out of 65) with mean score 36.6 ± 5.2. There was a significant correlation between perceived social support, religiosity, and the life satisfaction domain of QOL ($P<0.05$).

Conclusions High perceived social support alongside high religiosity had a significant effect on patients' life satisfaction domain of health-related QOL (HRQOL). Therefore, social support and religiosity assessment are important in HD patient care. Further studies should assess the benefit of religious/spiritual counselling as part of a holistic multi-disciplinary approach.

Keywords Renal dialysis, Haemodialysis, End-stage renal disease, Chronic kidney disease, Quality of life, Social support, Religiosity, Spirituality, Aseer region, Saudi Arabia

Background

Chronic kidney disease patients on haemodialysis (HD) experience many symptoms with undesirable consequences for their quality of life (QOL) and daily activities [1]. Multiple factors affect the outcome and QOL of patients on HD, including the perceived social support provided by their support network [2], which represents informal relationships such as family and close friends as well as more formal contacts such as co-workers and neighbours [2]. The support network is a system in which the individual receives emotional/material help and establishes positive social interactions [3]. Healthcare providers are also part of the support network, and they are encouraged to openly listen to patients and pay attention to their concerns, which conveys to them that they are being cared for and are valued [4]. Social support is associated with greater life satisfaction and recovery from chronic disease, which enhances the ability to cope with life stressors and mental health symptoms [4]. It is also related to decreased mortality rate [2]. Another factor that may influence HD patients' QOL is their spirituality and religiosity. There is significant overlap between the definitions of religiosity and spirituality, but both terms

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share a connection with the transcendent. However, individual understandings of 'transcendent' vary from person to person [5]. As such, spiritual people are defined as a subset of highly religious individuals who base their way of life on the teachings of their faith [5]. This understanding of religiosity/spirituality applies to Islam, Judaism, Christianity, Buddhism, Hinduism, and any other recognised religious/spiritual tradition [5].

There are multi-dimensional and multi-layered correlations between religion/spirituality and health [5]. Although their relation to HD patients' QOL has been assessed previously in different populations [6–8], this study will assess the level of perceived social support, religiosity, and QOL among HD patients of the Aseer region, Saudi Arabia.

Methods

A direct interview correlational cross-sectional study was conducted for all patients undergoing HD in the largest three dialysis centres in Abha and Khamis Mushait during the study period (6 June to 22 July 22, 2021). Among 270 HD patients in all three centres, researchers collected data from 162 HD patients. The inclusion criteria were (a) clinically stable patients of both genders with end-stage renal disease who are (b) capable of understanding and answering questions and who (c) agreed to participate and sign the informed consent. Patients (a) aged below 18, (b) those with cognitive and/or hearing impairments significant enough to interfere with interviewing, and (c) those who refused to give an informed consent were excluded. Data were collected through direct, in-place interviews of eligible patients using pre-structured questionnaires prepared through intensive literature review and expert consultation. Data collected included socio-demographic, economic, and clinical data, as well as any additional relevant information obtained from participants and their medical records.

Perceived social support was measured by the Arabic version of the Multidimensional Scale of Perceived Social Support (MSPSS), which is designed to measure an individual's perception of support from three sources: family, friends, and significant other. This well-validated and widely used questionnaire comprises 12 questions using a 7-point Likert scale [9].

Religiosity was assessed using the Arabic version of the Muslim Religiosity Scale (MRS), which comprises 13 questions using a 5-point Likert scale [10]. MRS has strong validity and high test–retest reliability [10, 11].

Quality of life was assessed using the Arabic version of the Quality-of-Life Index (dialysis version-3) [12].

After data were extracted, they were revised, coded, and fed to the statistical software IBM SPSS version 22 (SPSS, Inc., Chicago, IL). All statistical analyses used two-tailed tests.

A *P* value below 0.05 was statistically significant. For patients' QOL scale, the discrete scores for both domains (satisfaction and importance) were each calculated with an overall score ranging from 34 to 204. Patients' overall domain-related scores were categorised as *poor* for scores ranging from 34 to 90, *average* for scores from 91 to 147, and *good* for scores from 148 to 204. The overall perceived social support score was obtained by summing up all discrete item scores with ranges from 12 to 84. The overall scores were categorised as *low perceived support* [12–35], *medium perceived support* (36–60), and *high perceived support* (61–84).

The overall religiosity scores were obtained using the Muslim Religiosity Scale (MRS) ranging from 13 to 65, wherein higher scores indicate higher religiosity [10]. Descriptive analysis based on frequency and per cent distribution was performed for all variables, including patients' socio-demographic data, medical history, renal dialysis data, and adherence to fluid and dietary plans. Also, patients' QOL and perceived social support were graphed for frequency distribution. The mean score with standard deviation was used to display patients' religiosity. Cross-tabulation was used to assess the distribution of patients' QOL, perceived social support, and religiosity by their bio-clinical data and to test the relationships between patients' QOL and social support with religiosity.

Relationships were tested using the Pearson chi-square test and the exact probability test for small-frequency distributions. One-way ANOVA and independent *t*-tests were used for comparing religiosity scores.

Results

A total of 162 HD patients were included in the study. Patient ages ranged from 18 to 64 years with a mean age of 44.6 ± 11.9 years. Among them, 53.7% of patients were males. A total of 58.6% of patients were unemployed, 21.6% were employed, and 19.8% were retired. Regarding marital status, 62.3% of patients were married and 25.3% were single. As for educational level, 17.3% were non-literate, 18.5% had basic education (able to read/write), 35.2% had secondary-level education, and 29% were university graduates. Monthly income of less than 5000 Saudi Riyals (SR) was reported among 45.1% of patients; 29.6% had monthly income between SR 5000 and 10,000, 19.1% had monthly income between SR 10,000 and 15,000, and 6.2% had monthly income exceeding SR 15,000. Regarding medical co-morbidities, 59.3% were hypertensive, 33.3% were diabetic, and 25.3% had no chronic disease (Table 1).

Table 1 Bio-demographic data of patients on haemodialysis, Saudi Arabia

Bio-demographic data	No.	Per cent
Age in years		
< 30	22	13.6
30–39	33	20.4
40–49	40	24.7
50+	67	41.4
Gender		
Male	87	53.7
Female	75	46.3
Work		
Unemployed	95	58.6
Employed	35	21.6
Retired	32	19.8
Marital status		
Single	41	25.3
Married	101	62.3
Divorced/widow	20	12.3
Educational level		
Non-literate	28	17.3
Basic education (able to read/write)	30	18.5
Secondary education	57	35.2
University/more	47	29.0
Monthly income		
< 5000 SR	73	45.1
5000–10,000 SR	48	29.6
10,000–15,000 SR	31	19.1
> 15,000 SR	10	6.2
Other diseases		
None	41	25.3
DM	54	33.3
HTN	96	59.3
Cardiac diseases	8	4.9
Asthma	3	1.9
Hypothyroidism	8	4.9
Others	16	9.9

A description of HD data among study patients in Saudi Arabia is presented in Table 2. The duration of HD was less than 5 years among 41.4% of patients and 10 years or more in 21% of patients. The vast majority (98.1%) of patients had three HD sessions per week. There were 46.9% of patients on a renal transplant waitlist, of whom 41.2% had been waiting for 4 years and 20.6% for 5 years or more. As for adherence to restrictions on daily liquid intake (0–10 scale), *poor adherence* (1–4) was reported among 14.8% of patients, 38.3% were *moderately adherent* (5–7), and 46.9% had *high adherence* (8–10). Regarding adherence to diet (0–10 scale), *poor adherence* (1–4) was reported among 18.5% of patients, 39.5% were moderately adherent (5–7), and 42% had *high adherence* (8–10).

Among the sample of participants, 77.2% reported *good satisfaction* (score 148–204), 19.7% *average satisfaction* (91–147), and 3.1% *poor satisfaction* (34–90); the mean satisfaction score was 162.8 ± 25.6. Furthermore, 87% reported *good importance*, 13% *average importance*, and 0% *poor importance*; the mean importance score was 173.8 ± 22.2 (Fig. 1).

High perceived social support was reported in 79.6% of patients, moderate perceived social support in 15.4% of patients, and low perceived social support in only 4.9%. Patients' perceived social support scores ranged from 22 to 84 (out of 84) with a mean score of 69.5 ± 11.5 (Fig. 2) Religiosity scores ranged from 26 to 52 (out of 65) with a mean score of 36.6 ± 5.2.

The distribution of HD patients' QOL by bio-clinical data, Aseer region, Saudi Arabia, is presented in Table 3. Patients' satisfaction levels were significantly associated with age; 73.1% of old patients more than 50 years old had good satisfaction compared to 68.2% of young patients less than 30 years old ($P = .047$). Also, 85.5% of patients highly adherent to the daily restrictions on liquid intake had good satisfaction, versus 33.3% of poorly adherent patients ($P = .001$). Good satisfaction was detected among 85.3% of patients with high adherence to their diet changes; in contrast, only 40% of those with poor adherence reported good satisfaction ($P = .001$). Perception of life importance was significantly higher (93.6%) among highly educated patients (university or higher) versus 71.4% of those with lower education (non-literate) ($P = .030$). Also, 92.1% of patients on a renal transplant waitlist had a good perception of their life importance, versus 82.6% of those who were not on a renal transplant waitlist ($P = .049$).

The perceived social support among HD patients by their bio-clinical data, Aseer region, Saudi Arabia, is presented in Table 4. High perceived social support was detected among 82.9% of single patients compared to 60% of the divorced/widowed group, which was statistically significant ($P = .007$).

All other factors showed no significant relation with patients' perceived social support.

The religiosity of HD patients by their bio-clinical data, Aseer region, Saudi Arabia, is presented in Table 5. The mean religiosity score was significantly higher among retired patients than unemployed patients (38.5 vs. 35.9; $P = .047$). Also, the mean religiosity score among patients with monthly income exceeding SR 15,000 was significantly higher than others with monthly income less than SR 5000 (41.4 vs. 35.9, respectively; $P = .004$). The mean

Table 2 Renal dialysis data among study patients, Saudi Arabia

Renal dialysis data	No.	Per cent
Duration of RD		
< 5	67	41.4
5–9	61	37.7
10+	34	21.0
Frequency of RD sessions/week		
2	1	0.6
3	159	98.1
4	2	1.2
Are you on renal transplant waiting list?		
Yes	76	46.9
No	86	53.1
If yes, for how many years?		
< 3	26	38.2
3–4	28	41.2
5+	14	20.6
How adherent you are to the restrictions on the amount of liquids you are required to take daily (0–10)?		
1–4	24	14.8
5–7	62	38.3
8–10	76	46.9
How adherent you are to the diet you are required to follow daily (0–10)?		
1–4	30	18.5
5–7	64	39.5
8–10	68	42.0

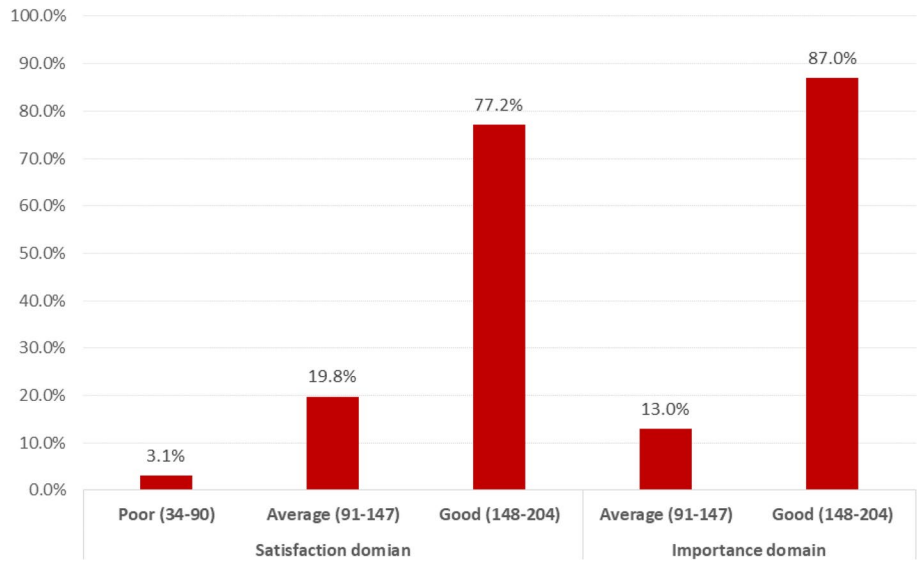

Fig. 1 QOL for patients on HD, Aseer region, Saudi Arabia (*)

religiosity score among patients who had been on HD for less than 5 years was 37.6, compared to 35.1 for those who had been on HD for 10 years or more ($P = .048$).

The relationship between QOL, perceived social support, and religiosity among patients on HD, Aseer region, Saudi Arabia, is presented in Table 6. There was a significant relationship between perceived social support and

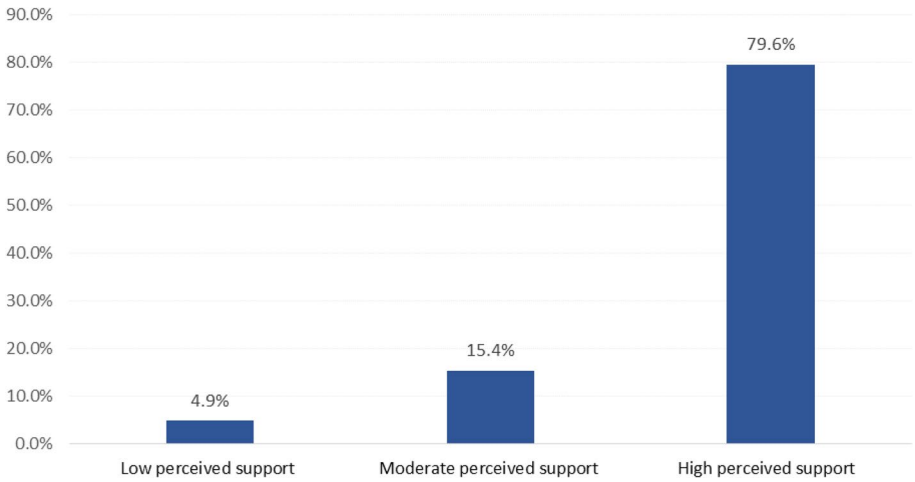

Fig. 2 Perceived social support of HD patients in Aseer region, Saudi Arabia

the life satisfaction domain of QOL; 83.7% of patients with high perceived social support showed good satisfaction, compared to 62.5% of patients with low perceived social support ($P = .001$). The importance domain showed no significant relationship with patients' perceived social support. As for religiosity, patients reporting good satisfaction recorded a significantly higher religiosity score than those with poor satisfaction (37.0 ± 5.3 vs. 31.4 ± 3.9, respectively; $P = .032$). There was no significant relationship between patients' religiosity and the importance domain of QOL.

Discussion

Health-related quality of life (HRQOL) is a model for assessing patients' well-being, functioning, and perception of health status that considers physical, psychological, and social aspects [13]. HRQOL assessment is a critical tool in identifying approaches to improve the well-being of chronic kidney disease patients and may be useful in mapping strategies to avoid adverse outcomes [13]. One of HRQOL's many practical applications was demonstrated in a previous study, which found that assessing HRQOL provided a consistent and responsive strategy for measuring the efficiency of renal anaemia treatment [14]. Furthermore, HRQOL assessment may help caregivers recognise a patient's risk of hospitalisation and death [15–17].

Our study results revealed that more than three-quarters of patients had *good* scores for the domains of life satisfaction (77%) and perception of life importance (87%). Higher satisfaction rates were reported among middle-aged patients (most of whom were adapted to the lifestyle changes related to the disease) than among younger patients (most of whom were new cases who had not yet fully adapted to such lifestyle changes) as well as compared to older patients, who tended to have multiple co-morbidities related to ageing that affected their well-being.

Also, higher satisfaction regarding well-being was detected among 85.5% of patients who were highly adherent to the daily restrictions on liquids and diet. Adherence helped patients minimise the drawbacks and negative consequences of the disease.

Good perception of life importance was significantly higher among highly educated patients as well as patients on renal transplant wait lists who hoped to return to their normal lives. Similar findings regarding the effect of renal dialysis on patients' QOL have been reported in many studies examining end-stage renal disease patients' QOL.

Moreno et al. reported that 26% of HD patients had extreme QOL restrictions and 31% had good QOL [18]. Patients' work, recreation, activities, and sleep were the most affected issues. Cruz et al. also found that QOL is decreased in renal patients in the early stages of disease [19]. Evans et al. reported that approximately 79% of transplant recipients are able to return to normal function at nearly normal levels, versus 47.5–59.1% of patients on dialysis [20]. Transplant recipients also had a higher QOL than patients on dialysis as measured by three subjective measures: life satisfaction, well-being, and psychological affect [20]. Social support has been shown to decrease the risk of both mental and somatic disorders, modify stress-coping mechanisms, and minimise the likelihood of premature death [21, 22]. Moreover, social support is reported as an important factor for patients' QOL [23]. This role of social support has been supported by previous empirical studies [24, 25]. Our study showed that more than three-quarters (79.6%) of the patients

Table 3 Distribution of quality of life by haemodialysis patient's bio-clinical data, Saudi Arabia

Factors		Satisfaction domain						Importance domain			
		Poor		Average		Good		Average		Good	
		No.	%	No.	%	No.	%	No.	%	No.	%
Age in years	< 30	3	13.6	4	18.2	15	68.2	1	4.5	21	95.5
	30–39	0	0.0	5	15.2	28	84.8	4	12.1	29	87.9
	40–49	1	2.5	6	15.0	33	82.5	3	7.5	37	92.5
	50+	1	1.5	17	25.4	49	73.1	13	19.4	54	80.6
	***P*-value**	0.047*						0.178			
Gender	Male	2	2.3	21	24.1	64	73.6	10	11.5	77	88.5
	Female	3	4.0	11	14.7	61	81.3	11	14.7	64	85.3
	***P*-value**	0.283						0.549			
Work	Unemployed	3	3.2	18	18.9	74	77.9	14	14.7	81	85.3
	Employed	2	5.7	7	20.0	26	74.3	3	8.6	32	91.4
	Retired	0	0.0	7	21.9	25	78.1	4	12.5	28	87.5
	***P*-value**	0.749[$]						0.674			
Marital status	Single	2	4.9	8	19.5	31	75.6	5	12.2	36	87.8
	Married	2	2.0	21	20.8	78	77.2	11	10.9	90	89.1
	Divorced/widow	1	5.0	3	15.0	16	80.0	5	25.0	15	75.0
	***P*-value**	0.847						0.226			
Educational level	Non-literate	0	0.0	3	10.7	25	89.3	8	28.6	20	71.4
	Basic education (able to read/write)	3	10.0	8	26.7	19	63.3	2	6.7	28	93.3
	Secondary education	1	1.8	11	19.3	45	78.9	8	14.0	49	86.0
	University/more	1	2.1	10	21.3	36	76.6	3	6.4	44	93.6
	***P*-value**	0.161						0.030*			
Monthly income	< 5000 SR	2	2.7	14	19.2	57	78.1	12	16.4	61	83.6
	5000–10,000 SR	3	6.3	8	16.7	37	77.1	3	6.3	45	93.8
	10,000–15,000 SR	0	0.0	6	19.4	25	80.6	6	19.4	25	80.6
	> 15,000 SR	0	0.0	4	40.0	6	60.0	0	0.0	10	100.0
	***P*-value**	0.468[$]						0.150			
Other diseases	Yes	4	3.3	22	18.2	95	78.5	19	15.7	102	84.3
	No	1	2.4	10	24.4	30	73.2	2	4.9	39	95.1
	***P*-value**	0.675						0.075			

Table 3 (continued)

Factors		Satisfaction domain						Importance domain			
		Poor		Average		Good		Average		Good	
		No.	%	No.	%	No.	%	No.	%	No.	%
Duration of RD	< 5	2	3.0	13	19.4	52	77.6	11	16.4	56	83.6
	5–9	2	3.3	14	23.0	45	73.8	6	9.8	55	90.2
	10+	1	2.9	5	14.7	28	82.4	4	11.8	30	88.2
	***P*-value**	0.913						0.527			
Are you on renal transplant waiting list?	Yes	1	1.3	11	14.5	64	84.2	6	7.9	70	92.1
	No	4	4.7	21	24.4	61	70.9	15	17.4	71	82.6
	***P*-value**	0.111						0.049*			
If yes, for how many years?	< 3	0	0.0	5	19.2	21	80.8	4	15.4	22	84.6
	3–4	0	0.0	3	10.7	25	89.3	2	7.1	26	92.9
	5+	0	0.0	2	14.3	12	85.	0	0.0	14	100.0
	***P*-value**	0.676$^{\$}$						0.241$^{\$}$			
How adherent you are to the restrictions on the amount of liquids you are required to take daily (0–10)?	1–4	3	12.5	13	54.2	8	33.3	0	0.0	24	100.0
	5–7	1	1.6	9	14.5	52	83.9	10	16.1	52	83.9
	8–10	1	1.3	10	13.2	65	85.5	11	14.5	65	85.5
	***P*-value**	0.001*$^{\$}$						0.118$^{\$}$			
How adherent you are to the diet you are required to follow daily (0–10)?	1–4	5	16.7	13	43.3	12	40.0	2	6.7	28	93.3
	5–7	0	0.0	9	14.1	55	85.9	8	12.5	56	87.5
	8–10	0	0.0	10	14.7	58	85.3	11	16.2	57	83.8
	***P*-value**	0.001*$^{\$}$						0.430			

P Pearson X^2 test

$^{\$}$ Exact probability tests

*$P < 0.05$ (significant)

Table 4 Social support among haemodialysis patients by their bio-clinical data, Saudi Arabia

Bio-demographic data	Perceived social support						*P*-value
	Low		Medium		High		
	No.	%	No.	%	No.	%	
Age in years							
< 30	3	13.6	3	13.6	16	72.7	0.158
30–39	1	3.0	2	6.1	30	90.9	
40–49	2	5.0	5	12.5	33	82.5	
50+	2	3.0	15	22.4	50	74.6	
Gender							
Male	5	5.7	9	10.3	73	83.9	0.147
Female	3	4.0	16	21.3	56	74.7	
Work							
Unemployed	3	3.2	15	15.8	77	81.1	0.346
Employed	4	11.4	4	11.4	27	77.1	
Retired	1	3.1	6	18.8	25	78.1	
Marital status							
Single	4	9.8	3	7.3	34	82.9	0.007*
Married	4	4.0	14	13.9	83	82.2	
Divorced/widow	0	0.0	8	40.0	12	60.0	
Educational level							
Non-literate	0	0.0	8	28.6	20	71.4	0.234
Basic education (able to read/write)	3	10.0	4	13.3	23	76.7	
Secondary education	2	3.5	6	10.5	49	86.0	
University/more	3	6.4	7	14.9	37	78.7	
Monthly income							
< 5000 SR	5	6.8	14	19.2	54	74.0	0.372
5000–10,000 SR	3	6.3	8	16.7	37	77.1	
10,000–15,000 SR	0	0.0	2	6.5	29	93.5	
> 15,000 SR	0	0.0	1	10.0	9	90.0	
Other diseases							
Yes	6	5.0	18	14.9	97	80.2	0.945
No	2	4.9	7	17.1	32	78.0	
Duration of RD							
< 5	3	4.5	10	14.9	54	80.6	0.828
5–9	4	6.6	8	13.1	49	80.3	
10+	1	2.9	7	20.6	26	76.5	
Frequency of RD sessions/week							
2	0	0.0	0	0.0	1	100.0	0.710
3	8	5.0	24	15.1	127	79.9	
4	0	0.0	1	50.0	1	50.0	
Are you on renal transplant waiting list?							
Yes	4	5.3	7	9.2	65	85.5	0.120
No	4	4.7	18	20.9	64	74.4	

P exact probability test

*$P < 0.05$ (significant)

Table 5 Religiosity among haemodialysis patients by their bio-clinical data, Saudi Arabia

Bio-demographic data		Religiosity score		*P*-value
		Mean	SD	
Age in years	< 30	35.32	5.49	0.268
	30–39	35.64	5.77	
	40–49	36.90	5.14	
	50+	37.34	4.83	
Gender	Male	37.32	5.62	0.074#
	Female	35.79	4.60	
Work	Unemployed	35.92	5.08	0.047*
	Employed	36.74	5.09	
	Retired	38.53	5.40	
Marital status	Single	35.41	5.84	0.163
	Married	37.20	5.01	
	Divorced/widow	36.10	4.61	
Educational level	Non-literate	35.93	4.95	0.208
	Basic education (able to read/write)	35.73	5.64	
	Secondary education	36.32	4.92	
	University/more	37.94	5.34	
Monthly income	< 5000 SR	35.90	5.13	0.004*
	5000–10,000 SR	35.79	5.04	
	10,000–15,000 SR	38.00	4.40	
	> 15,000 SR	41.40	6.20	
Other diseases	Yes	36.31	5.00	0.201#
	No	37.51	5.75	
Duration of RD	< 5	37.63	5.26	0.048*
	5–9	36.34	4.87	
	10+	35.09	5.43	
Frequency of RD sessions/week	2	42.00		0.587
	3	36.58	5.24	
	4	36.50	3.54	
Are you on renal transplant waiting list?	Yes	36.55	5.12	0.894#
	No	36.66	5.32	

P one-way ANOVA

Independent *t*-test

*$P < 0.05$ (significant)

had high perceived social support, especially from family and friends, while 5% had low perceived social support. High social support among dialysis patients was also reported by Silva et al. [26]. A study in São Paulo showed that a high level of social support in dialysis patients was extremely vital for the continuity of care [27]. Interestingly, marital status was the only significant determinant of perceived social support in our study; it was higher among single patients.

A similar result was reported by Theodoritsi et al., who observed various fluctuations in marital satisfaction of HD patients and proposed multiple explanations such as sexual dysfunction, low self-esteem, marital-related stressors, and financial limitations related to lifestyle modifications caused by their chronic illness [28].

Regarding religiosity, the current study showed higher religiosity among male patients, those with high perceived social support, the retired, and older patients. Furthermore, high religiosity scores were detected among 83.7% of patients with good life satisfaction scores and 87.6% of patients with good life importance scores. The lowest religiosity scores were seen in patients with poor satisfaction levels and low perceived social support. In addition, Strine et al. found that higher levels of social support correlated with a lower prevalence of poor general health, life dissatisfaction, and disability [24]. This

Table 6 Relation between quality of life, perceived social support, and religiosity among patients on haemodialysis, Saudi Arabia

Factors	Satisfaction domain						Importance domain					
	Poor		Average		Good		Poor		Average		Good	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Perceived social support												
Low perceived support	3	37.5	0	0.0	5	62.5	0	0.0	0	0.0	8	100.0
Moderate perceived support	2	8.0	11	44.0	12	48.0	0	0.0	5	20.0	20	80.0
High perceived support	0	0.0	21	16.3	108	83.7	0	0.0	16	12.4	113	87.6
P-value[$]	0.001*						0.313					
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Religiosity score	31.4	3.9	35.7	4.8	37.0	5.3	–	–	35.7	4.9	36.8	5.3
P-value[#]	0.032*						0.375					

[$] Exact probability test

[#] One-way ANOVA

*$P < 0.05$ (significant)

is corroborated by previous studies on other patient outcomes—such as survival—among non-Muslim HD patients, which showed that higher rates of survival were associated with higher spirituality [29]. This may be explained by higher perceived social support among patients involved in religious communities [29]; higher social support levels are associated with greater access to health care, higher compliance with prescriptions, improvements in nutritional status, and an enhanced overall sense of QOL [29].

A significant positive effect of social support on QOL was also reported by Alshraifeen et al. [30], and this finding is supported by many other studies indicating that social support has a crucial influence on HD patients' QOL as well as their success in coping with their disease [31–34]. Saffari et al. reported that high spiritual/religious factors were significantly correlated with higher QOL, higher health status, or both [35].

Conclusions

In conclusion, higher QOL was found among middle-aged patients, highly educated patients, and those who adhered to dietary and fluid intake restrictions. Our study also found that high perceived social support, alongside high religiosity, had a significant effect on the domain of patient satisfaction in health-related quality of life (HRQOL). Therefore, assessing social support and religiosity is a vital element of both physical and mental healthcare for haemodialysis (HD) patients. Given the multiple positive associations of social support with HRQOL, support from patients' families and public service systems may improve patients' QOL by helping them cope with their disease-related burdens; such support, therefore, should be encouraged. Further studies are needed to assess the benefit of religious/spiritual counselling as part of a holistic, multi-disciplinary approach to HD patients.

Abbreviations

HD	Haemodialysis
QOL	Quality of life
HRQOL	Health-related QOL
MSPSS	Multidimensional Scale of Perceived Social Support
MRS	Muslim Religiosity Scale
IBM SPSS	International Business Machine - Statistical Package for Social Sciences

Authors' contributions

Conception and design: WAA and EEAH. Data collection: AAHA, AHA, KHA, AEA, and MSA. Statistical analyses and writing of the manuscript: WAA and EEAH. Revision of the article for important intellectual content and final approval: all authors.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author and study investigators upon reasonable request.

Declarations

Ethics approval and consent to participate

This study conformed in accordance with the 2013 Declaration of Helsinki. It has an Ethical Approval No. ECM#2020-162 on 26 February 2022 from the Research Ethics Committee at King Khalid University, Abha, Saudi Arabia. Written informed consent was obtained from all individual participants included in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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