Religious beliefs and quality of life in an American inner-city haemodialysis population

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Abstract

Background. The ability to adapt to the long-term aspects of chronic haemodialysis is multifactorial and poorly understood. Given the many comorbidities of a patient on haemodialysis, religious beliefs may be an important factor in the patient’s ability to cope.

Methods. End-stage renal disease patients in an inner-city American in-center haemodialysis unit were given two surveys to quantify their quality of life (KDQOL) and beliefs (Royal Free Score). The population studied included 97% African Americans. The demographics were collected and recorded. The relationship between religious/spiritual beliefs, demographic variables, and how quality of life (QOL) is viewed was analysed.

Results. The vast majority of patients considered themselves religious, spiritual or both. KDQOL scores did not correlate with belief in a higher power, but the non-religious group demonstrated a significantly lower blood urea nitrogen (BUN) and creatinine as compared with the religious group. There was a negative correlation with age and physical function as reported by KDQOL and physical health composite.

Conclusion. As physical function declines, religious and spiritual beliefs are stronger in the haemodialysis population studied. Given the overwhelming prevalence of religious and spiritual beliefs in this population, further study is needed as acknowledging and incorporating these beliefs into patient treatment plans may be warranted.

Keywords: haemodialysis (HD); quality of life; religion; spiritual

Introduction

When end-stage renal disease (ESRD) is diagnosed, a patient requires renal replacement therapy. The options for renal replacement therapy include chronic haemodialysis, peritoneal dialysis, or renal transplantation. Chronic haemodialysis requires major alterations in life style including attending haemodialysis treatment sessions three days a week, changes in diet, fluid intake and often changes in nutritional supplements and medications. The care of the chronic haemodialysis patient is often complicated by vascular access problems and social and financial considerations. The coping mechanisms a patient has for adjustment to such changes may involve religious/spiritual beliefs. As health care providers, the issue of religion is often overlooked. If religious/spiritual beliefs are important to a chronic haemodialysis patient, it may enhance his or her care if attention to these issues become an integral part of providing health care needs.

Health-related quality of life (QOL) refers to the measure of a patient’s functioning, well-being and general health perception in each of three domains: physical, psychological, and social. QOL of patients with ESRD is influenced by the disease itself and by the type of renal replacement therapy. Numerous studies have identified the effect of factors such as anaemia, age, comorbidity and depression on QOL. Spiritual and religious beliefs have a significant impact on QOL and overall mortality [1–5]. This relationship has been well documented and studied in the general population and in certain groups such as cancer survivors. Being on chronic haemodialysis is an extremely challenging situation. Patients who have a high QOL despite all the pressures of being on dialysis anecdotally may draw on strong spiritual beliefs.

Religious or spiritual beliefs have been shown to be conducive to better health-related QOL [6]. Measurement of religious and spiritual beliefs and also the QOL are difficult to define. In an effort to understand this relationship, we administered two surveys to haemodialysis patients. To determine religious and spiritual beliefs, the Royal Free Score survey was administered [7]. For purposes of our study, ‘religion’ pertains to the outward practice of a spiritual understanding and/or the framework for a system of beliefs, values, codes of conduct and rituals.
It usually involves some form of communal religious observance. The term 'spiritual' refers more broadly to a person’s belief in a power apart from his or her own existence. It is a sense of relationship or connection with a power or force in the universe that transcends the present context of reality. In the present study we include both religiosity and spirituality as having a higher belief system, as it is often difficult to differentiate between the two. QOL was measured using a standardized tool for haemodialysis patients, the Kidney Dialysis Quality of Life Questionnaire [8].

In the current study, we seek to understand and document the relationship between religion and/or spirituality and QOL for a patient on chronic haemodialysis. The current study had three main objectives. The first was to determine if the current patient population studied had significant spiritual/religious beliefs. The second objective was to determine the relationship of demographic/laboratory variables and the KDQOL indices. The third objective was to determine if the spirituality score correlated with QOL score. Results of both surveys were scored and correlations made using appropriate statistical tests. Insight into these relationships could enhance improvement in providing comprehensive care. This study therefore attempted to answer the following question: Is the QOL as perceived by a haemodialysis patient (and measured by the KDQOL) dependent on their religious or spiritual beliefs?

Subjects and methods

Study population

The site for data collection was the outpatient Woodlawn haemodialysis unit at 1164 E. 55th Street in Chicago, IL, USA. The protocol was approved by the Institutional Review Board at the University of Chicago and all subjects gave written consent. All subjects had end-stage renal failure and were receiving chronic haemodialysis. Patients in the current study come into the dialysis unit three times a week for approximately 4h per session. The dates for data collection were over 3 months from December 1, 2004 through February 1, 2005. All 131 who were dialysed were considered for the study, but excluded if they were not mentally competent to complete two surveys (14 subjects). The remaining 117 subjects were approached and asked to participate in the study. Of those, 116 agreed to participate and one subject declined. Four consented but did not complete the survey because of medical complications, resulting in 112 subjects completing surveys. The studies were distributed and completed by the patient with supervision by the respective social worker. Nineteen subjects (17%) were able to verbally answer, but unable to either see and/or write; in these cases the surveys were read to them and results recorded by their respective social worker.

Demographic

The following patient demographics were collected: age, sex, educational level, duration of haemodialysis, treatment time, current access, evidence of diabetes, HIV status, hospitalization in the past 3 months, history of kidney transplant, transplant list status and bacteremia within the past 3 months. Laboratory data were collected for each patient within the month of survey completion. Clearance data included urea reduction ratio (URR) and Kt/V for the month the survey was completed. URR was calculated using pre- and post-dialysis blood urea nitrogen (BUN). Kt/V was calculated as the delivered dose based on pre- and post-dialysis BUN measures using the second Daugirdas formula [9]. PTH and ferritin values drawn within 3 months of the date of the survey were included in the analysis.

Spiritual and religious beliefs

Spiritual and religious beliefs were measured using the Royal Free Interview for Spiritual and Religious Beliefs Scale. This scale is brief and simple to complete, asking such questions as: On a scale from 1–10, rate how strongly you hold on to your spiritual religious faith. This instrument was used for evaluation of spiritual beliefs as it has been shown to consistently differentiate between people with high and low spiritual beliefs. This survey has been shown to have high criterion validity, predictive validity, internal consistency and test-retest reliability [7].

Quality of life scale

Understanding the relationship between functional status and well being in ESRD and the impact on outcome measures is a challenge. In an attempt to understand these relationships, the Kidney Disease Quality of Life Working Group developed the KDQOL in 1994. The short form of this survey is the most widely tested and accepted tool targeted to the renal disease population [8]. The assessment areas covered in the short form include physical function, physical pain, general health, emotional well-being, social function and energy/fatigue. The questions are easy to read and administer. Data from the short form survey can be easily scored and variables quantified using a computer-generated program [10]. All information, including demographics, religious/spiritual survey and KDQOL results, were kept confidential.

Royal free score survey

The objective evaluation of one’s spiritual/religious beliefs may be difficult to define. To understand one’s belief system, the Royal Free Interview for Spiritual and Religious Beliefs was administered. Religious/spiritual beliefs including denomination were recorded and results averaged.

Statistics

Total scores for each of the KDQOL scales were computer calculated (Rand KDQOL SF TM User’s Manual 1993) [10]. Pearson’s correlations, independent sample t-tests, one way ANOVA’s and χ² tests were used as appropriate to test the association of KDQOL parameters with other factors. A two-sided significance level of ≤0.05 was used. Results of both surveys were scored and correlations made using appropriate statistical tests.
Results

The demographics of the study sample are listed in Table 1. The population studied included a total of 112 patients (65 females, 47 males). Forty-nine (44%) had a working fistula for dialysis access, 46 (41%) used a graft and seventeen (15%) dialysed via a tunneled catheter. Forty (36%) individuals were diabetics and three patients had HIV. Nineteen (17%) individuals had previously received a renal transplant and 41 (36.6%) were on the active transplant list awaiting a renal transplant. Twenty-one patients (18.8%) had been hospitalized within the 3 months prior to the study and one individual had an episode of bacteremia within the prior 3-month period.

The religious affiliations of the patients are outlined in Table 2. Eighty-nine (79.5%) identified themselves as Christian, with 15 Roman Catholics, 45 Protestants and 29 who designated themselves as other Christian faith. Nine described themselves as atheist and seven considered themselves religious, spiritual or both. For purposes of the study, if a patient scored himself or herself as religious and or spiritual, they were considered to have a higher belief system. Of the nine subjects who considered themselves atheists, two considered themselves spiritual.

The Royal Free Score spirituality survey included questions with categorical and continuous responses. The questions with continuous responses are shown in Table 3. In response to continuous questions making up the Royal Free Score Spiritual Scale, subjects consistently scored themselves as highly religious (Figure 1). Scores ranked from zero to ten, with zero representing no impact and ten representing the strongest impact possible. The most common response to these questions was a score of ten. Fifty-five percent chose this value to represent their strength of religious belief, and fifty-four percent ranked the importance of practicing their beliefs as a ten. The belief that a spiritual power influences day to day life, assisting in coping, influences world affairs, and natural disasters scored similarly, with percentages of 63, 61, 40 and 46 respectively. The average values for these scores are tabulated in Table 4, along with data from King et al (2007), validating the Royal Free Score in a self described religious/spiritual group and a fundamentalist Christian Church. In our study, the haemodialysis patient population had significantly higher spirituality scores than those of the general population.

Table 1. Patient demographic and clinical characteristics

<table>
<thead>
<tr>
<th>Demographics and clinical characteristics</th>
<th>112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>112</td>
</tr>
<tr>
<td>Average age</td>
<td>55.5 ± 16.9</td>
</tr>
<tr>
<td>Male</td>
<td>47 (42%)</td>
</tr>
<tr>
<td>Female</td>
<td>65 (58%)</td>
</tr>
<tr>
<td>African-American</td>
<td>109 (97.4%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>2 (1.8%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (0.8%)</td>
</tr>
<tr>
<td>College or higher education</td>
<td>18 (16%)</td>
</tr>
<tr>
<td>Catheter</td>
<td>17 (15%)</td>
</tr>
<tr>
<td>Graft</td>
<td>46 (41%)</td>
</tr>
<tr>
<td>Fistula</td>
<td>49 (44%)</td>
</tr>
<tr>
<td>Diabetics</td>
<td>40 (36%)</td>
</tr>
<tr>
<td>HIV</td>
<td>3 (2.7%)</td>
</tr>
<tr>
<td>Previous transplant</td>
<td>19 (17%)</td>
</tr>
<tr>
<td>On transplant list</td>
<td>41 (36.6%)</td>
</tr>
<tr>
<td>Recent hospitalization</td>
<td>21 (18.8%)</td>
</tr>
<tr>
<td>Recent bacteremia</td>
<td>1 (0.9%)</td>
</tr>
</tbody>
</table>

Demographics and clinical characteristics in left column with actual number followed by (percent) in right hand column.

Table 2. Religious beliefs by denomination

<table>
<thead>
<tr>
<th>Religion</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atheist</td>
<td>9 (8%)</td>
</tr>
<tr>
<td>Roman Catholic</td>
<td>15 (13.4%)</td>
</tr>
<tr>
<td>Protestant</td>
<td>45 (40.1%)</td>
</tr>
<tr>
<td>Other Christian</td>
<td>29 (25.9%)</td>
</tr>
<tr>
<td>Muslim</td>
<td>7 (6.3%)</td>
</tr>
<tr>
<td>Hindu/Sikh/ Buddhist</td>
<td>4 (3.6%)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (2.7%)</td>
</tr>
</tbody>
</table>

Religious preference in left and column with actual number followed by (percent) in right hand column.

Table 3. Questions with continuous responses from Royal Free Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 3</td>
<td>How strongly do you hold to your religious/spiritual view of life?</td>
</tr>
<tr>
<td>Question 7</td>
<td>How important to you is the practice of your belief in your day to day life?</td>
</tr>
<tr>
<td>Question 8</td>
<td>Do you believe in spiritual power or force other than yourself that can influence what happens to you in day-to-day life?</td>
</tr>
<tr>
<td>Question 9</td>
<td>Do you believe in spiritual power or force other than yourself that enables you to cope personally with events in your life?</td>
</tr>
<tr>
<td>Question 10</td>
<td>Do you believe in spiritual power or force other than yourself that influences world affairs?</td>
</tr>
<tr>
<td>Question 11</td>
<td>Do you believe in a spiritual power or force other than yourself that influences natural disasters, like earthquakes and floods?</td>
</tr>
</tbody>
</table>

| Question number in left hand column followed by the actual question in right hand column. |

Fig. 1. Spiritual scale responses by question. Results of the questions (3–11) scored by a continuous response are represented by the coloured bars. Percent of patients responses on the y-axis, with the score (0 - lowest, 10 - highest) on the x-axis.
scores than those self-identified as religious or spiritual in the general population. These subjects scored similarly to the highly religious group with the exception of question seven, the importance of practicing your beliefs.

KDQOL scores are compiled in Table 5, along with data published by Lopes, et al. [11] for comparison. The study population scored similarly to the African-American reference group from the Dialysis Outcomes and Practice Patterns Study (DOPPS) in each category. Table 6 shows correlation coefficients comparing KDQOL values with Royal Free Spirituality score. There was a statistically negative correlation with physical composite score and both the importance of practice of faith \((r = -0.262, P = 0.01)\) and composite spirituality score \((r = -0.212, P = 0.05)\). No definitive correlation between mental health, emotional well-being or social function and spirituality scale was established.

Clinical data were reviewed and mean values for all subjects were calculated, which showed no significant difference (Table 7). These data were then analysed for each subgroup (religious vs non-religious). The subgroup religious \((n = 105)\) includes all those who scored themselves as religious/spiritual or both and were not atheists. The subgroup non-religious \((n = 7)\) includes atheists who were not spiritual or religious. There was a significant difference between the religious and non-religious as far as BUN and creatinine \((P < 0.05)\). There was otherwise no difference between these groups with regards to age, ethnicity, or demographic/biologic values. An examination of correlation between demographic/laboratory data and KDQOL is presented in Table 8. There was a negative correlation with age and physical function as reported by KDQOL \((r = -0.42, P < 0.0001)\) and physical health composite \((r = -0.34, P = 0.0004)\). This suggests that older subjects have a lower physical function. Furthermore, a negative correlation between length of the session and the effect of kidney disease as reported by KDQOL was found \((r = -0.20, P = 0.03)\). The length of the dialysis session influences the measurements of URR and Kt/V. The longer the session, the more waste products are removed. Albumin and creatinine had a positive correlation with physical function.

### Table 4. Spiritual mean scores for haemodialysis patients compared with general population

<table>
<thead>
<tr>
<th>Question</th>
<th>Haemodialysis</th>
<th>Religious/Spiritual</th>
<th>Highly religious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 - Strength of Belief</td>
<td>8.4 ± 2.4</td>
<td>7.2 ± 2.2*</td>
<td>9.2 ± 1.2</td>
</tr>
<tr>
<td>Q7 - Practice of Faith</td>
<td>7.9 ± 2.8</td>
<td>5.7 ± 3.0*</td>
<td>9.4 ± 1.1**</td>
</tr>
<tr>
<td>Q8 - Influence of Power</td>
<td>8.5 ± 2.6</td>
<td>6.1 ± 3.0*</td>
<td>8.1 ± 3.0</td>
</tr>
<tr>
<td>Q9 - Enable to Cope</td>
<td>8.6 ± 2.4</td>
<td>6.3 ± 3.0*</td>
<td>9.0 ± 1.2</td>
</tr>
<tr>
<td>Q10 - Influence on World</td>
<td>6.7 ± 3.7</td>
<td>4.9 ± 3.1*</td>
<td>7.1 ± 3.5</td>
</tr>
<tr>
<td>Q11 - Natural Disasters</td>
<td>7.2 ± 3.5</td>
<td>4.4 ± 3.3*</td>
<td>5.8 ± 3.0</td>
</tr>
</tbody>
</table>

* \(P < 0.001\), ** \(P < 0.015\).

Average values for Royal Free Scores for continuous questions. Results shown for the haemodialysis population studied, a general population of individuals who consider themselves religious or spiritual and a highly religious group (members of a Fundamentalist Christian Church). Religious/Spiritual and highly religious groups taken from King, et al. 2001 [7].

### Table 5. Mean KDQOL scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study</th>
<th>African-American Reference Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kidney disease targeted scales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burden of kidney disease</td>
<td>52.3 ± 30.6</td>
<td>44.9</td>
</tr>
<tr>
<td>Quality of social interaction</td>
<td>75.3 ± 18.5</td>
<td>77.4</td>
</tr>
<tr>
<td>Cognitive function</td>
<td>78.7 ± 19.8</td>
<td>78.9</td>
</tr>
<tr>
<td>Symptoms/problems</td>
<td>74.8 ± 15.7</td>
<td>71.4</td>
</tr>
<tr>
<td>Effects of kidney disease</td>
<td>70.2 ± 22.2</td>
<td>65.7</td>
</tr>
<tr>
<td>Sexual function</td>
<td>82.6 ± 26.1</td>
<td>64.0</td>
</tr>
<tr>
<td>Sleep</td>
<td>62.7 ± 19.4</td>
<td>60.2</td>
</tr>
<tr>
<td>Social support</td>
<td>71.3 ± 31.9</td>
<td>74.8</td>
</tr>
<tr>
<td>Work status</td>
<td>21.2 ± 31.6</td>
<td>20.1</td>
</tr>
<tr>
<td>Dialysis staff encouragement</td>
<td>78.4 ± 22.5</td>
<td>81.6</td>
</tr>
<tr>
<td>Patient satisfaction rating</td>
<td>71.5 ± 22.5</td>
<td>70.0</td>
</tr>
<tr>
<td>Overall health rating</td>
<td>62.2 ± 25.3</td>
<td>64.6</td>
</tr>
<tr>
<td>SF-36 Scales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical functioning</td>
<td>46.4 ± 29.0</td>
<td>40.9</td>
</tr>
<tr>
<td>Role limitations – physical</td>
<td>31.4 ± 38.4</td>
<td>31.0</td>
</tr>
<tr>
<td>Pain</td>
<td>61.4 ± 28.8</td>
<td>60.8</td>
</tr>
<tr>
<td>General health</td>
<td>46.8 ± 22.3</td>
<td>41.5</td>
</tr>
<tr>
<td>Emotional well-being</td>
<td>70.9 ± 19.4</td>
<td>68.9</td>
</tr>
<tr>
<td>Role limitations - emotional</td>
<td>58.9 ± 43.4</td>
<td>51.6</td>
</tr>
<tr>
<td>Social function</td>
<td>65.5 ± 20.7</td>
<td>62.1</td>
</tr>
<tr>
<td>Energy/fatigue</td>
<td>51.8 ± 21.0</td>
<td>45.8</td>
</tr>
<tr>
<td>SF 36 Physical composite T-score</td>
<td>36.2 ± 9.8</td>
<td>33.3</td>
</tr>
<tr>
<td>SF 36 Mental health composite T-score</td>
<td>47.7 ± 11.0</td>
<td>47.3</td>
</tr>
</tbody>
</table>

Mean KDQOL scores from hemodialysis population studied, compared with data for African American patients in the Dialysis Outcomes and Practice Patterns Study by Lopes, et al. [11].
Correlation coefficients of demographic and laboratory data with KDQOL parameters

Table 7. Clinical data by subgroup

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Religious</th>
<th>Non-Religious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>55.8 ± 17.1</td>
<td>55.7 ± 17.0</td>
<td>59 ± 17.3</td>
</tr>
<tr>
<td>Duration of dialysis (days)</td>
<td>2000.3 ± 1811.2</td>
<td>1958.8 ± 1723.7</td>
<td>1959.7 ± 1782.4</td>
</tr>
<tr>
<td>Length of dialysis session (min)</td>
<td>222.3 ± 30.1</td>
<td>222.9 ± 30.7</td>
<td>215.0 ± 22.6</td>
</tr>
<tr>
<td>Hgb (g/dl)</td>
<td>12.7 ± 1.2</td>
<td>12.7 ± 1.2</td>
<td>13.1 ± 1.3</td>
</tr>
<tr>
<td>Hct (%)</td>
<td>38.6 ± 3.8</td>
<td>38.6 ± 3.8</td>
<td>40.0 ± 4.8</td>
</tr>
<tr>
<td>Albumin (g/dl)</td>
<td>3.9 ± 0.4</td>
<td>3.9 ± 0.4</td>
<td>4.1 ± 0.2</td>
</tr>
<tr>
<td>BUN (mg/dl)</td>
<td>61.3 ± 19.5</td>
<td>62.6 ± 19.1</td>
<td>37.2 ± 12.9*</td>
</tr>
<tr>
<td>Creatinine (mg/dl)</td>
<td>10.2 ± 3.5</td>
<td>10.5 ± 3.5</td>
<td>7.1 ± 1.8*</td>
</tr>
<tr>
<td>Ca (mg/dl)</td>
<td>9.5 ± 7.7</td>
<td>9.6 ± 8</td>
<td>8.7 ± 0.8</td>
</tr>
<tr>
<td>PHOS (mg/dl)</td>
<td>5.3 ± 1.7</td>
<td>5.3 ± 1.7</td>
<td>5.5 ± 1.2</td>
</tr>
<tr>
<td>PTH (pg/ml)</td>
<td>481.9 ± 606.8</td>
<td>503 ± 623.8</td>
<td>218.0 ± 121.8</td>
</tr>
<tr>
<td>Kt/V</td>
<td>1.52 ± 0.3</td>
<td>1.51 ± 0.3</td>
<td>1.68 ± 3.2</td>
</tr>
<tr>
<td>URR (%)</td>
<td>72.1 ± 5.7</td>
<td>71.9 ± 5.7</td>
<td>75.5 ± 6.2</td>
</tr>
<tr>
<td>Ferritin (ng/ml)</td>
<td>1578.1 ± 1047.0</td>
<td>1608.9 ± 1063.5</td>
<td>1117.7 ± 619.2</td>
</tr>
</tbody>
</table>

*P < 0.05 vs religious group.

Clinical data (left hand column) by religious subgroups (right hand column). Data are expressed in median ± standard deviation. The religious group (n = 105) was compared with the non-religious (n = 7). Despite the difference in number of subjects, the non-religious group had a significantly lower mean BUN and creatinine (P < 0.05).

Table 8. Correlation coefficients of demographic and laboratory data with KDQOL parameters

<table>
<thead>
<tr>
<th></th>
<th>EKD</th>
<th>OH</th>
<th>PF</th>
<th>GH</th>
<th>EWB</th>
<th>SCOF</th>
<th>SF12P</th>
<th>SF12M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.036</td>
<td>-0.13</td>
<td>-0.42**</td>
<td>-0.03</td>
<td>-0.01</td>
<td>-0.07</td>
<td>-0.34*</td>
<td>0.03</td>
</tr>
<tr>
<td>Duration of HD</td>
<td>0.17</td>
<td>0.10</td>
<td>0.07</td>
<td>0.06</td>
<td>0.02</td>
<td>0.13</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Length of session</td>
<td>-0.20**</td>
<td>0.04</td>
<td>0.05</td>
<td>-0.02</td>
<td>-0.07</td>
<td>-0.07</td>
<td>0.09</td>
<td>-0.13</td>
</tr>
<tr>
<td>Hct</td>
<td>-0.02</td>
<td>0.06</td>
<td>-0.12</td>
<td>0.11</td>
<td>-0.04</td>
<td>-0.04</td>
<td>-0.08</td>
<td>-0.05</td>
</tr>
<tr>
<td>Albumin</td>
<td>0.06</td>
<td>0.03</td>
<td>0.29**</td>
<td>0.18</td>
<td>0.17</td>
<td>0.01</td>
<td>0.16</td>
<td>0.08</td>
</tr>
<tr>
<td>Urea</td>
<td>-0.16</td>
<td>-0.04</td>
<td>0.17</td>
<td>-0.01</td>
<td>-0.03</td>
<td>-0.15</td>
<td>0.12</td>
<td>-0.21**</td>
</tr>
<tr>
<td>Creatinine</td>
<td>-0.23**</td>
<td>-0.02</td>
<td>0.20**</td>
<td>-0.13</td>
<td>-0.02</td>
<td>-0.07</td>
<td>0.11</td>
<td>-0.12</td>
</tr>
<tr>
<td>Ca</td>
<td>-0.03</td>
<td>-0.04</td>
<td>-0.15</td>
<td>-0.09</td>
<td>-0.09</td>
<td>-0.06</td>
<td>-0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>Phos</td>
<td>-0.08</td>
<td>-0.01</td>
<td>0.11</td>
<td>-0.09</td>
<td>-0.03</td>
<td>-0.03</td>
<td>0.10</td>
<td>-0.07</td>
</tr>
<tr>
<td>PTH</td>
<td>-0.02</td>
<td>-0.05</td>
<td>0.04</td>
<td>-0.10</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.07</td>
</tr>
<tr>
<td>Kt/V</td>
<td>0.08</td>
<td>0.03</td>
<td>0.06</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.11</td>
<td>0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td>URR</td>
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<td>-0.01</td>
<td>0.07</td>
<td>0.03</td>
<td>-0.09</td>
<td>-0.08</td>
<td>0.04</td>
<td>-0.08</td>
</tr>
<tr>
<td>Ferritin</td>
<td>0.09</td>
<td>-0.02</td>
<td>-0.10</td>
<td>-0.06</td>
<td>-0.13</td>
<td>-0.13</td>
<td>-0.07</td>
<td>-0.17</td>
</tr>
</tbody>
</table>

Values listed are correlation coefficients (r values), asterisks denote statistical significance.

*P < 0.001; **P < 0.05

Correlation coefficients of demographic (left hand column) with various sub-categories of KDQOL survey including sub-categories. EKD is the effect of kidney disease; OH is the overall health; PF is the physical functioning; GH is the general health; EWB is emotional well-being; SCOF is social functioning; SF12P is physical health composite; SF12M is emotional health composite.
(i.e. haemoglobin, haematocrit, albumin, Kt/V, PTH, ferritin) were significantly associated with KDQOL or religious beliefs survey.

The current article is not written to differentiate between religiosity and spirituality. The meanings of both are influenced by subjective interpretation. We therefore, used both religiosity and spirituality as equivalent higher belief system. The patient population studied had a significant belief systems. When the two groups, religious vs non-religious (atheist), were compared, the atheist group had a significantly lower average BUN and creatinine. This may reflect that these seven individuals (Atheists) have decreased muscle mass reflective of severe chronic illness. This subset of patients may be very sick, hopeless and subsequently abandoned or disregarded a belief system. Alternatively, these individuals may have improved BUN and creatinine due to better residual renal function than their cohorts. In this case, their lack of religious beliefs may stem from a lower burden of disease and a less keen sense of their own mortality. Given the relatively low number of Atheists in our study, we feel that this subject merits further study in a patient population with a higher number of Atheists, perhaps using an index to gauge the severity of chronic disease and assessing urine BUN and creatinine clearances to determine residual renal function.

In summary, our findings show that the spirituality of a haemodialysis patient is intensified when physical functioning declines. Another independent finding is that older subjects have a worse QOL as measured by KDQOL. As one ages or becomes physically impaired, one’s QOL declines and one appears to become more religious/spiritual. Haemodialysis patients rely on their religious/spiritual beliefs to give themselves hope, meaning and purpose to their life as they face death. The discussion of religious/spiritual beliefs is becoming a more acceptable practice [14,15]. As the belief system one relies upon is important to haemodialysis patients, it may be prudent to incorporate religious/spiritual aspects in to the patient’s comprehensive care plan. This could be accomplished in a variety of ways, but should respect the religious/spiritual beliefs of the individual patient.

The current study does have limitations. The survey was given to only one group of in-centre haemodialysis patients, primarily African Americans, a group which may skew to be more religious. There were more females than males represented and social workers assisted the patients who could not read or write. It was done in a haemodialysis unit that offers the opportunity of free expression of religion. There are however attitudes among personnel interacting with patients that may influence the response to the surveys given. All these factors could introduce bias into the current study. The conclusions reached in the current study are preliminary. Further follow up, with the survey given to diverse ethnic and religious groups would be helpful to validate our findings.

Conflict of interest statement. None declared.

References


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