Correlations Between Spiritual Beliefs and Health-Related Quality of Life of Chronic Hemodialysis Patients in Taiwan

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Abstract: This study evaluated the correlations between spiritual beliefs and health-related quality of life (HRQOL) of hemodialysis (HD) patients in Taiwan. Participants had to complete two questionnaires: the 36-item Short Form Health Survey Questionnaire and the Royal Free Interview for Spiritual and Religious Beliefs. They

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were then divided into three groups according to their strength of spiritual beliefs—having no, weak, or strong beliefs. Demographic, clinical, and laboratory data among groups were compared. Correlations between spiritual beliefs and HRQOL were then determined by the analysis of covariance and the post hoc Scheffe tests. Six hundred thirty-three patients completed the study. There were more women in the group of patients with strong beliefs ($P = 0.005$) and more less-educated patients in the group of patients with weak beliefs ($P = 0.005$). Patients with no or with strong spiritual beliefs had higher role physical ($P = 0.01$) and social functioning (SF) ($P = 0.001$) scores than patients with weak beliefs. After adjustment for gender, age, marital status, education, comorbidities, and time on dialysis, patients with no or with strong spiritual beliefs were found to have higher SF scores ($P = 0.02$) than patients with weak beliefs. HD patients with no or strong spiritual beliefs had higher SF HRQOL than those with weak spiritual beliefs. **Key Words:** Spiritual beliefs—Quality of life—Hemodialysis.

INTRODUCTION

Few studies have investigated the impact of spiritual beliefs on health-related quality of life (HRQOL) of hemodialysis (HD) patients (1–3). It is suggested that variables of spiritual well-being are significantly related to overall psychosocial and psychological distress adjustments in women receiving HD (4), while spiritual factor is an important determinant of HRQOL of HD patients (2).

Whether spiritual beliefs also play an important role in HRQOL of HD patients in Taiwan has not yet been evaluated. This study aimed to determine the correlations between spiritual beliefs and HRQOL of chronic HD patients in Taiwan.

PATIENTS AND METHODS

Patients with end-stage renal disease (ESRD) who had been treated with maintenance HD for more than 2 months at 14 HD centers in northern Taiwan were invited to participate. Patients were excluded if they had dementia, consciousness disturbance, or communication problems. The study was approved by the institution review boards of the centers, and informed consent was signed by each participant at study entry.

Demographic data including gender, age, marital status, educational level, and occupation were documented. Causes of ESRD, comorbidities, duration on HD, and laboratory data around study entry were recorded. Comorbidities referred to concurrent diseases other than renal failure, such as diabetes mellitus, cardiovascular disease, and pulmonary disorder. Kt/V_{urea} was calculated using percentage of urea reduction.

The patients were asked to complete two questionnaires by themselves: the 36-item Short Form Health

Survey Questionnaire (SF-36, Taiwan Standard Version 1.0) and the Royal Free Interview for Spiritual and Religious Beliefs (RFI). The SF-36, which consists of eight domains, is widely used for the investigation of HRQOL in both western and Taiwanese dialysis patients (5,6). The SF-36 scores were transformed into a scale of 0–100, with a higher score indicating a better HRQOL. The RFI is a questionnaire with satisfactory validation and good reliability (7). Higher scores of the spiritual scales represent stronger spiritual beliefs.

STATISTICAL ANALYSIS

All patients were divided into three groups according to their strength of spiritual beliefs. Base-line characteristics, laboratory data, and scores of the SF-36 were compared among groups using the chi-square test and the one-way analysis of variance for categorical and continuous variables, respectively. By adjusting variables of interest, scores of the SF-36 were compared again among groups using the analysis of covariance test and the post hoc Scheffe test. All statistical analyses were performed by the SPSS for Windows software, version 12.0.

RESULTS

A total of 633 patients completed the study; 281 (44.4%) were men. The mean age of all patients was 55.4 ± 14.0 years, and the mean HD duration was 50.7 ± 56.8 months. Seventy-two patients had no spiritual beliefs, while 379 and 182 patients had weak and strong beliefs, respectively. There were more women in the group of patients with strong beliefs ($P = 0.005$) and more less-educated patients in the group of patients with weak beliefs ($P = 0.005$). Patients with no or with strong beliefs had higher role physical (RP) ($P = 0.01$) and social functioning (SF) ($P = 0.001$) scores than patients with weak beliefs (Table 1). After adjustment for gender, age, marital status, education, comorbidities, and time on dialysis, patients with no or with strong spiritual beliefs were found to have higher SF scores ($P = 0.02$) than patients with weak beliefs (Table 2).

DISCUSSION

This is the first study evaluating the correlations between spiritual beliefs and HRQOL of chronic HD patients in the Chinese population. As both the philosophies and religious practices in Taiwan are very different from those in western countries, our study provides precious information for the comparison of

TABLE 1. Health-related quality of life scores, baseline characteristics, and laboratory data of patients stratified by spiritual beliefs

Variables	None	Strength of spiritual beliefs		P values
		Weak	Strong	
Patient number	72	379	182	
Scores of the SF-36 domains				
Physical functioning	56.9 (31.4)	52.4 (30.1)	55.5 (29.3)	0.33
Role physical	46.5 (45.6)	37.4 (43.9)	48.5 (45.4)	0.01
Bodily pain	65.7 (27.9)	67.7 (29.1)	66.6 (29.5)	0.83
General health	48.6 (20.7)	45.0 (24.3)	43.3 (25.2)	0.28
Vitality	52.4 (22.7)	49.8 (22.3)	50.7 (22.4)	0.64
Social functioning	69.4 (25.9)	58.5 (29.1)	65.9 (26.3)	0.001
Role emotional	62.0 (43.8)	51.9 (46.7)	57.5 (44.6)	0.14
Mental health	66.2 (20.2)	59.9 (21.9)	60.5 (22.8)	0.09
Scores of spiritual beliefs	NA	12.1 (9.1)	41.8 (9.9)	<0.0001
Characteristics and laboratory data				
Men, %	52.8	47.5	34.6	0.005
Age, years	54.3 (15.8)	56.5 (13.9)	53.6 (13.1)	0.05
Married, %	74.6	76.1	72.9	0.72
High school or above, %	51.4	36.7	48.9	0.005
Employed, %	36.1	28.6	35.2	0.19
Etiologies of renal failure				
Diabetes mellitus, %	19.7	23.0	19.9	0.62
Hypertension, %	8.5	9.5	10.5	0.87
Chronic glomerulonephritis, %	40.8	40.6	45.9	0.51
Others, %	31.0	26.9	23.8	0.49
Comorbidities, %	25.0	34.8	35.2	0.24
Time on dialysis, months	59.3 (87.9)	49.7 (41.9)	49.1 (67.1)	0.39
Dialysis adequacy, Kt/V*	1.60 (1.50)	1.7 (0.4)	1.81 (0.26)	0.07
Hematocrit, %	29.4 (4.2)	30.2 (17.8)	29.7 (5.3)	0.86
Serum albumin, g/dL	4.2 (0.4)	4.3 (2.6)	4.2 (2.1)	0.84

Data are presented as means unless otherwise stated; values in parentheses are standard deviations.

* Kt/V = [(BUNpre-BUNpost)/BUNpre] × 100.

NA, not available; BUN, blood urea nitrogen.

the influence of spirituality on HRQOL among different cultures and ethnic groups. Our study included more than 600 HD patients in 14 centers in northern Taiwan, a population much larger than those in the previous relatively smaller-scaled studies evaluating the relationship between either spirituality or religiosity and HRQOL of HD patients (1–3). The results

of this study, therefore, can be used to represent the correlations between spiritual beliefs and HRQOL of HD patients in both Taiwanese and Chinese populations.

In our study, there were more women in the group of patients with strong spiritual beliefs. It can be explained by the phenomenon that women

TABLE 2. Adjusted health-related quality of life scores of patients stratified by spiritual beliefs

SF-36 domains	None ^a	Strength of spiritual beliefs		P values
		Weak ^b	Strong ^c	
Physical functioning	53.7 (3.2)	53.7 (1.4)	54.0 (2.0)	0.99
Role physical	44.5 (5.2)	38.4 (2.3)	47.3 (3.3)	0.07
Bodily pain	63.8 (3.4)	67.6 (1.5)	66.0 (2.1)	0.55
General health	47.0 (2.9)	45.3 (1.3)	42.8 (1.8)	0.39
Vitality	51.1 (2.6)	50.4 (1.1)	49.6 (1.7)	0.86
Social functioning*	67.7 (3.3)	59.2 (1.4)	64.5 (2.1)	0.02
Role emotional	59.6 (5.4)	52.5 (2.4)	56.6 (3.4)	0.38
Mental health	64.5 (2.6)	60.6 (1.1)	60.1 (1.6)	0.26

Data are presented as means; values in parentheses are standard errors.

Adjusted for gender, age, marital status, education, comorbidities, and time on dialysis (log months). Scores with superscripts indicate the findings according to the post hoc Scheffe test.

* b < a; b < c.

are usually more religious and show a higher degree of spiritual involvement than men (8,9). Our patients with weak beliefs were generally less educated. It may be because less-educated persons are less self-confident and are more easily influenced by others.

Our study also showed that patients with no or with strong spiritual beliefs had higher RP ($P = 0.07$) and SF scores ($P = 0.02$) than patients with weak beliefs (Table 2). This kind of U-shape findings was similar to that demonstrated in our previous study on peritoneal dialysis patients—for patients professing a religious faith, higher religious activity was correlated with higher HRQOL; for patients having no religious faith, HRQOL was comparable with that of patients having high religious activity (10). It was possible that our patients without spiritual beliefs had great confidence in themselves, and this kind of “self belief” led to a more positive attitude toward disease(s), and thus the tendency of higher HRQOL scores in five of the SF-36 domains (Table 2).

Social support has been reported to correlate with HRQOL (11–13). Our patients with strong spiritual beliefs might gain some kind of social support from frequent religious gatherings, thus resulting in their higher SF scores of HRQOL. Mohr and colleagues also proved that spirituality and religiousness influence SF of patients with schizophrenia (14).

There was limitation in our investigation. It was a cross-sectional study, which might not show the true causal relationship between spiritual beliefs and HRQOL. Further prospective interventional studies are needed to clarify the causal relationships between spiritual/religious beliefs and HRQOL.

CONCLUSIONS

HD patients with no or with strong spiritual beliefs had higher SF HRQOL than those with weak spiritual beliefs.

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