Examining the health-related quality of life of people with end-stage kidney disease living in Hanoi, Vietnam

Khanh Ngo Van, Supaporn Duangpaeng, Aporn Deenan & Ann Bonner

Abstract

Background: The prevalence of end-stage kidney disease (ESKD) patients is increasing in Vietnam; however, the impact of ESKD and its treatment on a person's quality of life (QOL) is not well understood.

Objective: This research sought to examine the association between monthly income, comorbidity, length of time on dialysis, social support and health-related quality of life (HRQOL) among Vietnamese ESKD patients.

Method: Using a descriptive design, 95 patients who were receiving haemodialysis (HD) and peritoneal dialysis (PD) from one hospital in Hanoi, were conveniently sampled.

Results: ESKD patients reported having a moderate level of HRQOL. Factors associated with QOL were social support (r= .268, p<.05), comorbid health conditions (r= −.185, p<.05), and length of time on dialysis (r= .182, p<.05). However, monthly income was not significantly related to HRQOL (p>.05).

Conclusion: The results seem to indicate that ESKD patients in Vietnam have a high level of support from family members, friends and significant others. There was also a negative impact of comorbid conditions on the QOL of these patients. Based on the results of this study, nurses ought to develop nursing interventions which will lead to a better QOL for patients, and further research into the QOL for ESKD patients in Vietnam is warranted.

Keywords

Quality of life, social support, ESKD patient.

Background

In Vietnam there is an estimated 5.4 million people with chronic kidney disease (CKD) and there are 8,000 new patients with end-stage kidney disease (ESKD) every year (Hai, 2009). Dialysis is the most widely used form of renal replacement therapy with approximately 72,000 patients being treated by either haemodialysis (HD) or peritoneal dialysis (PD) in Vietnam (Hoa, 2009). Although dialysis treatment is able to replace most of the lost kidney functions, it does, however, have severe impacts on the physical, psychological, emotional, and social wellbeing of patients (Yong, Kwok & Wong, 2009; Sullivan & McCarthy, 2008; Unruh *et al.,* 2008; Murtagh *et al.*, 2007; White, 1999).

Health-related quality of life (HRQOL) is the extent to which one's usual or expected physical, emotional, and social wellbeing are affected by a medical condition or its treatment (Cell & Bonomi, 1996). The HRQOL of people with ESKD has been widely examined (Mucsi, 2008). Previous research has revealed inconsistent results regarding the length of time on dialysis treatment and its impact on a person's HRQOL (Bohlke *et al.*, 2008; Sayin, Mutluay, & Sindel, 2007). Comorbid conditions seem to also significantly affect the clinical outcomes of people with ESKD and are a powerful predictor of HRQOL (Bohlke *et al.*, 2008; Merkus *et al.*, 1997; Mucsi, 2008; Beddhu *et al.*, 2000). Other studies of ESKD patients have found a strong relationship exists between social support and HRQOL (Frank, Auslander, & Weissgarten, 2003; Bohlke *et al.,* 2008). Lastly, income has been linked to HRQOL although the findings have not consistently demonstrated this link (Ching, 2001; Fukuhara *et al.*, 2003; Frank, Auslander, & Weissgarten, 2003).

At present the HRQOL for patients with ESKD living and dialysing in Vietnam is not known. In particular, it is not

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known how comorbid conditions, patients' monthly income, the length of time on dialysis, and social support affect the HRQOL of ESKD patients in Vietnam. By gaining this knowledge, renal nurses in Vietnam can develop appropriate and timely interventions that can assist people to cope with dialysis and other treatment demands, and potentially improve their HRQOL.

Study aims

This study sought to:

1. describe the HRQOL among people with ESKD living in Vietnam

2. examine the relationship between comorbidity, monthly income, length of time on dialysis, social support, and the HRQOL of ESKD patients in Vietnam.

Method

Using a descriptive design, patients receiving either HD or PD at a major renal unit in Hanoi, Vietnam, were conveniently sampled. The inclusion criteria were: 18 years of age or older, ability to communicate in Vietnamese language, cognitively competent (that is, scored less than two on the Short Portable Mental Status questionnaire), and voluntarily agreed to participate in the study. There were no specific exclusion criteria.

The study was approved by the Ethical Committee of Burapha University and the Ethical Committee of Bachmai Hospital in Hanoi, Vietnam. Following ethics approval, people receiving dialysis were invited to participate in the study. An explanation of the study, procedures, benefits and risk were provided prior to obtaining individual consent. Participants were informed that they were free to withdraw from the study at any time without penalty; confidentiality was maintained by not collecting data that could identify any one individual and also through employing unique study codes.

Instruments

Four instruments were used in this study and these were: i) demographic data form; ii) Kidney Disease Quality of Life-36 (KDQOL); iii) Charlson Comorbidity Index; and iv) Multidimensional Scale of Perceived Social Support Survey (MSPSS). The demographic data form specifically developed for this study was used to collect information in relation to gender; age; marital status; educational level; occupation (workers were people who worked in a factory, business were people who worked in a private company, government were people who were employed by a government department, and farmers were those who worked on a farm); method of payment for dialysis treatment; number of family members (defined as the patient's parent, wife, husband, brother and sister, and grandparent who live in the same house as the patient); key person; head of family; and dialysis modality.

The KDQOL, a well validity instrument for assessing the quality of life (QOL) in people with ESKD (Joshi, Mooppil & Lim, 2010; Perlman *et al.*, 2005; Unruh, Weisbord & Kimmel,

2005), consists of 36 items divided into 19 dimensions. It includes the SF-12 (12 items), symptoms/problems related to kidney disease (12 items), burden of kidney disease (four items) and effects of kidney disease (eight items). This instrument evaluates a patient's perception of their HRQOL with the range of score from 36 to 167 with higher score representing better HRQOL. For the purpose of this study, total scores are classified as low (36–79), medium (80–122) and high (123–167) QOL levels. The KDQOL was translated into Vietnamese (see below for procedure), and then to determine the reliability of the Vietnamese version, it was administered to a pilot sample of 20 people with ESKD patients who meet the inclusion criteria. These people were not included in the subsequent study. Cronbach's alpha in this pilot for each domain was: 0.7 for physical summary component, 0.6 for mental summary component, 0.8 for burden of kidney disease, 0.8 for symptoms/problem, 0.8 for effect of kidney disease.

The number and severity of comorbidity were collected from a review of the patient's medical record. The Charlson Comorbidity Index (CCI) index assigns one point for the presence or history of myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease (transient ischaemic attack or cerebrovascular accident), dementia, chronic pulmonary disease, connective tissue disorder, peptic ulcer disease, mild liver disease, and diabetes without end-organ damage; two points are assigned for hemiplegia, moderate to severe renal disease, diabetes with end-organ damage, tumour without metastases, leukaemia, lymphoma, and myeloma; three points are assigned for moderate or severe liver disease; and six points are assigned for metastatic solid tumour or acquired immunodeficiency syndrome (AIDS). For every decade past 40 years of age, one point is also added to the score (Charlson *et al.*, 1987).

The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item scale that measures perceived support from family, friends and a significant other. Respondents answer items on a seven-point Likert-type scale ranging from very strongly disagree to very strongly agree. This instrument evaluates a patient's perceived support from family, friend or a significant person on a score ranging from 0 to 84. Higher scores refer to better perceived social support (Mitchell & Zimet, 2000; Soykan, Arapaslan & Kumbasar, 2003). The MSPSS was translated into Vietnamese (see below) and then to determine the reliability of Vietnamese version of MSPSS, the questionnaire was administered to 20 people with ESKD patients who met the sample criteria. These people were not included in the final study. Cronbach's alpha for the three domains in this pilot was: 0.6 for family, 0.7 for friend and 0.8 for significant other.

A back-translation technique was used to translate original instruments (that is, KDQOL & MSPSS) into Vietnamese; this technique is widely described in the literature (Ozolin, 2009; Wild *et al.*, 2005). Two experts who were fluent in both English and Vietnamese were used; one expert translated the original into Vietnamese and, without consulting the first expert, the second expert back-translated the Vietnamese versions back into

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English. The two versions were then compared for accuracy. No changes were required to the Vietnamese versions of the KDQOL and MSPSS.

Data collection

After obtaining informed consent, the questionnaires were administered to participants. If required, participants received assistance with completion of the questionnaires. Assistance was needed for participants with limited literacy, poor visual acuity or with restricted movement related to dialysis equipment. Questionnaire items were read aloud and response options sought.

Data analyses

Descriptive analysis was used to calculate percentage, mean, standard deviation and range to analyse comorbidity, the length of time on dialysis, patient's monthly income and social support. Pearson's correlation was used to explore relationships between comorbidity, the length of time on dialysis, patient's monthly income, and social support and HRQOL. The level of significance was set at .05. SPSS 13.0 (2004) was used for this analysis.

Results

ESKD patients who met inclusion criteria were recruited using convenience sampling. Ninety-five people with ESKD participated in the study comprising 47 males (49.5%) and 48 females (50.5%). The mean age was 42.13 years, ranging from 18 to 71 (SD=13.58). The majority of patients were married (67.4%) followed by divorce/widowed/separate (11.5%) and single (21.1%). Ninety-one per cent of patients in the study received partial reimbursement for the cost of dialysis treatment from the government and health insurance companies and only 7% received total reimbursement from the government. Forty-nine (51.6%) people were receiving HD and 46 (48.4%) were receiving PD. All ESKD patients (n=95) lived with families. The most supportive persons identified were spouses (52.6%), parents (26.3%) or siblings (9.5%). Patient demographic characteristics are presented in Table 1.

Table 1. Frequency and percentage of individual characteristics of ESKD patients.

Individual characteristics	n=95	
	Frequency (n)	Percentage (%)
Gender		
Male	47	49
Female	48	50
Age		
18–29	21	22
30–39	20	21
40–49	23	24
50–59	20	21
60–69	9	9
70–79	2	2

Marital status		
Single	20	21
Married	64	67
Divorce/widowed/separate	11	11
Educational level		
Non-formal education	1	1
Primary school	5	5
Secondary school	35	36
High school	33	34
Bachelor degree	20	21
Master degree	1	1
Occupation		
Unemployment	60	63
Worker	3	3
Business person	7	7
Government staff	17	17
Farmer	8	8
Method of medical payment		
Total reimbursement	7	7
Partial reimbursement	87	91
Total self-paid	1	1
Number of family members		
1–3	48	50
4–6	38	40
7–10	9	9
Key person		
Spouse	50	52
Parent	25	26
Children	8	8
Sibling	9	9
Closed relative	1	1
Others (friend & another patient)	2	2
Head of the family		
Patient	27	28
Other family members	68	71
Living with family	95	100
Dialysis modality		
Haemodialysis	49	51
Peritoneal dialysis	46	48

★ Percentages may not sum to 100% due to rounding.

QOL of ESKD patients

Table 2 presents the results of the level of KDQOL. The total mean KDQOL score was 106.1 (SD = 20.3) which is classified as a medium level QOL. ESKD patients had a low

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level of both physical health (mean=13.5, SD=3.2) and burden of kidney disease (mean=6.7, SD=2.8). Furthermore, ESKD patients perceived a medium level of mental health (mean=12.8, SD=3.8) and effect of kidney disease (mean=27.6, SD=7.10). There was a high level of symptoms/problems reported by these patients (mean=45.3, SD=9.1). We did not compare if these were any differences between HD and PD patients' QOL scores.

Comorbidity, monthly income, length of time on dialysis and social support

Table 3 presents the results for the CCI, monthly income, length of time on dialysis and the MSPSS. Participants in this study had a mean 2.97 (SD=1.21) comorbid conditions. The average monthly income was 918,336 Vietnam Dong (range 0–3,300,000 Vietnam Dong) which is approximately A$40. The mean length of time on dialysis was 39.82 (SD=32.29) months which ranged from 1 to 119 months. The mean social support score as measured by the MSPSS for this sample was 68.72 (SD=10.06).

To examine the relationship between comorbidity, monthly income, length of time on dialysis, social support, and KDQOL among ESKD patients, a Pearson's product moment statistic was calculated and the results are shown in Table 4. Patients with a higher comorbid score reported significantly lower total KDQOL (r = −.2, p<.05). The longer a patient had been on dialysis there was a significantly lower total KDQOL (r =−.2, p<.05). When social support was reported by patients as high, this had a significant and positive relationship with total KDQOL (r =.3, p<.01). Lastly, patient reported monthly income revealed no relationship with total KDQOL (p>.05).

Furthermore, relationships among subscales were found. The longer a patient was on dialysis there was a lower physical component (r = −.1, p<.05) and more symptoms/problems (r = −.2, p<.05) reported by patients. Social support also revealed a significant association with the all sub-scales of the KDQOL. These were: physical health component (r = .2, p<.05), mental health component (r= .4, p< .01), burden of kidney disease (r= .2, p<.05), and symptoms/problem (r = .2, p<.05). When

Table 2. Range, mean, SD and level of HRQOL of ESKD patients.

KDQOL	Possible range	Actual range	Mean	SD	Level of KDQOL
Total health-related QOL	36–167	57–151	106.1	20.3	Medium
Physical component	8–24	8–22	13.5	3.2	Low
Mental component	4–23	4–23	12.8	3.8	Medium
Burden of kidney disease	4–20	4–14	6.7	2.8	Low
Symptoms/problems	12–60	20–60	45.3	9.1	High
Effect of kidney disease	8–40	10–40	27.6	7.1	Medium

Possible range is the range of score in original KDQOL.
Actual range is the score collected on the patients.

Table 3. Range, mean, standard deviation of comorbidity, monthly income, length of time on dialysis, and social support.

Category	Possible range	Actual range	Median	Interquartile range
Comorbidity (no. of conditions)	0-31	2-6	0	2
Monthly income (VND)	–	0-3,300,000	850,000	1,600,000
Length of time on dialysis (months)	–	1-119	36	47
Social support score	12-84	42-84	69	15

Relationship between comorbidity, monthly income, length of time on dialysis, social support, and KDQOL.

Table 4. Relationship between comorbidity, monthly income, length of time on dialysis, social support, and HRQOL among ESKD patients.

Variable	Comorbidity	Monthly income	Length of time on dialysis	Social support
Health-related quality of life	−.2★	.1	−.2★	.3★★
Physical component	−.2★	.2★	−.1★	.2★
Mental component	−.1	.2★	−.1	.4★.
Burden of kidney disease	−.1	.1	−.1	.2★
Symptoms/problems	−.2★★	−.1	−.2★	.2★
Effect of kidney disease	.0	.1	−.1	.1

★ <.05
★★ <.01

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patients had more comorbid conditions this was significantly correlated with lower physical QOL scores (r=2, p<.05).

Discussion

In this study, Vietnamese people receiving either HD or PD reported their overall HRQOL to be at a medium level although they identified having a significant burden associated with their kidney disease that impacted predominantly on their physical health. The HRQOL of Vietnamese people results are remarkably similar to other people with ESKD living in Asia (Chiang, 2004). Similarly, Fukuhara et al. (2003) compared dialysis patients from three continents and found that Japanese patents reported a greatest burden of kidney disease and that their HRQOL was profoundly affected by ESKD and dialysis treatments.

We found that most patients reported having a high level of social support, which was provided by family members, friends, and significant other who gave them tangible support such as financial assistance, transportation, access to medical service and emotional support. Traditional Vietnamese culture is focused on families (Do, 2002; Shapiro, 2002), and family members play an important role in supporting other members when they are ill. This also seems to be the situation when a family member has a complex chronic condition such as ESKD. Additionally, all of the patients in this study reported living with family members; a typical feature of Vietnamese culture.

This study also found that having higher levels of social support was significantly correlated with higher overall levels of QOL. Bohlke et al. (2008) concluded that having adequate social supports is important for the HRQOL for people with ESKD. The degree of support received within the family environment has been described as an important predictor of mental health among ESKD patients. Moreover Untas et al. (2010) suggest that having poorer social support mechanism is associated with higher mortality risk, lower adherence to medical care and poorer physical QOL in ESKD patients.

People with ESKD in Vietnam have several comorbid conditions which also impact on their HRQOL. The link between an increasing number of comorbid conditions and lower HRQOL has been previously reported (Mercus et al., 1999; Mozes, Shabtai & Zucker, 1996). Beddhu et al. (2000) found that the presence of additional comorbidities further adds to the number and variety of symptoms experienced by ESKD patients and that these also impact on clinical outcomes such as mortality, hospital admissions, hospital days and inpatient costs. Further research is warranted in Vietnam regarding the impact of comorbid conditions, HRQOL and clinical outcomes for people with ESKD.

Interestingly, this study showed no relationship between monthly income and total HRQOL for Vietnamese patients; even though the monthly income is considerably lower than developed countries. Frank, Auslander and Weissgarten (2003) also reported no relationship between monthly income and HRQOL. However, some studies have reported that ESKD patients are forced to take either lower paid job or lose their jobs after going onto dialysis, resulting in reduced income and lower QOL

(Matusiewicz, 2006). It is, however, probable that the patients in this study did not reveal their exact monthly income; a common situation in Vietnam. It is also not known if the high levels of partial or full health insurance available in Vietnam reduced the financial burden in comparison with other countries where patients have to pay for each dialysis treatment.

Previous research has found that increasing length of time on dialysis leads to lower levels of QOL (Bowman & Martin, 1999; Bohlke et al., 2008). For instance Mittal et al. (2001) reported that the longer patients had been receiving HD treatment in the United States the lower the levels of physical health reported using the KDQOL. We also found similar findings in Vietnamese people on either HD or PD. Bakewell, Higgin and Edmunds (2002) indicated that the decline in HRQOL in ESKD patients over time might be explained by the increased burden of kidney disease on a person's life which leads to greater feelings of frustration often due to the increased time spent dealing with ESKD, its treatment and the way it interferes with their life.

Although social support, comorbid conditions and the length of time on dialysis showed an association with HRQOL in our study, these associations were not strong. The link between these factors and the length of time on dialysis has also been reported in previous studies (Tovbin et al., 2003; Vazquez et al., 2003) but there is no definitive evidence at present that suggests social support decreases as the number of comorbid conditions increase or when dialysing for long periods of time. This suggests the possibility that other factors not considered in this study may play a significant role in the overall QOL of Vietnamese people with ESKD. These factors may consist of: coping strategies, self-concept and other psychosocial factors. Further research could consider all of these factors in relationship to the QOL of people with ESKD.

Limitations

This study does have some limitations. Firstly, the study recruited patients from only one hospital in Vietnam, so it may not be possible to generalise these results to all Vietnamese people with ESKD. Secondly, other factors may influence HRQOL among ESKD patients such as psychological status and coping strategies used by patients. These other factors warrant further exploration. Lastly, this study used a cross-section design so the changes over time of Vietnamese ESKD patients are not known; longitudinal research is, therefore, needed.

Implications for practice

The findings of this study provide some information and guidance for nursing practice. The study suggests that nurses should be aware of the link between increasing comorbidity and length of time on dialysis among ESKD patients in Vietnam, and, therefore, should develop appropriate and timely nursing interventions.

In addition, patients with high levels of social support will be better from a physical, mental, burden of kidney disease, and symptom aspect. Consequently, the social support provided to ESKD patients particularly by family members should be recognised and incorporated into nursing care plans for

patients. For instance, it is common practice in Vietnam for family members to provide not only emotional support but also contribute to the financial costs of supporting a family member and the provision of basic nursing care during hospitalisations. There is, therefore, a considerable burden placed on family members to support a loved one when they have ESKD. Nurses can assist family members to be aware of important role of family in improving QOL by encouraging and counselling ESRD families to participate in improving HRQOL of end-stage renal patients. Moreover, nurses also need to recognise when there are insufficient family members to assist or family members who are unable to assist. For these patients, greater support in the renal unit will be required. This is because there are limited community services available outside of Vietnamese hospitals.

Conclusion

This study found that having a wider social support network and fewer comorbidities were associated with a better HRQOL for Vietnamese ESKD patients. Both comorbidities and length of time on dialysis strongly influenced physical function and the number of symptoms experienced by patients; both of which resulted in a lower HRQOL. Interestingly, monthly income showed no relationship with HRQOL among ESKD patients in Vietnam.

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