

# Quality of Life of Singapore Haemodialysis Patients



Andrew Lee,<sup>1</sup> Stephen Challinor,<sup>2</sup> Low Yen Sia,<sup>1</sup> Jeremy Lim,<sup>1</sup> Mooppil Nandakumar,<sup>2</sup> Wong Kok Seng<sup>3</sup>

1. Centre for Health Services Research, SingHealth  
 2. Medical Directorate, National Kidney Foundation, Singapore  
 3. Department of Renal Medicine, Singapore General Hospital  
 Corresponding author: andrew.lawrence.lee@singhealth.com.sg

## INTRODUCTION

Health-related quality of life (QOL) is an internationally recognized outcomes measure encompassing aspects such as general health, physical functioning, physical symptoms, emotional functioning, sexual functioning, cognitive functioning, and social well-being. However, the QOL of haemodialysis patients in Singapore has not been studied. Combined with clinical outcomes, QOL outcomes studies can assist clinicians in developing a more robust model of patient well-being by measuring the impact of a disease on the lives of patients. This model may assist in the evaluation of current treatment methods. For example, it is well known that dialysis extends lives of patients with end-stage renal disease (ESRD), but are these extra years meaningful. If they are not, should dialysis remain the treatment of choice? Ultimately, QOL studies may serve as a call to action for interventions in certain QOL aspects or policy changes that will improve the well-being of haemodialysis patients in Singapore.

## AIMS

- Determine the QOL of Singapore haemodialysis patients using the Kidney Disease Quality of Life Short Form 1.3™ Survey (KDQOL)
- Compare the QOL of Singapore dialysis patients with the QOL of the Singapore general population
- Compare the QOL of Singapore dialysis patients with QOL of dialysis patients in other countries

## METHODOLOGY

- The KDQOL was administered at 22 National Kidney Foundation, Singapore (NKF) haemodialysis centres from Dec 2006 to Jan 2007
- 984 respondents out of total NKF patient population (1996 as of Dec 2006)
- Self-administered when possible, assistance from SingHealth Silver Connection nurses when necessary

## Inclusion criteria

- End-stage renal disease (ESRD) on haemodialysis at National Kidney Foundation (NKF) dialysis centre for greater than 3 months
- Age 18+ years

### What is the KDQOL?

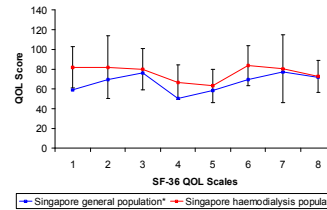
- Composed of Short Form-36 (SF-36) general health questions across 8 domains. Ex (In general would you say your health is...?)
- Includes additional kidney-specific questions across 12 scales Ex. (My kidney disease interferes too much with my life...strongly disagree to strongly agree)
- Scores are from 0-100 with 100 representing the best quality of life
- Translated into English (United Kingdom), and Chinese (Hong Kong) by the MAPI Research Institute (a non-profit organization that supports patient-outcomes research)

## RESULTS

### Demographics



## Singapore haemodialysis patients suffer a worse quality of life than the Singapore general population across all SF-36 QOL scales



\*Singapore general population scores are adjusted by age, sex, race, and language to match the demographic profile of the patient population. The general population data for Singapore is published elsewhere.<sup>3</sup>

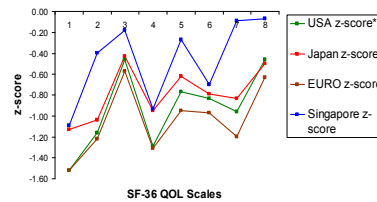
SF-36 Scales	Dialysis population Mean	Dialysis population SD	General population* Mean	General population* SD	Differences in means	Singapore z-score	p-value (one-sample hypothesis testing)
1 Physical functioning	58.96	24.14	81.87	21.00	-22.91	-1.09	0.0000
2 Role-physical	69.52	43.03	82.08	31.62	-12.55	-0.40	0.0000
3 Bodily pain	76.13	23.73	79.90	20.97	-3.77	-0.18	0.0000
4 General health	50.53	19.25	66.63	17.47	-16.30	-0.93	0.0000
5 Vitality	58.52	17.47	63.13	17.07	-4.61	-0.27	0.0000
6 Social functioning	69.60	24.33	83.60	20.05	-14.00	-0.70	0.0000
7 Role-emotional	77.24	39.43	80.27	34.27	-3.03	-0.09	0.0030
8 Mental health	71.67	15.78	72.75	16.30	-1.08	-0.07	0.0188

### How does this result guide interventions?

A scale that has a z-score closest to 0 indicates that that QOL of dialysis patient is closest to the general population QOL. These QOL scales may not require additional interventions, and resources should be spent on other resources.

- Mental health, role-emotional, and bodily pain QOL scores of dialysis patients are closest to general population scores and may not require additional interventions (z-score <0.20)
- Vitality and role-physical may require moderate attention (0.20 < z-score < 0.69)
- Social functioning, general health and physical functioning require the most improvement (z-score > 0.69)

## An international comparison of z-scores shows that Singapore dialysis patients enjoy a higher QOL than their counterparts in other countries across all SF-36 QOL scales



### \*What are z-scores?

Z-scores normalize the dialysis patients' scores to the general population scores of each country. This minimizes cultural-response bias. z-score data was published in a Dialysis Outcomes and Practice Patterns Study (DOPPS).<sup>4</sup>

## Singapore dialysis patients enjoy a higher QOL than their international counterparts across many KDQOL scales

	Singapore	USA	Japan	EURO
Symptom/Problem list	84.00	71.10	75.80	69.90
Effects of kidney disease	77.80	62.50	67.70	57.30
Burden of kidney disease	34.70	40.80	28.60	35.40
Work status	43.60	20.00	44.80	25.20
Cognitive function	83.70	77.20	81.70	73.60
Quality of social interaction	79.20	75.90	60.90	77.00
Sexual function	76.40	60.70	65.20	67.70
Sleep	66.60	58.30	63.20	57.10
Social support	79.00	73.10	72.40	73.00
Staff encouragement	80.50	80.60	78.50	82.80
Overall health	64.60	70.50	77.10	71.30
Patient satisfaction	58.90	62.90	65.50	62.40

The cells highlighted in green indicate the population with the best QOL for that scale. For example, Singapore has the highest QOL score for Symptom/Problem list relative to USA, Japan, and EURO.

## CONCLUSIONS

This study demonstrates that the QOL of Singapore haemodialysis patients is worse than the general population in Singapore. Despite having poor general health, haemodialysis patients perceive their QOL to be high. The implication is that current dialysis management practices are reasonably effective. However, this study also illuminates QOL areas that require improvement. Observations from this study will assist future work that will explain why QOL of Singapore haemodialysis patients is high. It is well known that working patients enjoy higher QOL, so NKF's policy of encouraging haemodialysis patients to remain employed may have a beneficial effect on QOL. The strong culture of familial support in Singapore may also explain a high QOL with regards to mental health and social interactions. Finally, it must not be forgotten that QOL outcomes measures should not be considered in isolation. Clinical outcomes can also have an effect on QOL, so perhaps Singapore haemodialysis patients enjoy high quality dialysis care which in turn improves the QOL of the patients.

## REFERENCES

1. The KDQOL Working Group. <http://gim.med.ucla.edu/kdqol> 2007 January 26.
2. Statistics Singapore. Singapore Census of Population 2000. <http://www.singstat.gov.sg/keystats/people.html> 2001 October.
3. Thumboo J, Chan SP, Machin D, et al. Measuring Health-related Quality of Life in Singapore: Normal Values for English and Chinese SF-36 Health survey. *Ann Acad Med Singapore* 2002;31:366-374.
4. Fukuhara S, Lopes AA, Bragg-Gresham JL, et al. Health-related quality of life among dialysis patients on three continents: The Dialysis Outcomes and Practice Patterns Study. *Kidney International* 2003;64:1903-1910.

