

## Background

Malnutrition is a major problem in end stage renal disease (ESRD) patients undergoing hemodialysis that may occur due to several factors such as inadequate nutritional intake, increase losses or and to an increase in protein catabolism. Malnutrition can result in increased susceptibility to infection, impaired wound healing, poor rehabilitation, fatigue, malaise, and increased rates of hospitalization, morbidity and mortality.

## Objectives

The aim of this study is to assess the relationship between nutritional status and quality of life (QoL) in ESRD patients undergoing hemodialysis.

## Methods

- This is a multicenter cross sectional study that took place in 4 hemodialysis clinics in Jakarta from October to December 2016.
- Nutritional status was measured using Subjective Global Assessment (SGA) Questionnaire.
- Quality of life was measured using World Health Organisation-Quality of Life (WHOQOL-BREF) Questionnaire containing 4 domains related to physical health, psychological, social relationships and environmental.
- Analysis was done using One-way ANOVA or Kruskal-Wallis. Post hoc analysis was done if there is significant difference between the 3 categorical groups of SGA.

## Results

- This study has a total of 116 patients.
- Baseline characteristics of the patients are shown in Table 1.
- The mean QoL for physical health, psychological, social relationships and environmental domains were 55.9 ( $\pm 16.9$ ), 66.1 ( $\pm 17.4$ ), 63.3 ( $\pm 28.2$ ) and 64.0 ( $\pm 14.3$ ) respectively.
- There was significant association between level of nutritional status and physical health domain ( $p < 0.001$ ).
- The mean difference in physical health domain values between normal nutrition and severely malnourished is 18.9 ( $p < 0.001$ ).
- The other domains did not have any significant association with nutritional status.

Table 1. Baseline Characteristics (n=116)

Variable	
Age (years) [Mean (SD)]	53.0 ( $\pm 12.5$ )
Duration of Hemodialysis (months)	39.0 ( $\pm 37.3$ )
Gender	
Male	78 (67.2%)
BMI [Mean (SD)]	22.3 ( $\pm 5.8$ )
<18.5kg/m <sup>2</sup>	36 (31%)
18.5 -25.0 kg/m <sup>2</sup>	55 (47.4%)
>25 kg/m <sup>2</sup>	25 (21.6%)
Subjective Global Assessment	
Normal	57 (49.1%)
Moderately Malnourished	48 (41.3%)
Severely Malnourished	11 (9.5%)
Diabetes	40 (34.4%)
Hypertension	94 (81.0%)
Ferritin (ng/mL) [Mean (SD)]	56.1 ( $\pm 30.2$ )

Table 3. Association between nutritional status and different domains of QoL

	Normal Nutrition	Moderately Malnourished	Severely Malnourished	P
Physical Health Domain (Mean[SD])	60.7 ( $\pm 15.6$ )	53.1 ( $\pm 15.9$ )	41.9 ( $\pm 17.9$ )	<b>0.001</b>
Psychological Domain (Median[Min-Max])	70.8 (20.8-100)	66.7 (29.1-100)	62.5 (4.2-79.2)	0.107
Social Relationship Domain (Median[Min-Max])	66.7 (25-100)	58.3 (25-100)	58.3 (8.33-75)	0.125
Environmental Domain (Median[Min-Max])	65.6 (43.8-100)	62.5 (31.3-100)	62.5 (3.13-84.4)	0.486

Table 4. Post hoc Bonferroni for Physical Health Domain of QoL

Physical Health Domain	Mean difference	95% CI		p value	
		Minimum	Maximum		
Nutritional Status	Normal VS Moderately Malnourished	7.6	0.03	15.2	<b>0.049</b>
	Normal VS Severely Malnourished	18.9	6.1	31.6	<b>0.001</b>
	Moderately Malnourished VS Severely Malnourished	11.2	-1.75	24.23	0.113

## Discussion

- From previous studies, nutritional status has a significant association with aspects of QoL as perceived by the patient and as indicated by objective measures. Severely malnourished patients had poorer perceived QoL and These patients also had poorer functional status compared with their better nourished counterparts. A major finding of this study was that severely malnourished patients judged their QoL to be significantly lower than their better nourished in all domain, specially the physical health domain.
- Further, as there was no difference in the employment status of well nourished and malnourished patients in our study, the impact of nutritional status on social and economic aspects of life was not likely to be shown here.
- The results of this study is similar to those of Laws et al who found that a relationship exists between nutritional status and QoL in chronic hemodialysis patients.
- A number of other smaller studies have, however, failed to show an association between patient perceived QoL and nutrition status. This may be a result of methodological issues, including the methods used to assess nutritional status, the use of a single measurement construct to capture perceived QoL, or the failure to control for the possible independent affects of sociodemographic and medical variables on QoL measures.
- This study has shown that a relationship exists between nutritional status and QoL in chronic hemodialysis patient and malnutrition associated with poorer QoL when the degree of malnutrition becomes severe. Because of the cross-sectional nature of the study, it is not possible to prove a causal relationship between nutrition status and QoL.
- However, given the implications of these findings for both patients and the health care system, it is vital that further prospective studies be conducted to determine the potential for nutritional interventions to improve the quality of life of these patients.

## Conclusion

Malnutrition can lead to poorer physical health domain of quality of life. By improving the nutritional status of the patients, we can increase the QoL of the patients.

## References

- Kaysen G, Greene T, Larive B, Mehta R, Lindsay R, Depner T et al. The effect of frequent hemodialysis on nutrition and body composition: Frequent Hemodialysis Network Trial. *Kidney International*. 2012;82(1):90-99
- Evenepoel P, Meijers B. Dietary fiber and protein: nutritional therapy in chronic kidney disease and beyond. *Kidney International*. 2012;81(3):227-229.



Corresponding author:  
Kalis Waren  
kaliswaren1996@gmail.com

