

**THE CORRELATIONS BETWEEN QUALITY OF  
LIFE, DIETARY INTAKE AND APPETITE AMONG  
CHRONIC KIDNEY DISEASE (CKD) PATIENTS IN  
HOSPITAL PAKAR UNIVERSITI SAINS MALAYSIA  
(HPUSM)**

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(HPUSM)**

**By**

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**Thesis submitted in fulfilment of the requirements  
for the requirements for the degree of Bachelor of Health Science  
(Honours) (Dietetics)**

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## DECLARATION

I hereby declare that this thesis entitled THE CORRELATIONS BETWEEN QUALITY OF LIFE, DIETARY INTAKE AND APPETITE AMONG CHRONIC KIDNEY DISEASE (CKD) PATIENTS IN HOSPITAL PAKAR UNIVERSITI SAINS MALAYSIA (HPUSM) is the result of my own research work except as cited in the references. It has not been submitted for any other degree or diploma in any university. I am fully responsible for the contents of this thesis.



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MOHAMAD HAFIZ BIN MOHD KHAIR

Date: 9/8/2025

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May this contribute as a small wink to a better life and care for patients with chronic kidney disease.

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## LIST OF ABBREVIATIONS

<b>Abbreviation</b>	<b>Meaning</b>
CKD	Chronic Kidney Disease
ESRD	End-Stage Renal Disease
QoL	Quality of Life
HPUSM	Hospital Pakar Universiti Sains Malaysia
KDQOL-SF	Kidney Disease Quality of Life – Short Form
SNAQ	Simplified Nutritional Appetite Questionnaire
SPSS	Statistical Package for the Social Sciences
CHO	Carbohydrate
n	Total number of subjects
r	Correlation coefficient value
SD	Standard deviation
BMI	Body mass index

**HUBUNGAN ANTARA KUALITI HIDUP, PENGAMBILAN DIET DAN SELERA MAKAN DALAM KALANGAN PESAKIT PENYAKIT BUAH PINGGANG KRONIK (CKD) DI HOSPITAL PAKAR UNIVERSITI SAINS MALAYSIA (HPUSM)**

**ABSTRAK**

Penyakit Buah Pinggang Kronik (CKD) merupakan penyakit progresif yang memberi kesan kepada kesihatan fizikal dan kualiti hidup, terutamanya pada peringkat akhir. Pengambilan diet dan status selera makan adalah elemen penting dalam penjagaan pesakit CKD, namun sering terjejas disebabkan komplikasi penyakit. Kajian keratan rentas ini dijalankan untuk mengkaji perkaitan antara pengambilan diet, selera makan dan kualiti hidup dalam kalangan pesakit CKD yang menerima rawatan di HPUSM. Seramai 100 peserta telah direkrut. Umur purata peserta adalah 62.5 tahun (SD = 10.97), dengan jantina terdiri daripada 49% lelaki dan 51% perempuan.. Kaedah pengumpulan data melibatkan kaedah penarikan semula diet 24 jam, Soal Selidik Selera Makan Ringkas (SNAQ), dan Soalselidik Kualiti Hidup Penyakit Buah Pinggang (KDQOL-SF). Data dianalisis menggunakan SPSS versi 29.0 dengan ujian korelasi Pearson/Spearman dan chi-square. Selera makan yang rendah dikaitkan dengan pengambilan protein. Purata pengambilan protein bagi pesakit yang mempunyai selera makan rendah ialah 74.00 g, manakala bagi pesakit dengan selera makan normal ialah 55.71 g, dengan ( $p = 0.05$ ). Walau bagaimanapun, tiada perbezaan yang signifikan dicatatkan dalam pengambilan lemak antara kedua-dua kumpulan ( $p > 0.01$ ). Terdapat juga hubungan antara pengambilan diet dan skor kualiti hidup (QoL). Peratusan pengambilan protein menunjukkan hubungan songsang dengan skor QoL berkaitan penyakit buah pinggang ( $r = -0.22$ ,  $p = 0.03$ ), manakala pengambilan lemak menunjukkan hubungan positif dengan skor sokongan sosial ( $r = 0.25$ ,  $p = 0.01$ ).

Skor selera makan (SNAQ) pula menunjukkan hubungan positif dengan QoL, khususnya dalam domain kesan penyakit buah pinggang ( $r = 0.30$ ,  $p = 0.002$ ), yang menunjukkan bahawa pesakit yang mempunyai selera makan yang lebih baik melaporkan beban penyakit yang lebih rendah.

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**ABSTRACT**

Chronic Kidney Disease (CKD) is a progressive condition that impacts health status and Quality of Life (QoL), particularly in stages of advanced CKD. Dietary and appetite status are important factors affecting health and quality of life for patients with CKD whose diets and appetites are frequently impaired by disease-related complications. The cross-sectional study was conducted to determine the relationships of dietary intake, appetite, and QoL on CKD patients in HPUSM. A total of 100 participants were recruited through purposive sampling. The average age of the participants was 62.5 years (SD = 10.97), with a gender breakdown of 49% male and 51% female.. Information regarding 24-hour dietary recall, Simplified Nutritional Appetite Questionnaire (SNAQ) and Kidney Disease Quality of Life Short Form (KDQOL-SF) was collected. We analysed the data through SPSS 29.0 and used Pearson's/Spearman's correlation, and chi-square test. Poor appetite was associated with protein consumption. Level of protein intake for poor appetite is 74.00 g and for normal appetite is 55.71 g with ( $p = 0.05$ ) and fat intake ( $p > 0.01$ ). There were correlations between the diet and QoL indicators. Protein intake proportion was inversely associated with kidney disease QoL score ( $r = -0.22$ ,  $p = 0.03$ ), and fat intake was associated with social support ( $r = 0.25$ ,  $p = 0.01$ ).

The appetite score (SNAQ) was positively associated with QoL, in particular with the kidney disease QoL ( $r = 0.30$ ,  $p = 0.002$ ), indicating that patients with a higher appetite suffer less from the disease.



## CHAPTER 1 : INTRODUCTION

### 1.1 Background of study

Chronic kidney disease (CKD) occurs when the kidneys slowly fail over time, which causes toxins and waste products to build up in the body. About 10% of worldwide population are affected from CKD (National Kidney Foundation,2024). Meanwhile, the prevalence of CKD among Malaysians has been considered to be on the rise, and as of 2024, it stands at about 15.5% (National Kidney Foundation,2024). This is approximately over 5 million Malaysians who are living with CKD, hence the big burden on the healthcare system. The rise in the cases of CKD has been linked to the alarming increase in the rates of two of its major risk factors: diabetes and hypertension (Galen Centre for Health and Social Policy, 2024). Unfortunately, awareness among Malaysians about CKD is low; only 4% of persons with the disease are reportedly aware (Hooi et al., 2013). This is attributed to limited awareness among people in realizing that early detection and timely intervention are indeed critical in managing CKD and preventing the progression of CKD to end-stage renal disease (ESRD).

The consequences of CKD include a anemia, abnormalities of the bones and minerals, and even memory loss. (Kushner, 2024). Dialysis or a kidney transplant are required for survival when CKD advances to end-stage renal disease, when the kidneys are no longer able to meet the body's demands. In addition, Patients' quality of life frequently declines as CKD advances from severe damage to complete renal failure. Studies have shown that QoL is negatively affected by fatigue, pain, reduced physical capacity, and psychological stress, and also by the burden of frequent medical care (MDPI study, 2023). Patients often feel socially isolated, depressed, and anxious because of the limitations imposed by their illness(Sharma, 2023). CKD is a significant public health concern that requires treatment to improve patients'

overall health and quality of life in addition to symptom relief because of its influence on a patient's health and way of life.

Dietary intake is an integral part of CKD management to maintaining nutritional and metabolic balance in the body (Kalantar-Zadeh, 2017) . The reduction in renal function is accompanied by reduced efficiency in the discharge of wastes, maintenance of electrolyte balance, and regulation of body fluid volume. Therefore, adherence to a healthy diet becomes a significant strategy for slowing down the rate of progression of CKD and preventing complications (Kalantar-Zadeh et al., 2017). For example, individualized diet therapies help minimize the production of certain toxins such as potassium and urea that, if left unchecked, may lead to metabolic acidosis and hyperkalemia, respectively (Purcell, 2020). Physiological alterations of CKD, such as anorexia and dysgeusia, commonly impair adequate nutritional intake, further exacerbating the challenge of disease management (Krajewska et al., 2022)

Appetite status is common nutritional issues that highly prevalent among CKD patient (Sung, 2021). This is due to the accumulation of uremic toxins they disturb the normal sensations of hunger through chronic inflammation, altering metabolism, as well as a side effect of medications which may be used in management (Kalantar-Zadeh et al., 2017). The psychological factors like stress, depression, and anxiety further predispose to the loss of appetite, creating a vicious cycle of lesser desire to eat (Kalantar-Zadeh, 2017). Consequently, nutritional requirements cannot be adequately met, and led to malnutrition in CKD Malnutrition cause muscle wasting, impairment in immunity, reduction of energy, and thus impairing the overall health and quality of life (Krajewska et al., 2022). The complex relationship among appetite, dietary intake, and disease progression emphasizes that understanding these factors is highly important for the development of effective interventions

that will improve nutritional status and health outcomes for CKD patients. (Kalantar-Zadeh et al., 2017).

QOL is a critical indicator of the general well-being of patients with CKD, since it is very highly associated with physical, emotional, and social factors that are usually grossly impacted by the disease process (National Kidney Foundation, 2024). The insidious onset and progressive nature of CKD, coupled with the burden of dietary issues, complex treatment modalities, and frequent symptoms such as fatigue and pain, significantly reduce QoL (National Kidney Foundation, 2024). Additionally, nutritional status and appetite further worsen the situation because they contribute to muscle wasting, low energy, and strength impairment. All these factors put together limit daily activities and independence (Krajewska et al., 2022). Often, such problems are accompanied by psychological complications like depression and anxiety, even social isolation, since either the patients would find it difficult to join social meals or be ashamed of their limitations (Krajewska et al., 2022). Early identification of dietary intake coupled with appetite status may complement the understanding patterns on how these critical elements may influenced the QoL among CKD patients.

## **1.2 Problem Statement**

CKD is a severe health challenge; thus, the prevalence estimated at about 10% of the world's population has very serious consequences on morbidity, mortality, and QoL (Levey & Coresh, 2012). Despite advances in treatment, CKD patients frequently experience a diminished QoL due to the interplay of physical decline and psychological stress, exacerbated by reduced appetite and suboptimal dietary intake (Cepeda Marte et al., 2019). These challenges highlight the urgent needs assessment that address these factors among CKD patients.

Impaired nutrition status is a major contribution to malnutrition in CKD resulted from the poor dietary intake is an important concern in CKD patients, especially in those undergoing hemodialysis (Zabel et al., 2012). Systemic inflammation and uremic toxins, which are related to the need for highly restricted diets that may affect nutritional status in a negative way, would impede physical and psychological health (Zabel et al., 2012). Studies have continuously linked poor nutritional status with low QoL scores, particularly relating to domains of energy, physical functioning, and emotional well-being (Krajewska et al., 2022). Early identification of dietary intake among CKD patients will lead to a prompt action to combat dietary inadequacy and reduce the nutritional issues among CKD patients.

Loss of appetite is one of the common symptoms in CKD patients and is considered to be the most significant contributor to malnutrition and low QoL (Chiu et al., 2009). However, the appetite assessment in CKD patients and its relationship with QoL remain scarce. Uremic toxins, changes in appetite regulators, and gastrointestinal problems lead to an impairment in food intake and, consequently, an energy and protein shortfall (Chiu, 2009). Several studies have reported that diminished appetite is associated with poor physical health outcomes, such as general health and energy.( Kalantar-Zadeh et al., 2017). The appetite status also relates to social function, cognitive performance, and emotional well-being, again giving evidence for the universal impact of appetite status on QoL.

The quality of life, a multidimensional concept based on physical, mental, and social well-being, is noticeably different in CKD patients. It was reflected in the studies conducted using instruments such as the Kidney Disease Quality of Life Short Form that the scores of CKD patients were markedly lower in all QoL domains when compared with the general population (Zabel et al., 2012). These indeed are the most affected areas: physical health,

energy/fatigue, and social interactions have been commonly reported to be related to poor nutritional status and a lack of appetite.

### **1.3 Significance of Study**

CKD patients present with complicated nutrition-related challenges arising from metabolic alterations and dietary restrictions put in place to slow the progression of the disease. Protein-energy wasting, malnutrition, and appetite suppression also occur quite often; they significantly affect physical health and QoL (Krajewska et al. 2022). The interaction between nutritional intake and appetite status remains poorly explored, specifically within the Malaysian setting. This study will be able to present data on nutritional intake and appetite status which enable the healthcare professional to plan appropriate nutritional strategy for CKD patients.

Poor QoL is a hallmark of CKD, and poor physical functioning, low energy, and social withdrawal are commonly reported by patients with this disease. The kidney disease quality of life short form (KDQOL-SF) questionnaire underlined how conditions of malnutrition and reduced appetite are closely related to poor QoL outcomes (Cepeda Marte et al., 2019). Focusing on such relationships, the study will contribute to the fine-tuning of QoL assessments and inform interventions that address the higher psychological and social challenges that CKD patients face.

The overall effect of CKD, both physical and psychosocial, constitutes an important element in the enhancement of patient satisfaction and outcomes that care models should address. Poor appetite not only affects dietary intake but also diminishes the social and emotional enjoyment of food, contributing to states of depression and social isolation (Kalantar-Zadeh et al., 2017). The present study links appetite and dietary intake to QoL and

will support integrating psychological and nutritional care into CKD management, enhancing the overall experience of patients.

These findings may contribute as the fundamental element for public health policy and the development of clinical and nutritional guidelines in managing CKD. Such findings of the present study can justify the importance of nutritional management in improving the QoL in CKD. National Kidney Foundation and Kidney Disease Outcomes Quality Initiative-KDOQI (Apetrii et al., 2021). Improvement in QoL can increase better compliance with treatment plans, less morbidity, and improved survival (Apetrii et al., 2021).

Nevertheless, data on the dietary intake, appetite and QoL issues among Malaysian CKD patients is limited. Hence, conducting this study in HPUSM will localize data required to drive CKD care strategies at the institutional level, and addressing an important knowledge gap. (Krajewska et al., 2022)

#### **1.4 Research questions**

1. Is there any difference between dietary intake and appetite status in CKD patients?
2. Is there an association between dietary intake and QoL in CKD patients?
3. Is there an association between appetite status and QoL in CKD patients?

## **1.5 Research objective**

### 1.5.1 General Objective

To determine the relationship between quality of life, dietary intake and appetite in CKD patients receiving treatment at HPUSM.

### 1.5.2 Specific objective

1. To examine the differences between dietary intake and appetite status among CKD patients in HPUSM
2. To examine the relationship between dietary intake and QoL among chronic kidney disease (CKD) patients in hospital pakar universiti sains malaysia (HPUSM)
3. To examine the relationship between appetite score and QoL among chronic kidney disease (CKD) patients in hospital pakar universiti sains malaysia (HPUSM)

## **1.6 Research Hypothesis**

### Hypothesis 1 :

Null Hypothesis (H0):

There is no significant differences between dietary intake and appetite status in chronic kidney disease patients among patients in Hospital Pakar University Sains Malaysia

Alternative Hypothesis (H1):

There is significant differences between dietary intake and appetite status in CKD patients among patients in Hospital Pakar Universiti Sains Malaysia

Hypothesis 2 :

Null hypothesis (H0) :

There is no a significant correlation between dietary intake and QoL in CKD patients among patients in Hospital Pakar University Sains Malaysia

Alternative hypothesis (H1) :

There is significant correlation between dietary intake and QoL in CKD patients among patients in Hospital Pakar University Sains Malaysia

Hypothesis 3 :

Null hypothesis (H0)

There is no significant correlation between appetite score and QoL in CKD patients among patients in Hospital Pakar University Sains Malaysia

Alternative hypothesis (H1) :

There is significant correlation between appetite score and QoL in CKD patients among patients in Hospital Pakar University Sains Malaysia

## **1.7 Operational Definition**

### **1. Dietary Intake:**

The quantity and quality of food consumed by an individual, including macronutrients like carbohydrates, proteins, and fats, and micronutrients like vitamins and minerals. In CKD patients, dietary intake is usually monitored through the use of tools like 24-hour dietary recall, that patient will be interview, focusing on those highly restricted nutrients: sodium, potassium, and phosphorus. The purpose is to avoid further damage to the kidneys and to maintain metabolic stability.

### **2. Appetite Status:**

Describes the person's wish to eat, which might be affected by physiological factors such as uremic toxins, inflammation, and hormonal changes, or psychological factors such as stress and depression. Appetite is typically assessed with the SNAQ-a questionnaire assessing risk for malnutrition in CKD patients.

### **3. Quality of Life (QoL):**

A multidimensional measure reflecting an individual's physical, mental, and social well-being. In CKD patients, QoL is measured using the Kidney Disease Quality of Life Short Form (KDQoL-SF), with items capturing the impact of dietary restrictions, fatigue, and treatment burden on daily living and emotional health.

#### 4. **Chronic Kidney Disease (CKD)**

Characterized by a progressive loss of renal function, defined by either a reduction in the glomerular filtration rate (GFR  $<60$  mL/min/1.73 m<sup>2</sup>) or the presence of kidney damage for more than three months. Stages 3 to 5 CKD are of grave concern due to dietary restrictions and a higher risk of complications.