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# THE QUALITY OF LIFE OF CHRONIC RENAL FAILURE PATIENTS ON PERIODIC HEMODIALYSIS

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**Abstract**

Chronic renal failure is increasing rapidly and has become a major concern of health organizations all over the world. Many studies in the world estimated the quality of life in patients who have artificial kidneys and noted that the patients' quality of life is significantly affected. This thesis aims to evaluate the quality of life and factors related to the quality of life of patients with chronic renal failure on periodic hemodialysis. The study was conducted in December, 2021; the subjects were all 54 patients with periodic hemodialysis at the artificial kidney unit of Binh Dan Hospital. The patients were interviewed by researchers directly, the researchers collect information including family factors, occupation,

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medical history, and quality of life questionnaire (WHO-BREF). Face-to-face interviews were carried out for about 1 hour because this time the patients are relatively comfortable and did not affect the interview process. The general QOL score was 50.36 ± 8.37. However, 51.85% had scores below average. In that, scores of the social relationship domain (45.06 ± 13.97) and environment domain (49.42 ± 8.94) are below average. The score for the physical domain (56.88 ± 13.34) and the score for the psychological domain (50.08 ± 14.19) are over average. There are strong intensity correlations between a score of the physical domain and the score of the psychological domain, a score of the social relationship domain, and a score of the environment domain. In that, a score of the psychological domain has a strong intensity correlation with the score of the social relationship domain. The score of the social relationship domain has a strong intensity correlation with the score of the environment domain.

# 1. Introduction

## 1.1 Statement of this research

Chronic kidney failure is increasing rapidly and becoming a major concern of health organizations worldwide. According to the researchers, chronic kidney failure is one of the diseases with high mortality rates worldwide [1], [2]. By 2010, as a worldwide estimation, there are more than 2 million patients with chronic renal failure who should be treated with renal replacement to maintain their life [3]. As result, 80% of patients lived in developed countries, while there is only 20% of the patients lived in developing countries [4]. The increasing rate of chronic renal failure has put a significant financial burden on the health care systems of many countries around the world. In 2019, the estimated total cost of medical care for patients with chronic renal insufficiency to renal replacement was Can $14 634 per patient [5].

In Vietnam, no official figures on the incidence of patients with chronic renal failure across the country, but following preliminary investigation up to 2019, the number of patients with chronic renal failure is about 5 million, and about 8,000 new patients every year [6].

Various treatments reduce the severity of symptoms and prolong the life of patients with chronic kidney failure. On the other hand, their physical, psychological, economic, social and environmental aspects are severely affected and lead to a reduced quality of life (QOL) [7].

### 1.2 Significance of this research

At the Binh Dan Hospital, there are many patients with chronic renal failure receiving periodic hemodialysis, but no study has assessed the quality of life and the impact of varied renal diseases that affect their lives. For that reason, we implement this project "The quality of life of chronic renal failure patients on periodic hemodialysis at the Binh Dan hospital" by using the questions in "World Health Organization Quality of Life" (WHOQOL - BREF) to assess the quality of life of patients with chronic renal failure on periodic hemodialysis and identify the factors related.

### 1.3 Aim of this research

**1.3.1 General object:** Evaluate the quality of life and factors related to the quality of life of patients with chronic renal failure on periodic hemodialysis.

**1.3.2 Specific objects:**

Determine the quality of life scores of chronic renal failure patients on periodic hemodialysis at Binh Dan hospital with the questions WHOQOL - BREF.

Describe the relationships among each domain of quality of life scores and demographic of patients at Binh Dan hospital with chronic renal failure on hemodialysis periodically.

Describe the relationships between domains of quality of life with each other.

### 1.4 Research questions

- How many quality of life scores of chronic renal failure patients on periodic hemodialysis at Binh Dan hospital is?

- Are there relationships between demographic data of patients with chronic renal failure and each domain of quality of life scores at Binh Dan hospital?

- Are there relationships between domains of quality of life with each other?

## 2. Methodology

This study adopted a cross-sectional mixed-method (quantitative and qualitative) study design. The study was carried out in the Faculty of Nursing at Nguyen Tat Thanh university and Binh Dan Hospital.

### 2.1. Study Population

Chronic renal failure patients get periodic hemodialysis treatment at the artificial kidney department in Binh Dan Hospital from January to February 2022.

## 2.2 Sample Size Determination

The formula to determine the sample size based on the estimated percentage of the population is squarely finite

$$n \geq \frac{NZ^2_{1-\alpha/2}p(1-p)}{d^2(N-1)+Z^2_{1-\alpha/2}p(1-p)}$$

$N$: Total population of Hemodialysis

$Z$ : $Z$ Values (corresponding confidence intervals)

$d$ : Absolute precision

$p$ : An expected shelf/ in the population expected

According to studies of the Care Quality chronic renal failure patients on dialysis, the patient shelf occupies care quality poor (¡ 50 points) from 60 to 75.6% [8], so we choose:

$N$ : The number of patients on hemodialysis at the Artificial Kidney Unit of Binh Dan Hospital.

$P$ : 0.5 to achieve a maximum sample size,

$N$ : ... ; Z: 1.96; d: 0.05; $\alpha$: 0.05

$n$ = ... , so .we select 54 patients in the study

## 2.3 Sampling method

A list of chronic renal failure patients on periodic hemodialysis was managed at the Artificial Kidney Unit of Binh Dan Hospital. The researcher selected objects in a list and gather information to conduct a non-probability convenient way.

## 2.4 Sampling Standard

Inclusion criteria:

- Patients aged 18 years and older are diagnosed with chronic renal failure.
- Hemodialysis duration over the 3 months period.

-Patients who agreed to participate in the study and wrote informed consent. Exclusion criteria:

- Patients do not have the ability to communicate correctly; vision loss, hearing loss; dementia,
- Patients were worsening emergency and need to be transferred (urea and creatinin in the blood are increasing maybe lead to the patients was coma).

## 2.5 Data collection method

All patients with periodic hemodialysis at the artificial kidney unit of Binh Dan Hospital with enough sampling standards will be invited to participate

in the study. Patients will be invited to participate in the study and sign paper consent to participate in the research introduced, providing information about the study. Patients were interviewed by researchers directly to collect information on family factors, social work, medical history and answer the questions in the questionnaire prepared. Method of face-to-face interviews was carried out after 1 hour from the time patients started filtering. Since this time the patient is relatively comfortable and does not affect the interview process.

## 2.6 Data collection tool

**Data collection tool in this study consists of three parts:**

(i) Question about multi demographic and background information related to patients.

(ii) Assessment Scale quality of life is self - an assessment questionnaire WHOQOL-BREF.

(iii) Medical records to gather the necessary information for research.

## 2.7 The variables of the research

The demographic characteristics of the patient
- Age: These are the continuous variables by year of assessment. During the analysis will be divided into 3 groups: ¡ 30 years old, 30 - 59 years old, $\geq$ 60 years old.
- Gender: is a binary variable, including 2 values: male and female.
- The residence: is a nominal variable, has 2 values: rural and urban.
- Religion: is a nominal variable, has 3 values: Buddhism, Catholicism, and others,
- Ethnicity: is a nominal variable, has 2 values: Vietnamese and Chinese.
- Occupation: is the nominal variable, there are three values: unemployment, employment, and retirement.
- Marital status: is the nominal variable, with three values: married, divorced/ widowed, and single.
- Education level: is the ordinal variable There are 5 values: level 1, level 2, level 3, and higher education and tertiary education.
- BMI: (Body Mass Index): calculated by the formula.
- BMI: Bodyweight (kg) / height$^2$ (m$^2$)

## 2.8 Data processing and analysis

After collecting patient information, patient research will investigate the adequacy of the questions, proceed with encryption and enter the correct data into the software process. Analysis and data processing software SPSS 22 [9]. To describe the basic features of the data and provide basic summaries about

Table 1: Scoring Domains of the WHOQOL-BREF

| **Domains and questions 236/BREF** | **Direction of scaling** | **Raw domain score** | **Raw item score** |
|---|---|---|---|
| **Overall Quality of Life and General Health** | | ....(2-10) | |
| C1 How would you rate your quality of life? | + | | ....(1-5) |
| C2 How satisfied are you with your health? | + | | ....(1-5) |
| **Domain1**: **Physical Health** | | ....(7-35) | |
| C3 To what extent do you feel that physical pain prevents you from doing what you need to do? | -(reverse) | | ....(1-5) |
| C4 How much do you need any medical treatment to function in your daily life? | -(reverse) | | ....(1-5) |
| C10 Do you have enough energy for everyday life? | + | | ....(1-5) |
| C15 How well are you able to get around? | + | | ....(1-5) |
| C16 How satisfied are you with your sleep | + | | ....(1-5) |
| C17 How satisfied are you with your ability to perform your daily living activities? | + | | ....(1-5) |
| C18 How satisfied are you with your capacity for work? | + | | ....(1-5) |
| **Domain2: Psychological** | | ....(6-30) | |
| C5 How much do you enjoy life? | + | | ....(1-5) |
| C6 To what extent do you feel your life to be meaningful? | + | | ....(1-5) |
| C7 How well are you able to concentrate? | + | | ....(1-5) |
| C11 Are you able to accept your bodily appearance? | + | | ....(1-5) |
| C19 How satisfied are you with yourself? | + | | ....(1-5) |
| C26 How often do you have negative feelings such as blue mood, despair, anxiety, depression? | -(reverse) | | ....(1-5) |
| **Domain3: Social relationships** | | ....(3-15) | |
| C20 How satisfied are you with your personal relationships? | + | | ....(1-5) |
| C21 How satisfied are you with your sex life? | + | | ....(1-5) |
| C22 How satisfied are with the support you | + | | ....(1-5) |

table 1 (continued)

| **Domains and questions 236/BREF** | **Direction of scaling** | **Raw domain score** | **Raw item score** |
|---|---|---|---|
| get from your friends? | | | |
| **Domain 4: Environment** | | ....(8-40) | |
| C8. How safe do you feel in your daily life? | + | | ....(1-5) |
| C9. How healthy is your physical environment? | + | | ....(1-5) |
| C12. Have you enough money to meet your needs? | + | | ....(1-5) |
| C13. How available to you is the information that you need in your daily-to-day life? | + | | ....(1-5) |
| C14. To what extent do you have the opportunity for leisure activities? | + | | ....(1-5) |
| C23. How satisfied are you with the condition of your living place? | + | | ....(1-5) |
| C24. How satisfied are you with your access to health services? | + | | ....(1-5) |
| C25. How satisfied are you with your transport? | + | | ....(1-5) |

the sample and the measures that used descriptive statistics. Continuous variables were presented as mean, standard deviation. While nominal variables and ordinal variables were presented as frequencies and percentages. T-test and ANOVA statistics are used to examine the relationships between the demographics and quality of life. To describe the correlation between 2 quantitative variables using Pearson correlation for the variables normal distribution or Spearman correlation for variable's not normally distributed.

* The difference is statistically significant when p < 0, 05
* Writing and reference management software Zotero.

### 2.9 Bias control:

Incorrect system:

- Because the question of data collection: trying on a small number of subjects, can be adjusted to the appropriate questions.

- The data collection: the organization of training for data collection, identifying, collecting data, identifying the variables defined.

- Bias recalls interviewed several times on an object to reduce the risk of incorrect recall.

### 2.10 Ethical in research:

This study evaluated through epidemiological characteristics directly interviews patients and performs invasive procedures on patients. Research is done only when there is the consent of the Science Council of Binh Dan Hospital were conducting research and patient. The purpose of this study provides a model of natural health education for widespread use with the aim of improving the quality of life for patients with chronic renal failure on dialysis periodically.

## 3. Results

### 3.1 The characteristics of the subject

Table 2 showed that most of the subjects were aged from 31 to 59, accounting for 57.4%. Nearly double those aged over 60. The proportion of the population studied included 53.7% females slightly higher than males, who is 46.3%. Most of the subject (61.11%) has a BMI of 18-25, which is the largest proportion, nearly double those with a BMI ¡ 18. The majority of the subject being Buddhism accounted for 62.96%, while Catholics accounted for 24.07%. Most of the subjects were Kinh people accounting for 88.89%, the Chinese remainder accounting for 11.11%. Most of the patients included urban dwellers accounting for 75.93%, three times higher compared with the population of rural. Most of the population has been studied 2-3 level proportion 44.44%, while those

Table 2 The characteristics of the subject

| The characteristics (n=54) | | n | rate (%) |
|---|---|---|---|
| **Age** | 54.28 ±13.52 | | |
| **(MeanYr ± SD)** | <= 30 | 5 | 9.26 |
| | 31 – 59 | 31 | 57.41 |
| | >= 60 | 18 | 33.33 |
| **Gender** | Male | 25 | 46.30 |
| | Female | 29 | 53.70 |
| **BMI*(Mean SD)** | 20.15 ± 2.88 | | |
| | < 18 | 16 | 29.63 |
| | 18 - 25 | 33 | 61.11 |
| | >= 25 | 5 | 9.26 |
| **Religion** | Buddhism | 34 | 62.96 |
| | Catholicism | 13 | 24.07 |
| | Other | 7 | 12.96 |
| **Ethnicity** | Vietnamese | 48 | 88.89 |
| | Chinese | 6 | 11.11 |
| **Place** | Urban | 41 | 75.93 |
| | Rural | 13 | 24.07 |
| **Education level** | Level 1 | 13 | 24.07 |
| | Level 2 – 3 | 24 | 44.44 |
| | Higher education | 11 | 20.37 |
| | Tertiary education | 6 | 11.11 |
| **Marital status** | Married | 36 | 66.67 |
| | Single | 12 | 22.22 |
| | Divorce/Widow | 6 | 11.11 |
| **Occupation** | Employment | 17 | 31.48 |
| | Unemployment | 17 | 31.48 |
| | Retirement | 20 | 37.04 |

with tertiary education proportion as low as 11.11%. There are 66.67% of subjects who were married, three times higher than those who are single. Most of the patients are elderly/ retirement accounting top 37,04% while in the group whose work rate and unemployment are equal and the proportion is 31.48% .

## 3.2 The clinical and subclinical variables

Table 3 The clinical and subclinical variables

| **The characteristics (n=54)** | **n** | **Rate (%)** |
|---|---|---|
| ***Dialysis time (months; Mean ± SD)*** | 48.04±25.48 | |
| ≤ 36 months | 13 | 24.07 |
| > 36 months | 41 | 75.93 |
| ***Frequency of dialysis/ week*** | | |
| 2 times | 19 | 35.19 |
| 3 times | 35 | 64.81 |
| ***Accompanying pathological*** | | |
| No | 5 | 9.26 |
| Yes | 49 | 90.74 |

Table 3 shows that the majority of the study subjects had time hemodialysis over 36 months for 75.93%. The number of patients on dialysis with a frequency of 3 times/ week elephant majority 64.81%, nearly double compared with patients on dialysis with a frequency of two times/ week. The results showed that in addition to long-term dialysis periodically, up to 90.74% of patients with chronic renal failure must also suffer from comorbid with other chronic illnesses. The majority of diabetes (52%) and hypertension (41%), heart failure (9%), and other diseases such as interstitial hepatitis, COPD, arthritis, and cancers account for 1 to 4%.

## 3.3 Domains of QOL

The result from Table 4 showed that the general QOL score was 50.36± 8.37. When we analyze subcategories: the social relationship domain (45.06 ±13.97) and the environment domain (49.42 ± 8.94) are lower than the general population. In that analysis, the general health score is also low (47.45± 12.71).

## 3.4 Relationship between the domains of QOL and demographic characteristics.

For Physical domain showed that there are relationships between physical domain and age, BMI, place, and education level. Young and middle-aged patients had physical domain scores higher than older patients, this difference has statistical significance with p = 0.038. The patients with normal BMI were physical

Table 4 Domains of QOL

| Domains | N | Mean | SD |
|---|---|---|---|
| Physical | 54 | 56.88 | 13.34 |
| Psychological | 54 | 50.08 | 14.19 |
| Social relationship | 54 | 45.06 | 13.97 |
| Environment | 54 | 49.42 | 8.94 |
| General health | 54 | 47.45 | 12.71 |
| General quality of life | 54 | 50.36 | 8.37 |

domain scores higher than patients so thin or so fat. And this difference has statistical significance with p = 0.021. Patients living in urban had a physical domain score to be 59.32 ± 12.45, higher than patients living in rural 49.18 ± 13.61, this difference has statistical significance with p = 0.015. Patients with more education levels get a higher score in the physical domain. In that, the patients who were education level to be tertiary education had score highest 67.86 ± 9.04, group of patients with education level 1 scores lowest 50.55 ± 14.20. This difference has statistical significance with p = 0.001.

Table 5 Relationship between the Physical domain, Psychological domain, Social relationship domain, Environment domain, and demographic characteristics.

| The characteristics (n=54) | | Physical | | Psychological | | Social relationship | | Environment | |
|---|---|---|---|---|---|---|---|---|---|
| | | M ± SD | p value | M ± SD | p value | M ± SD | p value | M ± SD | p value |
| **Age** | ≦30 years | 59.29 ± 9.65 | **0.038** | 59.17 ± 22.52 | **0.025** | 53.33 ± 19.18 | **0.030** | 45.00 ± 7.19 | **0.002** |
| | 31 – 59 years | 60.25 ± 11.58 | | 52.96 ± 12.09 | | 47.58 ± 10.58 | | 53.02 ± 7.24 | |
| | ≧60 years | 50.40 ± 15.47 | | 42.59 ± 12.34 | | 38.43 ± 15.69 | | 44.44 ± 9.44 | |
| **Gender** | Male | 58.25 ± 11.14 | 0.421 | 47.27 ± 12.21 | 0.616 | 43.97 ± 14.42 | 0.540 | 50.75 ± 9.21 | 0.239 |
| | Female | 55.29 ± 15.61 | | 53.33 ± 15.82 | | 46.33 ± 13.63 | | 47.88 ± 8.54 | |
| **BMI** | < 18 | 49.33 ± 13.06 | **0.021** | 44.79 ± 12.59 | 0.206 | 39.06 ± 11.67 | 0.052 | 46.88 ± 8.98 | 0.351 |
| | 18 – 25 | 60.39 ± 13.04 | | 52.15 ± 13.43 | | 46.46 ± 13.98 | | 50.19 ± 8.70 | |
| | > 25 | 57.86 ± 5.30 | | 53.33 ± 21.73 | | 55.00 ± 15.14 | | 52.5 ± 10.46 | |
| **Religion** | Buddhism | 55,67 ± 11.70 | 0.595 | 47.18 ± 12.92 | 0.379 | 43.14 ± 13.05 | 0.271 | 48.07 ± 9.42 | 0.357 |
| | Catholicism | 60.16 ± 14.57 | | 53.21 ± 12.40 | | 46.15 ± 15.07 | | 51.68 ± 7.79 | |
| | Other | 56.63 ± 19.06 | | 58.33 ± 20.13 | | 52.38 ± 15.75 | | 51.79 ± 11.10 | |
| **Ethnicity** | Vietnamese | 56.62 ± 13.08 | 0.694 | 50.09 ± 14.24 | 0.626 | 44.44 ± 14.00 | 0.364 | 49.35 ± 8.53 | 0.908 |
| | Chinese | 58.93 ± 16.56 | | 50.00 ± 15.14 | | 50.00 ± 13.94 | | 50.00 ± 12.81 | |
| **Place** | Urban | 59.32 ± 12.45 | **0.015** | 59.23 ± 12.50 | **0.020** | 46.95 ± 13.66 | 0.077 | 51.22 ± 8.41 | **0.007** |
| | Rural | 49.18 ± 13.61 | | 49.45 ±13.67 | | 39.10 ± 13.77 | | 43.75 ± 8.46 | |
| **Educatio n level** | Level 1 | 50.55 ± 14.20 | **0.001** | 41.35 ± 13.44 | **0.008** | 39.10 ± 13.77 | 0.311 | 44.47 ± 9.64 | 0.136 |
| | Level 2-3 | 53.13 ± 11.55 | | 49.13 ± 11.06 | | 46.53 ± 12.75 | | 50.52 ± 8.43 | |
| | Higher education | 66.56 ± 9.62 | | 56.06 ± 17.81 | | 49.24 ± 16.01 | | 51.14 ± 8.98 | |
| | Tertiary education | 67.86 ± 9.04 | | 61.81 ± 7.65 | | 44.44 ± 14.59 | | 52.60 ± 6.96 | |
| **Marital status** | Married | 57.84 ± 13.97 | 0.693 | 48.26 ± 12.69 | 0.131 | 44.68 ± 14.52 | 0.921 | 50.87 ± 8.89 | 0.246 |
| | Single | 55.95 ± 11.12 | | 57.29 ± 17.78 | | 46.53 ± 13.51 | | 46.35 ± 8.09 | |
| | Divorce/Widow | 52.98 ± 14.88 | | 46.52 ± 12.20 | | 44.44 ± 13.61 | | 46.88 ± 10.27 | |
| **Occupation** | Employment | 63.24 ± 14.10 | 0.057 | 58.33 ± 17.18 | **0.012** | 53.43 ± 15.33 | **0.005** | 52.39 ± 10.97 | 0.121 |
| | Unemployment | 54.20 ± 14.41 | | 46.81 ± 10.98 | | 43.63 ± 10.84 | | 50.00 ± 8.19 | |
| | Retirement | 53.75 ± 10.07 | | 45.83 ± 11.07 | | 39.17 ± 12.12 | | 46.41 ± 6.90 | |

For Psychological domain showed that there are relationships between the score of the psychological domain and age, place, education level, occupation of the subject. Young and middle-aged patients had psychological domain scores higher than older patients, this difference has statistical significance with $p = 0.025$. Patients living in urban had a psychological domain score is $59.23 \pm 12.50$ is higher than patients living in rural $42.45 \pm 13.67$, this difference has statistical significance with $p = 0.020$. Patients with more education levels, the higher score in the psychological domain they get. In that, the patients who were education level to be tertiary education had score highest $61.81 \pm 7.65$, group of patients with education level 1 scores lowest $41.35 \pm 13.44$. This difference has statistical significance with $p = 0.008$. Employment patients had the psychological domain score to be highest with $58.33 \pm 17.18$, lowest is the elderly/ retirement $45.83 \pm 11.07$. This difference has statistical significance with $p = 0.012$.

For Social relationship domain showed that there are relationships between scores of the social relationship and age, occupation of the subject. Young and middle-aged patients had social relationship domain scores higher than older patients, this difference has statistical significance with $p = 0.030$. Employment patients had the social relationship domain score highest with $53.43 \pm 15.33$, there are the lowest scores are retirement patients with $39.17 \pm 12.12$. This difference has statistical significance with $p = 0.005$.

For Environment domain showed that there are relationships between a score of the environment domain and age, place. Young and middle-aged patients had environment domain scores higher than older patients, this difference has statistical significance with $p = 0.002$. Patients living in urban had an environment domain score is $51.22 \pm 8.41$ is higher than patients living in rural $43.75 \pm 8.46$, this difference has statistical significance with $p = 0.007$.

## 3.5 The relationships between the domains of QOL

Table 6 shows that there is a strong correlation between the score of the physical domain and the score of the psychological domain, the score of the social relationship domain, the score of the environment domain. This difference has statistical significance with $p < 0.05$. There is a strong correlation between the score of psychological domain and score of social relationship domain. This difference has statistical significance with $p < 0.0001$. There is a strong correlation between the score of the social relationship domain and the score of environment domain. This difference has statistical significance with $p < 0.0001$. The score of general health has average intensity correlations with scores of the physical domain, psychological domain, social relationship domain, and environment domain. This difference has statistical significance with $p < 0.05$.

Table 6: The relationships between the domains of QOL

| Domain | Physical | | Psychological | | Social relationship | | Environment | |
|---|---|---|---|---|---|---|---|---|
| | r | p | r | p | r | p | r | p |
| Physical | | | **0.565** | **0.000** | **0.372** | **0.006** | **0.332** | **0.014** |
| Psychological | | | | | **0.606** | **0.000** | 0.167 | 0.228 |
| Social Relationship | | | | | | | **0.547** | **0.000** |
| Environment | | | | | | | | |
| General health | **0.294** | **0.031** | **0.339** | **0.012** | **0.448** | **0.001** | **0.447** | **0.001** |

*Note for range of p values: p < 0.01: significant statistical relationship; 0.01 <= p < 0.05: weak statistical relationship; p >= 0.05: no statistical relationship.*

# 4. Discussion

## 4.1 The characteristics of the subject

The age of the subject ranged from 26 - 84 years (54.28± 13.52). The analysis result is consistent with Guerra-Guerrero's study from 2012. The majority (57.41%) aged from 31 to 59, nearly double those aged over 60 [10].

Most of the subject has a BMI of 18-25 is the largest proportion of 61,11%, nearly double those with BMI < 18. The majority of the subject were Buddhism accounting for 62.96%, while Catholics accounted for 24.07%. The result is consistent with the particular traits of the Vietnamese religion. The natural distribution of the sample by ethnicity is uneven. Most of the subjects were Kinh people accounting for 88.89%, the Chinese remainder accounting for 11.11%. However, the result is consistent with the particular traits of the Vietnamese ethnicity, there are 87% population are Kinh people [11].

The majority (75.93%) are urban people, higher than rural ones about three times. Due to the particular traits of patients who need to do dialysis two or three times a week, in the area, only a few hospitals in Ho Chi Minh city have enough ability to perform dialysis method, so having a lot of patients who had to relocate from rural to urban living for more favorable treatment.

In education, the percentage of patients with chronic renal failure between the groups in our study have significant differences. Most of the population has been studied 2?3 level proportion 44.44%, while those with tertiary education proportion as low as 11.11%, a result consistent with the historical development of Vietnam's education, educational level is still low. There are 66.67% of

subjects who were married, 3 times higher than those who are single. The result is consistent with 65.3% [12].

The results of the study also showed that the proportion of subjects with employment is low at 31.48%, while the rate of unemployment and retirement is up to 68.62%. This ratio is worth noting that we know that 66.67% of the subjects were of working age. This result shows the difficulty the subjects had to work as well as adherence dialysis method every 2 or 3 times per week.

## 4.2 The clinical and subclinical variables

The result of our study showed that the majority 75.93% had time hemodialysis over 36 months. In that, the number of patients on dialysis with a frequency of 3 times/ week is 64.81%, nearly double compared with patients on dialysis with a frequency of 2 times/ week.

The results showed that in addition to the treatment of chronic renal disease and dialysis periodically, up to 90.74% of patients must also suffer from other chronic illnesses that accompany them. In which the majority of diabetes (52%) and hypertension (41%), heart failure (9%), other diseases such as interstitial hepatitis, COPD, arthritis, cancer account for 1 rate to 4%.

The World Health Organization (WHO) definition of anemia as follows: for men, anemia is a hemoglobin concentration <13.0 g / dl; and for women, anemia is a hemoglobin concentration <12.0 g / dL.

Hb concentration in samples under 10 g/dL is highest proportion (53.70%). The mean Hb concentration of all patients participating in the study was 10.15 ± 1.83 g/dL. In the other hand, number of patients with albumin levels in blood <3.5 g/dL is 55.5%, albumin concentrations average 3.0 ± 0.9 g/dL. This result shows that the majority of patients with Hb and albumin index in the blood are low.

All patients in the study, which has 36 patients on dialysis were effectively (66.67%). Kt/V index with an average of 1.4 ±0.6. This result is noteworthy as many as 33.33% of patients on dialysis are not effective.

## 4.3 Domains of QOL

The result of the study showed that the general QOL score was 50.36 ± 8.37. The social relationship domain (45.06 ± 13.97) and environment domain (49.42 ± 8.94) are mild lower than the general population. In that, the general health score is mild lower than the general population (47.45 ± 12.71).

The score of the physical domain was 56.88 ± 13.34, consistent with the results of 55.99 ± 15.81 was conducted by Carlos Ricardo in Brazil in 2011. However, the scores in the psychological domain were 50.08 ± 14.19, this result is lower than the results of the study by Ricardo and Carlos (2011). This difference may be due to differences in a particular population. In Vietnam, the study subjects had unemployment rates and retirement high. In addition, the ratio of the study subjects who lived alone is high and that can make the psychological domain of patients decreased.

## 4.4 Relationship between the domains of QOL and demographic characteristics

### 4.4.1 Relationship between the physical domain of QOL and demographic characteristics:

The result of our study showed that there are relationships between physical domain and age, BMI, place, and education level. Young and middle-aged patients had physical domain scores higher than older patients, this difference has statistical significance with $p = 0.038$. The result is consistent with the result of a study was conducted by Stojanovic. Stojanovic et al showed that chronic renal failure patients on periodic hemodialysis, increased every 5 years of age, physical health decreased by 3.1% and QOL decreased by 3.8% [13].

For the patients with normal BMI ($18 < BMI < 25$), physical domain scores were higher than patients with so thin or so fat. And this difference has statistical significance with $p = 0.021$. Patients living in urban had a physical domain score to be 59.32 ± 12.45, higher than patients living in rural 49.18 ± 13.61, this difference has statistical significance with $p = 0.015$. This result can be understood by the patient's particular need for regular dialysis, so people who live in rural areas do not have good conditions as in urban areas to do periodic hemodialysis.

Patients with more education levels, the higher score in the physical domain they get. In that, the patients who were education level to be tertiary education had score highest 67.86 ± 9.04, group of patients with education level 1 scores lowest 50.55 ± 14.20. This difference has statistical significance with $p = 0.001$.

The result showed that there are no relationships between physical domain score and gender, ethnicity, religion, marital status, occupation of the subject.

### 4.4.2 Relationship between the psychological domain of QOL and demographic characteristics:

The result showed that there are relationships between scores of the psychological domain and age, place, education level, occupation of the subject. Young and middle-aged patients had psychological domain scores higher than

older patients, this difference has statistical significance with p = 0.013. Patients living in urban had a psychological domain score is 59.23 ± 12.50 is higher than patients living in rural 42.45 ±13.67, this difference has statistical significance with p = 0.020.

The more education levels the patients have, the higher their scores in the psychological domain are. In that, the patients who were education level to be tertiary education had score highest 61.81 ± 7.65, group of patients with education level 1 scores lowest 41.35 ± 13.44. This difference has statistical significance with p = 0.008.

Employment patients had the psychological domain score to be highest with 58.33 ± 17.18, lowest in the elderly/ retirement 45.83 ± 11.07. This difference has statistical significance with p = 0.012. This result can be understood by those who have jobs to earn extra income, help with the treatment of long and costly. Furthermore, the working environment will help to communicate with colleagues, partners, many people, feel their lives are still to do many things unless unemployed or retire. Thus, their psychological domain scores are better.

#### 4.4.3 Relationship between the social relationship domain of QOL and demographic characteristics:

The result showed that there are relationships between a score of the social relationship age and occupation of the subject. Young and middle-aged patients had social relationship domain scores higher than older patients, this difference has statistical significance with p = 0.030. Employment patients had the social relationship domain score highest with 53.43 ± 15.33, there is lowest score are retirement patients with 39.17 ± 12.12. This difference has statistical significance with p = 0.005.

#### 4.4.4 Relationship between the environment domain of QOL and demographic characteristics

The result showed that there are relationships between a score of the environment domain and age, place. Young and middle-aged (31-59 years) patients had environment domain scores higher than older patients, this difference has statistical significance with p = 0.002. Patients living in urban had an environment domain score is 51.22 ± 8.41 is higher than patients living in rural 43.75 ± 8.46, this difference has statistical significance with p = 0.007.

### 4.5 The relationships between the domains of QOL

The result of our study shows that there is a strong intensity correlation between the score of the physical domain and the score of the psychological domain, the score of social relationship domain, the score of environment domain.

This difference has statistical significance with $p < 0.05$.

This showed that physical health and psychological health have a direct relationship with each other. Patients with good physical health also have good psychological health. This is very helpful for the treatment and care of medical staff. If the nursing care for patients physically possible, the patient will have good psychological health, whereas if the nursing care for psychological health patients, the patients will have good physical health well, thereby enhancing their quality of life scores for patients.

There is a strong intensity correlation between the score of the psychological domain and the score of social relationship domain. This difference has statistical significance with $p < 0.0001$. This result shows that if the patient has high social relationships will have higher mental health, so if you care about the social relationships of patients will also contribute to improving the quality of life of patients.

There is a strong intensity correlation between the score of the social relationship domain and the score of the environment domain. This difference has statistical significance with p ¡ 0.0001. The score of general health has average intensity correlations with scores of the physical domain, psychological domain, social relationship domain, and environment domain. This difference has statistical significance with $p < 0.05$.

## 5. Conclusions

The study was conducted at Binh Dan hospital from 01/2022 to 02/2022. The subjects of the study are 54 patients with chronic renal failure receiving periodic hemodialysis, we give some conclusions as follows the general QOL score of the chronic renal failure patients receiving periodic hemodialysis at Binh Dan hospital was average ($50.36 \pm 8.37$), of which 51.85% had scores below average; there are relationships between physical domain and age, BMI, place, and education level. There are relationships between scores of the psychological domain and age, place, education level, and occupation of the subject; there are relationships between scores of the social relationship and age, occupation of the subject. There are relationships among scores of the environment domain and age, place; there is a strong correlation between scores of the physical domain and scores of a psychological domain, scores of the social relationship domain, scores of the environment domain. In that, scores of a psychological domain have a strong correlation with scores of social relationship domain. Scores of the social relationship domain have a strong correlation with scores of the environment domain.

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