Relationship between personality traits and quality of life dimensions in patients with chronic end-stage renal disease on dialysis

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Abstract

Patients with chronic end-stage renal failure in hemodialysis have a deteriorated quality of life (QoL), however deterioration of this component differs from one patient to another according to their personality profile. The aim of our research is to study the relationship between the five major personality traits and quality of life in patients with end-stage chronic kidney disease undergoing hemodialysis. Material and methods: The study was descriptive and analytical, and took place at the haemodialysis centre at the Kénitra hospital, using a battery of questionnaires containing socio-demographic data, a quality of life measurement scale and a personality traits measurement scale. Results: This study made it possible to describe significant relationships between certain personality traits and dimensions of the quality of life of haemodialysis patients, in particular between the trait "Neuroticism" and the dimensions "Physical health", "Symptoms/problems of kidney disease", "Effects of kidney disease on daily life" and "Overall score", and the trait "Extraversion and the dimensions "Physical health", "Psychological health", "Symptoms/problems of kidney disease", "Burdens of kidney disease" and "Overall score". Conclusion: The results of this research can be used as a guideline for the healthcare team to recognise vulnerable people in order to make decisions to alleviate problems that may be encountered during dialysis sessions and during disease management.

Keywords: chronic end-stage renal, QoL, Personality trait, Kenitra

1. Introduction

The term quality of life (QOL) appeared in the United States in the mid-sixties. It is a multidimensional notion defined as patients "an individual's perception of their place in life, in the context of the culture and value system in which they live, in relation to their goals, expectations, norms and concerns. It is a very broad concept that can be influenced in a complex way by the physical health of the person, his psychological state and level of independence, his social relations as well as his relationship to the essential elements of his environment." [1]. Patients with chronic kidney disease (CKD) have significantly affected health-related quality of life, regardless of the stage of the disease, in terms of [2]. The five main personality traits can influence patients' HRQL and willingness to take treatment options [2]. Personality traits are important determinants of adaptation and beliefs about

disease and treatment. [3]. Psychological adjustment to chronic kidney disease was associated with personality dimensions. Baum and colleagues have reported that certain dimensions of personality traits help protect individuals from poor mental health. In return, other personality traits increase the chances of developing or maintaining poor mental health [4]. Thus, neuroticism and extraversion are predictors of mental and physical QOL in dialysis and transplant patients [5] [6] [7]. Indeed, patients with high scores in the traits «extraversion» and/ or «consciousness» and/ or «openness to experience» adapt more easily to the disease. In return, patients with a high score in the «neuroticism» dimension have difficulty adapting with the disease [3]. The objective of our research is to study the relationship between the five main personality traits and quality of life in patients with chronic end-stage renal failure in hemodialysis.

2. Materials and Methods

This is a descriptive cross-sectional analytical study conducted among all hemodialysis patients hospitalized at the Kenitra Hospital. Patients unable to communicate, minor patients, pre-test patients and patients who refused to participate in the survey were excluded from the study. To collect the data, we used a battery of questionnaires containing general data, a scale measuring quality of life (KDQOL 36) [8] and a scale measuring personality traits (BFI:Big Five Inventory) [9], This instrument contains 45 items measuring the five personality traits (Extraversion, consciousness, Agreeability, Neuroticism, and openness to experience). The reduced version of the KDQOL developed by Hays and colleagues (1994) [8], translated and validated in French by (Boini et al, 2007) [10] is an instrument that measures the quality of life of dialysis patients. It contains five dimensions:

- The Physical Quality of Life dimension which is related to somatic functioning, disabilities due to physical condition, somatic pain and overall health
- The Quality of Mental Life dimension which is related to psychological health, disabilities due to mental state, life and links with others, vitality
- The Kidney Disease Burden dimension, which is related to the perceived constraints and complications of kidney disease
- The "symptoms/problems of kidney disease" dimension, which relates to the kidney disease-related problems and signs experienced by the patient
- The dimension of "effects of kidney disease on daily life", which is related to dietary constraints, limitations of fluids, limitations of work at home, limitation of travel, dependence on the health care team, stress associated with kidney disease, sex life and physical appearance.

The questions were about the last 4 weeks. The score for each component ranged from 0 to 100 where a high score corresponded to a good QOL. The internal consistency of this scale was between α= 0.82 and; α= 0.86 for the different dimensions [8] [10]. For our case we found a satisfactory internal consistency between α= 0.78 and; α= 0.81.
The internal consistency of the BFI scale was: α= 0.79 for dimension (O), α= 0.77 for dimension (A) α= 0.83 for dimension (E) α= 0.80 for dimension (C) and α= 0.84 for dimension (N) [9].. For our case we found a satisfactory internal consistency: α= 0.77 for dimension (O), α= 0.77 for dimension (A) α= 0.79 for dimension (E) α= 0.78 for dimension (C) and α= 0.80 for dimension (N)
A descriptive analysis was performed for all study variables Qualitative variables were presented in proportion. Quantitative variables in mean standard deviation (and/or median).

3. Results

The results are based on the exploitation of 70 questionnaires completed by patients with chronic kidney failure under hemodialysis hospitalized at the Idrissi hospital in Kenitra among 74 distributed; a response rate of 94.59%).

3.1. Socio-Economic Résults

The average age of patients in the study was 51.6 15.9 years with a female predominance (57.1%) (Figure 1). Among these patients, 62.0% are illiterate, 18,6% have a primary level, 15.1% have a college or high school level, and only 4.3% have continued their studies to higher education (Figure 2). In addition, more than half of patients, a rate of 55.7%, reported living with their families, compared to 44.3% who live alone (Figure 3). On the other hand, most students, at a rate of 97.1%, reported that they were without a function, of which 49.9% were due to illness, compared to 2.9% who had a function (Figure 4).

3.2. Relationship between the "consciousness" personality trait and quality of life dimensions

There is no significant relationship between "consciousness" personality traits and the different dimensions of quality of life for hemodialysis patients (Table 1).

3.3. Relationship between the personality trait "Openness" and the dimensions of quality of life

According to Table 2, there is a significant negative relationship between the personality trait "Openness" and the dimension "Effects of Kidney Disease on Daily Life" of quality of life, while the other dimensions of the QOL do not correlate with this personality trait.

3.4. Relationship between Neuroticism and Quality of Life Dimensions

Table 3 shows that the personality trait "Neuroticism" is significantly negatively related to the dimensions of "physical health", "kidney disease symptoms/problems", "Effects of kidney disease on daily living" and "overall score" quality of life for dialysis patients

3.5. Relationship between the "Agreeability" personality trait and the quality-of-life dimensions

There is no significant link between the personality trait "Affection" and the different dimension of the quality of life of dialysis patients (Table 4).

3.6. Relationship between "Extraversion" personality trait and quality of life dimensions

According to Table 5, the personality trait "Extraversion" is significantly positively related to the dimensions of "physical health", "mental health", "kidney disease symptoms/problems", "kidney disease burdens", and the overall quality of life score for dialysis patients.

4. Discussion

Chronic kidney disease is a disabling condition, requiring kidney transplantation or dialysis treatment to survive. However, although hemodialysis improves kidney function and increases lifespan, it leads to a fundamental change in patients' lives. Many of these patients express their fears of an unacceptable life. These impacts on quality of life, difficulties with therapeutic adherence, as well as the difficulties the patient finds in adapting to the disease depend on the underlying personality. The personality profile is therefore a crucial element in the process of adjusting to this disease.

Table 1: Correlation between Consciousness and Quality of Life Dimensions

		physical health	mental health	Symptoms kidney disease	Burdens of kidney disease	Effects of kidney disease	Total QOL Score
Consciousness	r	,039	,107	,059	,162	,083	,130
	Sig	,746	379	,630	,180	,494	,283
	N	70	70	70	70	70	70

r=Pearson correlation
Sig=Bilateral Significance
N= Study population

Table 2: Correlation between Open-Mindedness and Quality of Life Dimensions

		physical health	mental health	Symptoms kidney disease	Burdens of kidney disease	Effects of kidney disease	Total QOL Score
Openness	r	,143	,093	,102	,033	-,253	,068
	Sig	,236	,442	,403	,784	**,034**	,579
	N	70	70	70	70	70	70

r=Pearson correlation
Sig=Bilateral Significance
N= Study population

Table 3: Correlation between Neuroticism and Quality of Life Dimensions

		physical health	mental health	Symptoms kidney disease	Burdens of kidney disease	Effects of kidney disease	Total QOL Score
Neuroticism	r	-,256	,093	-,239	-,206	-,391	-,340
	Sig	**,033**	,442	**,046**	,087	**,001**	**,004**
	N	70	70	70	70	70	70

r=Pearson correlation
Sig=Bilateral Significance
N= Study population

**Table 4:** Correlation between Agreeability and Quality of Life Dimensions

		physical health	mental health	Symptoms kidney disease	Burdens of kidney disease	Effects of kidney disease	Total QOL Score
Affection	r	-,156	-,062	-,117	-,061	,171	-,076
	Sig	,198	,609	,336	,616	,157	,530
	N	70	70	70	70	70	70

r=Pearson correlation
Sig=Bilateral Significance
N= Study population

Table 5: Correlation between "Extraversion" personality trait and quality of life dimensions

|		physical health	mental health	Symptoms kidney disease	Burdens of kidney disease	Effects of kidney disease	Total QOL Score
Extraversion	r	,387	,392	,305	,264	,159	,426
	Sig	**,001**	**,001**	**,010**	**,027**	,188	**,000**
	N	70	70	70	70	70	70

r=Pearson correlation
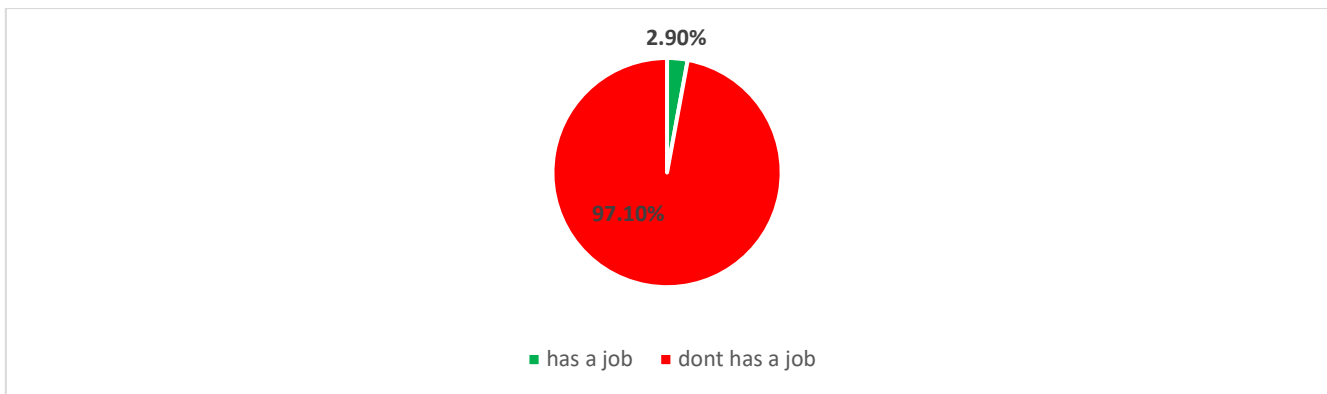Sig=Bilateral Significance
N= Study population
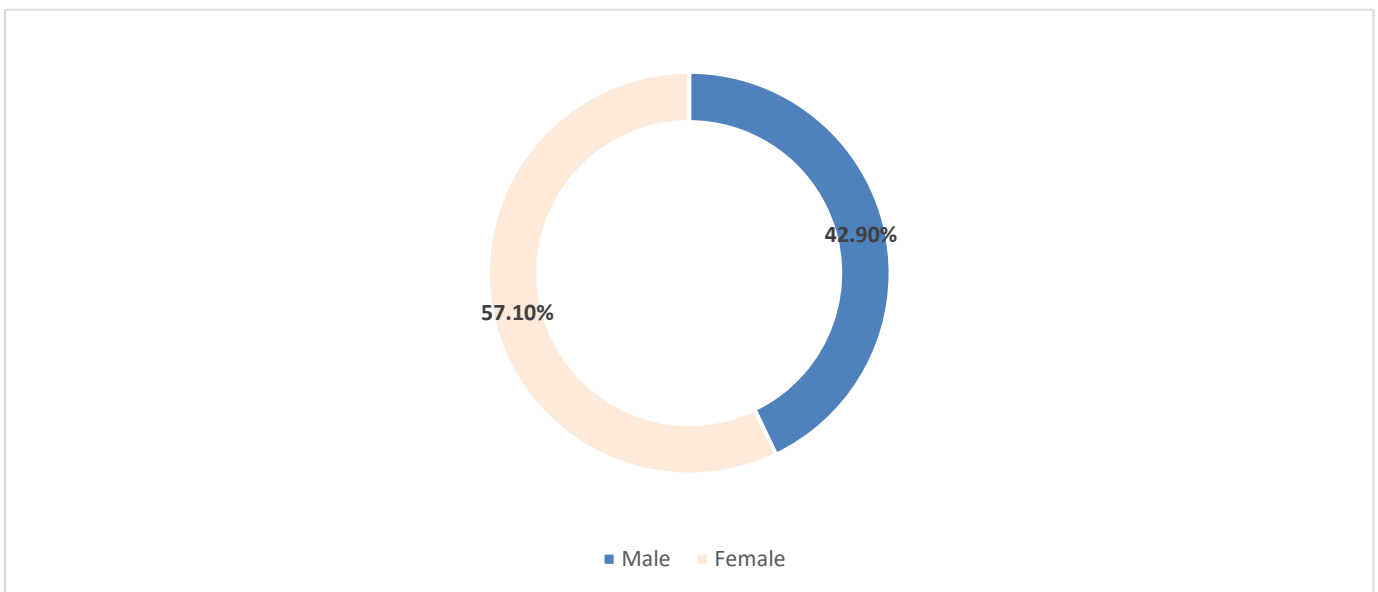
Figure 1: Distribution of patients by sex
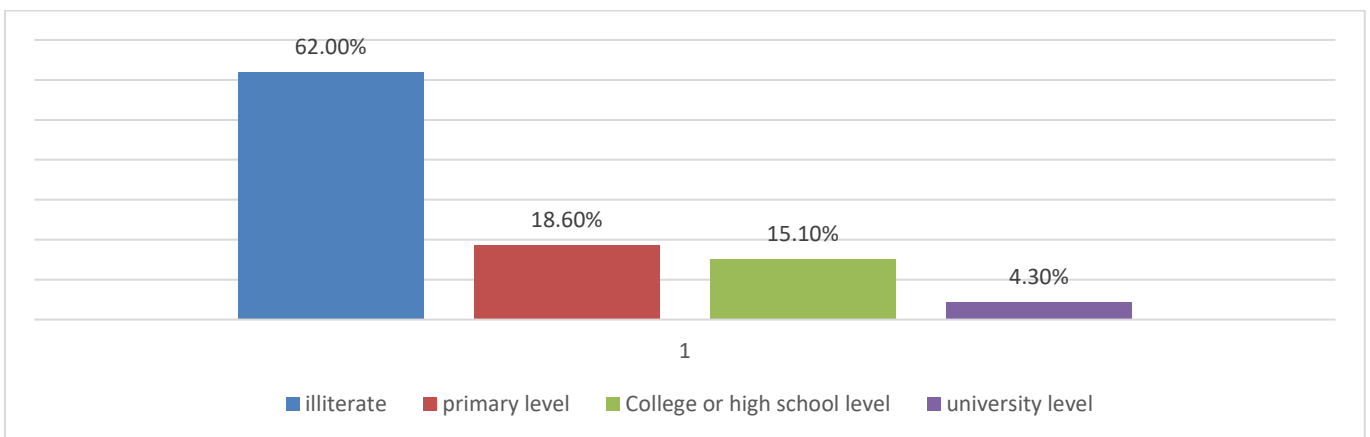
Figure 2. Distribution of patients by level of study
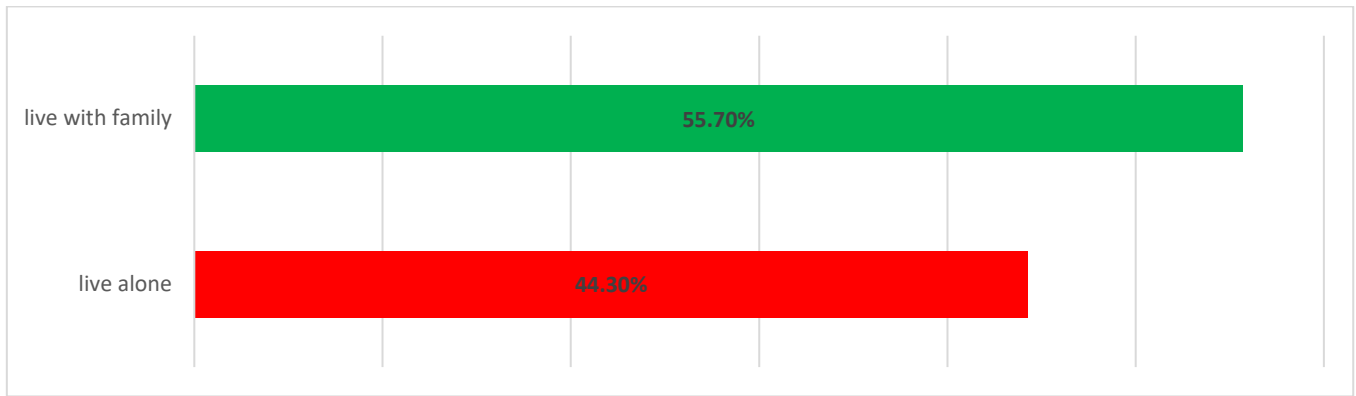
Figure 3: Distribution of patients' living conditions

Figure 4: Distribution of patients by occupational status

Our research focused on the study of the relationship between personality traits and quality of life of patients in chronic renal insufficiency under hemodialysis, vulnerable patients requiring personality acquisition or positive traits dominate in order to overcome the associated psychological disorders in order to improve the quality of life in these patients. The survey concerned all hemodialysis patients at the Idrissi hospital in Kenitra, namely 70 patients. The average age of patients in the study was around 50 years, with a female majority at a rate of (57.1%), with a significant proportion living alone 44.3% and an overwhelming majority (98%), who do not work most often because of the disease. This may be justified by the serious consequences of chronic kidney disease requiring patients to travel three times a week to the dialysis centre to benefit from hemodialysis sessions. The impairment of the quality of life of these hemodialysis patients [11] was accompanied by a high mean of 'neuroticism' personality trait and low scores of dimensions O (openness) and E (extraversion [12].People who have a high level of neuroticism trait tend to experience high levels of distress, the elevation of the mean of this characteristic is due to the heaviness and the considerable effects of this disease, very open people have broad interests and seek experiences, the low average of this characteristic in hemodialysis patients is due to the decline of their interest in other activities not centered on their disease, because all their efforts are made to manage their illness, extroverted people experience high levels of happiness and life satisfaction, the low mean of this characteristic in hemodialysis patients is explained by the anxiety and depression that these patients exhibit [2] [11].

Our research has shown a significant negative relationship between the personality trait "Open Mind" and the quality of life dimension "Effects of Kidney Disease on Daily Life" and the lack of a relationship with the other dimensions. On the other hand, Pugi and his collaborators (2022) and his collaborators [2] found that this personality trait correlates with the symptoms of the disease and not with the effects of kidney disease. our observation can be explained by the fact that the effects of the disease and its treatment (hemodialysis) which are very heavy such as the movements three times a week to the centers of hemodialysis makes the time of pleasure and entertainment very reduced for the patient, which prevents him from opening up to other experiences and interests. The study also showed that patients with a high Neuroticism trait have lower quality of life in the majority of dimensions namely "physical health", "kidney disease symptoms/problems", "kidney disease effects on daily life", and "the overall score". A similar type of inverse association between neuroticism and perceived health, showing how CKD patients with higher neuroticism traits are more concerned about their health symptoms, complaining more about them and, therefore, perceive lower HRQoL [7]. Poppe and his collaborators. (2013) [6] showed that CKD patients with neurotic personalities tend to be less accepting of the disease and supportive of denial. Indeed, people with a higher score in this trait are more vulnerable to negative emotions, [13]. such as stress, anxiety and depression which are elements of the neuroticism trait [9], These elements contribute to decreasing the quality of life of patients [11] [14] [15].On the other hand, authors explain that this negative association by the negative tendency of neurotic patients to

be hypervigilant about the negative stimuli they encounter and to be excessively inattentive to positive stimuli [16] [5].

Regarding the relationship between the personality trait «Extraversion» and quality of life, our study showed that this trait is positively correlated with the dimensions «physical health», «mental health», «symptoms/ problems of kidney disease», "Burdens of kidney disease" and "the overall score" of quality of life for dialysis patients. The results of Ibrahim et al. (2015) [5] are consistent with a positive association between extraversion and mental HRQL, consistent with other studies that are not strictly related to CKD patients [17]. In addition, a study of patients who recently received kidney transplants showed that higher extraversion was associated with better quality of life related to psychological health [7]. Extraversion is associated with positive cognitive function, consistent with evidence that has demonstrated a relationship between extraversion and improved mental health in CKD patients [5]. As for consciousness, this trait that reveals a person's tendency to self-discipline and accomplishment, it had a positive association with quality of life in the study conducted by Shakoor and his collaborators (2015) [18]. On the other hand, our study did not reveal any quality of life links, our results may be justified by the difficulty of remaining disciplined all the time with respect to the diet and very severe water restriction.

Similarly, our study did not show a significant link between the trait Agreeableness and quality of life, the kind people are those who are characterized by agreeability, altruism, affection, and this character remains stable in people regardless of their quality of life. The results of the present study showed a significant impact of personality traits, particularly neurosis and extraversion in chronic renal failure. These personality traits can affect coping strategies and responses to stressful events like illness, so it may make sense to assume personality as a possible determinant of the quality of life of hemodialysis patients [19] [20].

5. Conclusions

The quality of life of patients with chronic kidney failure (CKD) is significantly deteriorating, however this degree of deterioration differs from patient to patient depending on the personality profile of each patient. This study allowed to describe significant relationships between certain personality traits and dimensions of the quality of life of hemodialysis patients in particular between the trait «Neuroticism» and the dimensions «physical health», "kidney disease symptoms/problems", "Effects of kidney disease on daily living" and "overall score", and "Extraversion and dimensions of physical health", "mental health", "kidney disease symptoms/problems", "Burdens of kidney disease" and "overall score". The results of this research can be used as a guideline of the healthcare team to recognize vulnerable people in order to make decisions to address the problems that may be encountered during dialysis sessions and during disease management.

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