

## Quality of Life Strategies for Patients with End-Stage Renal Failure

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**Received:** June 01, 2022; **Published:** June 30, 2022

### Abstract

**Introduction:** The health-related quality of life of patients with end-stage renal failure is affected by: their physical and mental health, their functional status, their personal life and their social functionality. Renal insufficiency is defined as the irreversible loss of renal function. The gradual decline of renal function leads to a final stage of renal insufficiency, so it is necessary to treat the patient with renal function replacement therapy, by one of three methods: dialysis, peritoneal and transplantation.

**Aim:** The aim of the review was to highlight strategies for the quality of life of patients with end-stage renal disease.

**Methodology:** For the aim of this literature review, articles in English were searched in the international Pubmed database for the period 2010-2022, on the quality of life strategies of patients with end-stage renal failure. The abstracts of 50 articles were collected and from them 17 articles were selected whose full text was sufficient for the writing of the article.

**Results and Discussion:** Maintaining residual renal function is an important and favorable prognostic indicator of reduced morbidity, mortality and higher quality of life in both patients undergoing peritoneal dialysis and patients undergoing artificial kidney. The need to implement global strategies to achieve these goals is necessary through the economic and political planning of each state. Easy access to dialysis, financial support, the provision of specialized care, the adequacy of the medical staff, the possibility of transplantation are pillars of these strategies. To achieve these goals, the International Society of Nephrology established the Global Kidney Health Atlas to determine the global implementation of strategies for both kidney replacement therapy and the quality of life of these patients.

**Conclusions:** The quality of life strategies of patients with chronic kidney disease undergoing dialysis are related to: ethnicity, employment status, low income status, increased duration of dialysis, various socio-demographic factors, accessibility and availability of specialized health structures, the adequacy of medical staff. All of these global parameters need to be adjusted so that all CKD patients have immediate access to solutions to their problem.

**Keywords:** *Dialysis; End Stage Renal Failure; Peritoneal Dialysis; Quality of Life*

### Introduction

Quality of life in the field of health is defined as health as physical, mental and social well-being and not only as the absence of illness or disability. The health-related quality of life of patients with end-stage renal failure is affected by: their physical and mental health, their functional status, their personal life and their social functionality [1,2].

Renal insufficiency is defined as the irreversible loss of renal function. The gradual decline of renal function leads to a final stage of renal insufficiency, so it is necessary to treat the patient with renal function replacement therapy, by one of three methods: dialysis, peritoneal and transplantation [1,2].

**Citation:** Prevyzi Evangelia. "Quality of Life Strategies for Patients with End-Stage Renal Failure". *EC Psychology and Psychiatry* 11.7 (2022): 47-53.

Hemodialysis affects the quality of life of hemodialysis patients due to its effect on physical activities such as physical function, ability to work, psychological factors such as satisfaction, pleasure, self-esteem, stress, anxiety and social adjustment that includes rehabilitation, work, fun and family and social reactions [1,2].

### Aim of the Study

The aim of the review was to highlight strategies for the quality of life of patients with end-stage renal disease.

### Methodology

For the purpose of this literature review, articles in English were searched in the international Pubmed database for the period 2010 - 2022, on the quality of life strategies of patients with end-stage renal failure. The keywords used were: dialysis end stage renal failure, peritoneal dialysis, quality of life. The abstracts of 50 articles were collected and from them 17 articles were selected whose full text was sufficient for the writing of the article.

### Results and Discussion

The quality of life of dialysis patients depends on the social and economic situation of their country, their age, gender, educational level as well as on the subjective view of life. Also other factors related to their disease, such as early referral to a nephrologist, concomitant diseases or primary disease, the method of treatment, have a catalytic effect on quality of life. Finally, it has a significant impact on the quality of life and the place where the treatment takes place, in the hospital or at home. The first studies on health-related quality of life for dialysis patients were presented in 1980 [1,2].

Their results showed that despite prolonging life and overall patient satisfaction, dialysis objectively reduces quality of life. The main research areas concerned the effect of dialysis on quality of life, the relationship between quality of life and mortality and morbidity, the effect of treatment characteristics such as membrane type, adequacy of dialysis, erythropoietin uptake, etc [1,2].

The quality of life of hemodialysis patients is affected by their physical and mental health, their functional status, their personal life as well as their social functionality. Patients' own perceptions of their health-related quality of life are a reliable criterion of dialysis results. Dialysis puts severe restrictions on their lifestyle. Hemodialysis patients believe that their health is deteriorating, resulting in a reduction in their quality of life in all its dimensions (physical, mental, emotional, social) [1-3].

Patients undergoing dialysis are usually very distressed because of the effects of kidney failure. Their problem is exacerbated when they are forced to leave their job, their family, their place of residence to be close to an area with an Artificial Kidney Unit. Many patients experience anorexia, fatigue and weakness due to poor tolerance to long-term dialysis. Other problems also occur during dialysis such as nausea, hypotension, vomiting, headaches [1-3].

About once a year, it has been observed that they are treated for problems from infections, from the fistula, from the cardiovascular system. They also show depression, melancholy and other psychological problems that adversely affect their quality of life. Research has shown that dialysis patients show behavioral changes in their interpersonal relationships as well. They accept that they become nervous, irritable, abrupt and choose isolation, they become antisocial, jealous and do not want the company of others even their old friends. Exceptions are some kidney patients, mainly young people who form relationships, but always feel uncomfortable as they cannot participate in various social events [3,4].

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Socio-economic changes also deal a serious blow to their quality of life. Most after joining the dialysis cannot work, a few are underemployed and a large percentage face denial of employment by employers. The decrease in their income brings about changes even in their living conditions, such as the need to move to smaller apartments etc. Another aggravating factor for their quality of life is their anxiety about the progression of their disease as they feel powerless to improve it and the only salvation for some is transplantation. All these factors contribute to the manifestation of aggression and nervousness both in their family members, in the social environment, as well as in the medical staff [1-5].

The quality of life strategies of hemodialysis patients are directly related to the maintenance of residual renal function and are: renin-angiotensin-aldosterone blockade, gradual hemodialysis, the use of biocompatible membranes and dialysis in hemodialysis patients the use of biocompatible solutions in patients on peritoneal dialysis. At present, the role of better control of blood pressure, diuretic use, diet and dialysis method remains clearly defined as a strategy for achieving quality of life [1-6].

Key messages: Maintaining residual renal function is an important and favorable prognostic indicator of reduced morbidity, mortality and higher quality of life in both patients undergoing peritoneal dialysis and patients undergoing artificial kidney. The need to implement global strategies to achieve these goals is necessary through the economic and political planning of each state. Easy access to dialysis, financial support, the provision of specialized care, the adequacy of the medical staff, the possibility of transplantation are pillars of these strategies [1-6].

To achieve these goals, the International Society of Nephrology established the Global Kidney Health Atlas to determine the global implementation of strategies for both kidney replacement therapy and the quality of life of these patients. Thus, with these objectives, the structures, organization and services for the management of renal failure were researched worldwide. The availability, accessibility, quality and affordability of kidney failure care worldwide were also described [6,7].

The present study presents results for the International Society of Nephrology in North America and the Caribbean. Compared to other regions, the North American and Caribbean region had better infrastructure and funding for health care and more health care workers than the population. Various basic medicines were also more available and accessible. A combination of public and private funding systems covers the cost of caring for chronic kidney disease without dialysis in 60% of countries and for dialysis in 70% of countries [7].

Dialysis was available in all countries, but peritoneal dialysis was little used and was not available in Barbados, the Cayman Islands and the Turks and Caicos Islands. Kidney transplantation was mainly available in Canada and the United States. Economic factors have been the main obstacles to optimal care for ASCs in the Caribbean and few countries in the region have national health policies. To address local gaps in the care and quality of life of kidney patients, efforts should be directed at increasing the workforce, improving the monitoring and reporting of kidney replacement therapy indicators and implementing policies for non-communicable diseases and chronic kidney disease in all countries [7].

Publicly funded kidney replacement therapy coverage was almost universal in Western Europe, with the exception of Germany and Liechtenstein where part of the cost was covered by compulsory insurance. Long-term dialysis services (both dialysis and peritoneal dialysis) were available in all countries of the region and kidney transplant services were available in 19 (90%) countries. The incidence of kidney transplantation varied slightly between countries. Conservative care of kidney failure was available in 18 (90%) of 21 countries.

Nursing coverage was adequate for nephrologists and nurses. These data underscore the unified capacity of Western Europe to provide care for renal failure and ensure their quality of life [8].

The average annual cost of dialysis was close to the global average and public funding provided insufficient coverage of the cost of kidney replacement therapy in Eastern and Central Europe. Home dialysis was generally not available. Kidney transplantation and conservative care were not available in most of the area. But almost all countries had official records of dialysis and transplants. Eastern and Central Europe are regions with a high risk of chronic kidney disease and a diverse capacity to treat it. Inadequate funding and labor shortages combined with increasing comorbidities among older patients and inadequate use of cost-effective hemodialysis treatments, such as peritoneal dialysis and kidney transplantation, can jeopardize patients' quality of life [9].

There was considerable variation in the incidence of renal insufficiency, the ability to care and the quality of life of patients in North and East Asia. Dialysis was the predominant method of dialysis in all areas except Hong Kong, where peritoneal dialysis was much more common than dialysis. All areas provided public structures for kidney replacement therapy (dialysis and transplantation). Although the frequency and duration of dialysis followed a standard pattern in all areas under investigation, the adequacy of nephrologists and renal replacement therapy centers varied according to income level. Conservative care was available in most areas. All areas had official registers for kidney failure and recognized it as a health priority. These comprehensive data provided important information on renal failure and the ability to provide optimal care in North and East Asia, which varied greatly between regions. The financial situation of kidney patients was a key factor in ensuring their quality of life as strategies to ensure it were limited [10].

The International Society of Nephrology Global Kidney Health Atlas analyzed the current state of kidney failure care in the New Independent States and Russia. Our results showed that the New Independent States and Russia region is no exception and showed the same effect of chronic kidney disease on its health and outcomes, facing many difficulties and challenges in improving kidney care and quality of life. of these patients in all countries. This work summarized and presented demographics, health information systems, statistics and national health policy of the region, as well as characteristics of the burden of chronic kidney disease and renal failure of the participating countries [11].

The data collected revealed the existing shortage of kidney failure care providers, basic medicines and access to health products for dialysis care. In addition, there were low reports of quality indicators of renal replacement therapy (dialysis and kidney transplantation) and low capacity for long-term dialysis, peritoneal dialysis, and renal transplantation. Financial issues and funding structures for kidney failure care across the region need strategic support for fundamental change and further progress. This article underlines the urgent need for further effective regional and international collaborations and partnerships to establish universal healthcare systems for the management of renal failure and the quality of life of these patients [11].

A total of 11 countries in the Middle East region (84.6%) participated in the survey. Overall, the frequency of kidney transplants was highest in Iran (30.9 per million population) and lowest in Oman and the United Arab Emirates (2.2 and 3.0 per million population, respectively). Long-term dialysis services were available in all countries, long-term peritoneal dialysis services were available in 9 (69.2%) countries, and transplant services were available in most countries in the region. Public funding covered the cost of kidney replacement therapy in almost all countries. More than half of the countries had dialysis records. However, national strategies for non-communicable diseases were lacking in most countries. The Middle East is an area with a high incidence of kidney disease and needs cost-effective measures through effective healthcare funding to be available to improve kidney care and quality of life for patients in the area. In addition, well-designed and sustainable health information systems in the area are needed to address the current gaps in the treatment of renal failure in the area [12].

Latin America is a region with a highly variable socioeconomic landscape, facing an outbreak of diseases, including chronic kidney disease and renal failure, with significant restrictions on care. Despite efforts across the region to investigate and address these limitations, there remains great uncertainty as to the capacity, accessibility and quality of care of renal failure in Latin America. Responses to the survey were received from 18 (64.2%) countries, representing 93.8% of the total population in Latin America. In Latin America, Puerto Rico, Mexico and El Salvador face much of this growing burden of kidney failure [13].

In most countries, public and private systems have collectively funded most aspects of kidney replacement therapy (dialysis and transplantation), with patients incurring at least 1% to 25% of their out-of-pocket expenses. In most countries, > 90% of dialysis patients who could have access to kidney replacement therapy underwent artificial kidney and only a small minority started peritoneal dialysis. Few countries had records of chronic kidney disease or targeted screening programs. There is great variation in the availability, accessibility and quality of kidney failure care in Latin America, which seems to be subject to individual country funding structures and the lack of cheap kidney replacement therapy, such as peritoneal dialysis [13].

Oceania and Southeast Asia are a socio-economically, culturally and ethnically diverse region facing a growing epidemic of non-communicable diseases, including chronic kidney disease (CKD). Of the 30 countries/territories, 15 participated in the survey, representing 98.5% of the region's population. Although the general availability, accessibility and quality of kidney replacement therapy (i.e. dialysis and transplantation) were high, there were inequalities in the accessibility and affordability of kidney replacement therapy between countries. According to the survey, in one third of the participating countries (mainly low-income countries), less than half of patients with renal insufficiency could have access to dialysis, while it was readily available to all at low personal cost in high-income countries [14].

A similar variation in access to transplantation was also recorded. Labor and resource constraints vary by region and have been disproportionately worse in lower-income countries. There was little support for kidney disease care, moderate use of registers, limited CKD programs and limited availability of routine CKD tests in some high-risk groups throughout the region. International collaborations are important initiatives that help fill gaps in the provision of CKD care throughout the region and should continue to receive support from the global nephrology community [14].

This paper presents findings for the 8 countries in the South Asia region. The World Bank categorizes Afghanistan and Nepal as low-income, Bangladesh, Bhutan, India and Pakistan as lower-middle-income, and Sri Lanka and the Maldives as upper-middle-income countries. Long-term dialysis and long-term peritoneal dialysis are available in all countries, but Afghanistan does not have peritoneal dialysis services. Kidney transplantation was available in all countries except Bhutan and the Maldives. Dialysis was the predominant method of long-term dialysis, peritoneal dialysis was more expensive than dialysis, and kidney transplantation was highly dependent on living donors. Bhutan provided public funding for kidney replacement therapy (dialysis and transplantation) [15].

Sri Lanka, India, Pakistan and Bangladesh had variable funding mechanisms while in Afghanistan they relied solely on personal expenses. There were shortages of health personnel throughout the area. Reports have varied: Afghanistan and Sri Lanka have dialysis records but do not publish reports, while Bangladesh has a transplant registry. Diabetes and hypertension are the leading causes of CKD throughout the region with a higher prevalence of infectious causes in Afghanistan and a high rate of CKD of unknown etiology in Sri Lanka and parts of India. The scope and quality of care delivery is inferior and variable. Sustainable strategies need to be developed to address the growing burden of CKD and the upgrading of the quality of life in the region [15].

As already seen, the World Kidney Health Atlas is an important initiative of the International Society of Nephrology. It aims to improve the understanding of international variability worldwide, focusing on the ability to provide kidney care to improve the quality of life of nephrology patients. The research started in 2017 and then again in 2019, using the same baseline data, supplemented with

information on access to dialysis and conservative care. Based on a WHO framework with the 6 building blocks needed for healthcare, it assesses competence in 6 areas: information systems, service delivery, workforce, funding, access to essential medicines and leadership/governance [16].

In addition, it evaluates the ability to research in all regions of the world, in all areas (basic, translation, clinical and health systems research). Its results have been used to enhance hospitalization strategies and quality of life in various regions. In addition, through documenting differences within and between countries and regions, initiatives have been launched to promote change. Since the first survey, the number of countries that have registers to document the burden of CKD or dialysis has increased. For many, information about the increase in disease is the first step in addressing care issues, including prevention, developmental delay, and access to services. Global cooperation in the documentation of kidney health and disease is an important step towards the goal of ensuring equal access to the health of kidney patients worldwide [16].

The global increase in chronic kidney disease (CKD) is rapidly projected to become the 5<sup>th</sup> most common cause of loss of life years worldwide by 2040. Aggravatingly, CKD is a major cause of catastrophic health expenditure. The cost of dialysis and transplantation consumes up to 3% of the annual healthcare budget in high-income countries. This supplementary article focuses on the description and analysis of measures that can be implemented in each country to promote the prevention of CKD. Primary prevention of kidney disease should focus on modifying risk factors and addressing structural abnormalities of the kidneys and urinary tract, as well as exposure to environmental risk factors and nephrotoxins [17].

In people with pre-existing kidney disease, secondary prevention, including optimization of blood pressure and glycemic control, should be the primary goal of education and clinical intervention. In patients with advanced CKD, the management of comorbidities such as uremia and cardiovascular disease is a highly recommended preventive intervention to prevent or delay dialysis or kidney transplantation. Political efforts are needed to increase the precautionary approach. While there may be national policies and strategies for non-communicable diseases in a country, there is often a lack of specific policies aimed at educating and raising awareness about the screening, management and treatment of CKD. Therefore, there is an urgent need to raise awareness of the importance of precautionary measures to all populations, professionals and policy makers [17].

### Conclusion

Assessing the quality of life (QOL) of patients with end-stage renal disease is becoming increasingly important, both for assessing the effect of the disease on patients and for the type of renal replacement therapy they require. Therefore, in this study, we aimed to evaluate quality of life strategies. The quality of life strategies of patients with chronic kidney disease undergoing dialysis are related to: ethnicity, employment status, low income status, increased duration of dialysis, various socio-demographic factors, accessibility and availability of specialized health structures, the adequacy of medical staff. All of these global parameters need to be adjusted so that all CKD patients have immediate access to solutions to their problem. Their quality of life is a very important goal as well as the timely prevention of the disease which is now considered an important factor of quality of life.

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**Volume 11 Issue 7 July 2022**

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