# Investigation of renal transplantation patients' quality of life by kidney transplantation questionnaire (KTQ-25)

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## Abstract

**Aims:** Quality of Life (QOL) is a strong predictor of mortality for end stage renal disease patients. This has resulted in QOL becoming the most important measure by which to present the outcome of these patients. The aim of this study was to measure QOL in renal transplant patients in Tehran.

**Methods:** This is a descriptive-analytic study which was performed on 220 renal transplant patients referred to transplantation and nephrology clinic of two Tehran city selected hospitals in year 2009. A demographic and a Kidney Transplant Questionnaire (KTQ-25) were used in order to collect data. The reliability of KTQ-25 was determined 0.93 by Chronbach's Alpha method and the questionnaire was filled by patients. Data were analyzed by SPSS 16 and descriptive and analytic statistics.

**Results:** The mean of QOL in this study was 4.9±1.27, the maximum score was obtained in appearance dimension and the minimum score was obtained in fear dimension. Relation between QOL score and gender (p<0.001), cause of End Stage Renal Disease (p=0.02), occupation (p=0.002) and economic satisfaction (p=0.02) was significant.

**Conclusion:** Tehran city kidney transplant patients' QOL level is moderate.

**Keywords:** Quality Of Life, Renal Transplantation, Kidney Transplant Questionnaire (KTQ-25)

## Introduction

End stage chronic renal failure is a progressive irreversible renal dysfunction in which body is not able to maintain fluid and electrolyte balance and leads to uremia or azotemia [1]. The population of people suffering from end stage renal disease (ESRD) is increasing 6% annually and now in the United States, there are 400 thousand patients with this disease. In Iran, the number of 25 thousand people has been reported [2]. These patients are not able to continue their life without renal replacement therapy. At the end of 2005, one million and 900 thousand people received replacement therapies, among which 68% live with hemodialysis, 8% with peritoneal dialysis and 23% with graft [3]. 52.7% of patients take advantage of hemodialysis and 45.5% benefit from transplantation In Iran [4]. Due to issues such as dialysis dependence, anxiety and high costs, patients often prefer kidney transplantation to preserve their life [5, 6, 7, 8]. A successful transplant offers patients the prospect of getting rid of annoying, time consuming and sometimes painful dialysis therapy [9]. Nevertheless, despite the great benefits of kidney transplantation, after transplantation, as well, patients face new problems [5, 6, 7, 8].

Since 1940, when the World Health Organization defined health as a complete physical, mental and social well-being, and not merely the absence of disease or disability, the issue of quality of life gained importance in researches and results of performance and clinical cares [10]. The purpose of replacement therapy is not only to make life long and to maintain good health, but also to improve the quality of life. Quality of life is a strong predicting factor for death of ESRD patients and is considered as the most important measure in expressing the results and consequences of health for these patients [5]. Assessment of quality of life can open up effective and useful ways to provide cares and treatment in the field of diagnosis, prognosis and evaluation to help chronic disease patients and even healthy people [11].

Tools and techniques used in measuring the quality of life differ according to the type of studied group, the way of setting the questionnaire and the working approach. But generally there are two types of instruments to assess the quality of life: A- general or generic instruments which are used for the general population. B-specific tools of disease which concentrate on the scales that are most associated with the disease (with special conditions). These two tools are not at odds with each other and each one has its own strong and weak points and may be appropriate in different conditions. One of the most important specific tools in evaluating the quality of life after transplant is the kidney transplantation questionnaire

(KTQ) [12].

In all studies that have been conducted in Iran on the transplant patients' life quality, the general tools of SF-36 (a short 36-item health assessment form) or KDQOL (kidney disease quality of life questionnaire) have been used and no specific quality of life instrument in kidney transplant patients has been used so far.

Therefore, present study was conducted to evaluate the quality of life in renal transplant patients using disease-specific kidney transplant questionnaire (KTQ-25).

## Methods

This is a descriptive cross-sectional study that was done in 2009. The study population was the patients referred to a transplant medical center and a transplant clinic in Tehran, who had the inclusion criteria. The final sample size was determined to be 232 patients (with 95% confidence coefficient and loss ratio of 10%) based on previous studies and were selected based on purposive sampling method. Finally, 218 people fully completed the questionnaires and the final analysis was performed on them.

After referring to the respective centers, first the research group introduced themselves and stated the purpose of the study, then collected some information on patients' health. All the cases which over three months had passed from operation entered the study (after the acute phase of transplant) and those with other disabilities and physical conditions affecting the quality of life were excluded. Initial interview was done with other patients and the demographic characteristics questionnaire and the quality of life questionnaire were completed by patients. In this study, two tools were used as follows:

A) The questionnaire of demographic characteristics that was developed based on research objectives and included age, gender, marital status, employment status, economic status, educational level, duration of being affected with ESRD disease, type and duration of previous replacement therapy, type of donor and the time period of transplantation.

B) A specific questionnaire that was the tool for the assessment of the quality of life in kidney transplant patients (KTQ-25). This instrument is designed by Pus N. et al and contains 25 questions on five domains of physical, fatigue, fear/uncertainty, appearance and emotional and measures the quality of life of transplant patients according to their specific problems [13]. For scoring of the tool each item is given a point between one and seven, so that the score seven indicates the best and the score one is an indicator of

the worst possible state. Then the total score for each of these areas is added up and divided on the number of items of the given area and the final score of that area is obtained. For the total score of each group, score seven is the highest score of quality of life and score one is the lowest. This questionnaire has been frequently used in other countries and its reliability has been reported to be 0.93 to 0.8 using Chronbach's alpha [12, 14, 15]. But still, in this study, its Persian edition was also designed using reverse translation. Then its face and content validity were confirmed by presenting the translation and the original text to 15 experts and faculty members of one of Tehran medical sciences universities, and its reliability was obtained by distributing the questionnaire to 25 people from the same population as the target population and by calculating the internal reliability using Chronbach's alpha ($\alpha=0.93$).

Finally, the collected data was analyzed using SPSS 16 software and analytical and descriptive statistical methods. To determine the distribution of the quantitative data, Kolmogorov-Smirnov single-sample test was used that with regard to $p>0.05$ and the normal distribution, t-test and one-way analysis of variance or ANOVA were used.

## Results

Patients were between 15-75 years old and their mean age was $41\pm24$ years. 58.7% of them were male and the rest were female. In addition, 71.6% of them were married and the rest were single. Donor's type was non-relative for 84.3% of subjects, corpse for 10.6% of them and relatives for 5.1% of subjects. Mean quality of life was $4.9\pm1.27$ for them. The results of quality of life scores of patients, based on questionnaire dimensions are presented in Table 1.

**Table 1-** The average quality of life scores based on questionnaire dimensions

| Questionnaire Dimensions | Quality of Life Score |
|---|---|
| **Physical Symptoms** | 4.57±1.56 |
| **Fatigue** | 4.72±1.62 |
| **Fear/Uncertainty** | 4.53±1.82 |
| **Appearance** | 5.75±1.43 |
| **Emotional** | 4.88±1.63 |

The results of relationship between certain demographic factors and the quality of life are reported in Table 2. Moreover, in comparing of the quality of life scores based on type of underlying disease leading to renal failure, the highest score related to infectious diseases (5.53) and the lowest score related to congenital diseases (4.44) and a

statistical difference was observed between the quality of life score based on the type of underlying disease (p=0.02).

**Table 2-** the relationship between some demographic variables and quality of life

| Demographic variable | | QOL scores | Statistical test | Significance Level |
|---|---|---|---|---|
| **Age** (year) | <25 | 5.06±1.17 | Single-factor analysis of variance f=1.25 | p=0.29 |
| | 26-40 | 4.66±1.39 | | |
| | 41-65 | 5.03±1.06 | | |
| | 65< | 4.84±1.31 | | |
| **Gender** | Female | 4.36±1.26 | t=5.37 Independent | p<0.001 |
| | Male | 5.29±1.14 | t=5.46 T | |
| **Education** | Low literacy | 4.99±1.28 | Single-factor analysis of variance f=1.25 | p=0.77 |
| | Under diploma | 4.76±1.25 | | |
| | Diploma | 4.94±1.37 | | |
| | Higher diploma | 4.81±1.24 | | |
| **Donor type** | Relative | 4.83±0.96 | Single-factor analysis of variance f=1.25 | p=0.9 |
| | Relative | 4.92±1.31 | | |
| | Corpse | 4.82±1.22 | | |
| **Time after transplant** (year) | <1 | 4.73±1.22 | Single-factor analysis of variance f=1.25 | p=0.1 |
| | 1-5 | 4.83±1.28 | | |
| | 6-10 | 4.86±1.26 | | |
| | 11-15 | 5.7±1.02 | | |
| | 15< | 5.28±1.28 | | |

In the study of the relationship between other variables and the QOL scores, no significant difference was observed (p>0.05).

## Discussion

Mean quality of life for these patients was 4.9±1.27 that was lower than that of Rebollo in Spain (5.58) and higher than the mean of Oveilly study in the United States (4.52) which has been reported with the same questionnaire. The highest score in this study was related to the dimension of body appearance which is consistent with both mentioned studies. However, the lowest score in this study was related to the fear dimension, but the lowest score belonged to physical symptoms in both of above-mentioned studies [15, 16].

Since the disease is not, by itself, the determiner of the individual's comprehension of the quality of life and many other influential factors such as age, sex, education, etc. play an important role in the individual evaluating of their quality of life, therefore it is necessary to examine the relationship between demographic variables and quality of life. In this study, the average quality of life was significantly higher for men, which is inconsistent with the results of Taghizadeh in Urmia and Vosoughi in Ardabil who did not observe a significant difference between sexes. In this study, there was no significant difference between education and quality of life which is inconsistent with the results of Taghizadeh based on the fact that increase in the level of education will result in increase in quality of life, but is in accordance with the results of Vosoughi [17, 18]. Various studies have shown that by age, quality of life is probably reduced due to the beginning of the aging process and increased disease complications. The highest score of quality of life in this study was observed in the age groups of less than 25 years old and between 41-60 years old, but had not any statistically significant difference that is consistent with the results of Taghizadeh and Vosoughi [17, 18].

Despite negative views regarding cadaveric transplant among general population, there was no significant difference in this study between the quality of life scores in the three types of donors. Therefore, it seems necessary to hold certain cultural programs among people about organ donation of brain-death patients, and consulting people for better psychological acceptance of receiving organs from the dead.

Several studies have shown that the duration of the disease and hence increasing of complications the quality of life will decrease [18]. In this study, although statistically significant difference was not observed between the time passed from transplantation and QOL scores, the highest quality of life score was observed in the group that 11-15 years had passed since their transplant surgery. Also, the next quality of life score belonged to the group that more than 15 years has passed since their transplant, which was consistent with the results of Vosoughi's study. The remarkable point in these patients was the low score of less than one-year patients that may be due to the complications of treatment with high doses of corticosteroids and its effects on skin an individuals' appearance. Furthermore, the low score of fear among this group can be an indicator of high rates of anxiety and stress, especially toward the rejection of the graft and returning to dialysis state, which shows the necessity of psychological consult before and immediately after the transplant surgery and keeping it up at regular intervals. The low score of these two dimensions have had a significant impact on these patients' quality of life, in a way that the lowest quality of life score was obtained in this group as well (4.73±1.22).

Now, the use of disease-specific tools to measure the quality of life is of particular importance all around the world. Considering the fact that so far, general tools has been used for assessment of quality of life in

these patients in Iran, performing studies with the aim of measuring the quality of life using these tools is suggested in order to determine the exact status of kidney transplant patients all over the country, so that by clarifying the patients' condition necessary plans can be designed for solving their problems and increasing their quality of life.

## Conclusion

Overall, studied patients are in an average state in terms of quality of life. The lowest and highest scores are respectively related to fear/uncertainty and appearance. Given the importance of exact evaluation of the quality of life according to the particular nature of the disease in kidney transplant patients, it seem necessary to conduct extensive studies on quality of life using specific tools like KTQ-25.

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