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**Quality Of Life for Kidney Transplant Patients at the  
Palestinian MOH in Bethlehem and North Hebron**

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**Quality Of Life for Kidney Transplant Patients at the  
Palestinian MOH in Bethlehem and North Hebron**

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**Thesis Approval**  
**Quality Of Life for Kidney Transplant Patients at the Palestinian MOH**  
**in Bethlehem and North Hebron**

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## **Dedication**

I dedicate this thesis to my parents my family, my children specially my husband who gave me love, strength, encouragement, and support every step of the way during my graduate education.

**Declaration**

I certify that this thesis submitted for the degree of master is the result of my own research, except where otherwise acknowledged and that this thesis has not been submitted for a higher degree or any other university or institution.

Signature:

Kholoud Hassan Tafish Dweib

Date: 15/7/2017

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## **Abstract**

**Background:** Quality of Life (QoL) is a strong predictor of outcome for end stage renal disease patients. The Purpose of kidney transplantation is to improve the quality of life for patients with end-stage renal disease. It is the optimal treatment for those patients. The aim of this study was to measure QoL in renal transplant patients in Bethlehem and North Hebron in Palestine.

**Method:** A descriptive, cross-sectional study was performed on 109 renal transplant patients referred to Ministry of Health- primary healthcare clinics of Bethlehem and north Hebron in Palestine from December 2016 to April 2017, by using Kidney Transplant Questionnaire (KTQ-25) for the assessment of QoL and determining the effect of socio-demographic variables on QoL. The reliability of KTQ-25 was determined 0.74 by Chronbach's Alpha method. Data were analyzed by SPSS 17 and descriptive analytic statistics.

**Result:** The mean quality of life for kidney transplant patients was  $(4.02 \pm 0.84)$ . The highest score of the KTQ was the appearance dimension  $(5.40 \pm 1.23)$  while the lowest was related to the uncertainty/fear dimension  $(3.36 \pm 1.23)$ . The sample of 109 kidney transplant recipients consisted of mostly males (79.8%), females (20.2%), their mean age was  $(41 \pm 24)$  years. Most were married 81.7%, 45.9% without work, 53.2% with low income, 47.7% attributed ESRD to (other reasons), (66.1%) of kidney donor's type were biologically blood related. Most common physical problems were aching and tired legs (68.8%). There was a significant effect of marital status on QoL, single patients had higher QoL than married ones ( $p = 0.034$ ). No significant difference was observed ( $p > 0.05$ ) between other socio-demographic variables and the QOL scores.

**Conclusion:** Quality of life for kidney transplant patients in our sample was moderate. Results of our study points to the need for support from the whole society, government, family, and medical staff, and the need to design plans for solving recipients problems and increasing their quality of life

**Key words:** Quality Of Life, Renal Transplantation, Kidney Transplant Questionnaire (KTQ-25), Palestine.

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- Appendix 3      MOH ethical approval

## **List of Abbreviations**

|       |                                 |
|-------|---------------------------------|
| MOH   | Ministry Of Health              |
| QoL   | Quality Of Life                 |
| HRQoL | Health Related Quality Of Life  |
| KTQ   | Kidney Transplant Questionnaire |
| KT    | Kidney Transplantation          |
| RRT   | Renal Replacement Therapy       |
| ESRD  | End-Stage Renal Disease         |
| PD    | Peritoneal Dialysis             |
| HD    | Home Hemodialysis               |
| WHO   | World Health Organization       |
| SF-36 | Short Form-36                   |
| CVD   | Cardiovascular disease          |
| DM    | Diabetes Mellitus               |

## **Chapter 1: Introduction**

### **1.1 Kidney Transplantation**

Renal kidney transplantation (KT) is the surgical placement and vascular integration of a human kidney from a living or cadaveric donor into a patient who has end stage renal disease.

Kidney transplantation is recognized as the treatment of choice among renal replacement therapies (RRTs) due to its proven bigger outcome on survival, morbidity and cost in comparison with other RRTs (Mcfarlane, Bayoumi, Pierratos, & Redelmeier, 2003; Wolfe et al., 1999). Patients who with kidney transplant experience a 68% lower risk of death compared with those waiting on dialysis for a transplant. This positive effect is afforded to all patients even the elderly and diabetics, who can gain more than ten years of extra life with kidney transplantation (Muehrer & Becker).

As a point of fact, kidney transplantation is the most commonly performed organ transplant with high success rate and newer advancements have improved overall survival rates (Fiebiger, Mitterbauer, & Oberbauer, 2004). In addition, KT is proven to have a greater positive influence on health-related quality of life (HRQoL) in comparison with other RRTs(Cameron, Whiteside, Katz, & Devins, 2000; Gentile et al., 2008; Liem, Bosch, Arends, Heijenbrok-Kal, & Hunink, 2007; Mcfarlane et al., 2003). When KT patients were compared with patients on dialysis, patients after KT show greater independence, higher engagement in social activities and an enhanced ability to work(Purnell et al., 2013).

### **1.1.2 Epidemiology of kidney transplantation**

According to the literature, there were 2,945 adult kidney transplants performed in the UK during 2015 and 2016, which shows a 5% increase compared to 2014-2015. The highest kidney transplant rates per 1000 dialysis patients in 2013 took place in Norway (N=210), Estonia (N=158), the Netherlands (N=146), Scotland (N=129), and the United Kingdom from 2000 to 2013, the prevalence of end stage renal disease (ESRD) patients living with a kidney transplant has continued to increase in every country with existing data and records("2015 USRDS Annual Data Report

Volume 2: ESRD in the United States," 2015). In 2013 about 17,817 Canadians were living with a kidney transplant, in the same year, a total of 3,382 Canadians were waiting for a kidney transplant and 88 patients died waiting for one((CIHI), 2013).

### **1.3 Kidney Transplantation in Palestine**

In Palestine, the average number of transplant patients is estimated to be at only 45–50 cases per year(Younis et al., 2015), while the number of transplants performed until 2001 from live donors was 420 transplant(Shahla, 2003).

According to the Palestinian MOH about 255 kidney transplant procedure were performed successfully from 2010 till now without any cost from the patients.

The increasing incidence of end-stage kidney disease is clearly an important issue for health care professionals, as health and policy strategies are developed to decrease the burden of kidney failure and maximize HRQoL and psychosocial health through prevention strategies, early detection and better management of the disease.

Palestinian Ministry of Health is the main health care provider for the kidney transplant patients management program. And the different treatment modalities of kidney transplant patients are free of charge. Kidney transplant patients belong to group of Patients with "Special Diseases" and are eligible for a government health insurance.

## **1.4 Quality of Life**

The quality of life (QoL) is defined as the degree to which the experience of an individual's life meets that individual's wants and needs(Kerce, 1992). QoL may be classified within five dimensions: physical well-being, material well-being, social well-being, emotional well-being, development and activity(Felce & Perry, 1995). Quality of- life measures changes in these five dimensions in order to evaluate the human and financial costs and benefits of new programs and interventions (Testa & Simonson, 1996). The World Health Organization (WHO) describes QoL as an individual's perception of their position in life in the framework of the culture and value systems in which they live, and in relation to their goals, prospects, standards, and worries(Organization, 1996).

## **1.5 Health -related Quality of life**

When QoL is considered in the context of health and disease, it is commonly referred to as health-related quality of life (HRQoL) to distinguish it from other aspects of quality of life measurements("Health-Related Quality of Life and Well-Being," 2010). HRQoL has become very important health indicator for treatment policies which measuring the impact of the condition in patients and their diseases (Ferrans, Zerwic, Wilbur, & Larson, 2005). by describing physical, mental, social and behavioral components of well-being a as perceived by patients (Bakas et al., 2012).

Development and utilization of HRQoL instruments increased during the last decade with efforts to enhance both patient health and the value of healthcare services(Janodia, 2016). Health-related quality of life (HRQoL) was recognized as a model to include the patients' perception in clinical practice(Abbott et al., 2011). HRQoL contains several attributes of health-related matters from the patients' viewpoint including physical, psychological, and social functioning and overall well-being. Many clinical studies have recognized the significance of HRQoL in various diseases, and it is progressively common to evaluate

disease-specific and generic HRQoL in clinical trials as a measure of patients' subjective state of health(Rostami, Tavallaii, Jahani, & Einollahi, 2011).

Many studies concluded that HRQoL information is very important because it significantly improves the process of making clinical decisions, it improves the determination of the effectiveness of medical intervention, assesses the quality of care, measures the healthcare need of the general population and it helps better identify the causes and consequences of the differences in health(Rebollo et al., 2003).

### **1.6 Role of pharmacists in QoL**

Pharmacists are members of the health care team and a direct patient care providers. They play a vital role in patient monitoring to determine side effects of medication specially in transplantation, they are very important members of the transplant patient care team (Wiegel & Olyaei, 2016). Many studies approved that pharmacist interventions and other clinical pharmacy services for renal transplant and dialysis patients led to improvement in all health outcomes and QoL (Jacob, Joyal, & Sambathkumar, 2016). A study reported that pharmacist counseling with regular intervals has give significant improvement in the QoL of hemodialysis patients with that of control group (Shareef, Kripa, & Baikunje, 2015). Another study which was determining the effect of pharmaceutical care on HRQOL in HD patients had result that patients who had pharmaceutical clinical care did not have lower HRQOL after 1 year and could have the same HRQOL for another year (Pai, Boyd, Chavez, & Manley, 2009). The presence of a clinical pharmacist in nephrology unit may improve pharmacotherapy and reduce medication complications and give a better QoL in these patients (Zolezzi, 2002)So studies recommended that every hospital must have clinical pharmacists in nephrology department to improve QoL .

## 1.7 QoL tools

Interest in QoL measurement in clinical practices in order to ensure that treatment and evaluation—are focused on the patient rather than the disease has only been noticeable in recent years(Higginson & Carr, 2001).

QoL tools can be grouped into two categories: generic and disease-specific scores.

A disease-specific score is a more sensitive instrument because it emphasizes the clinical condition. To name a few: European quality of life-5 dimensions (EQ-5D), time trade off (TTO), standard gamble, health utility index (HUI), Finnish 15 dimensions (15D), Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36), kidney disease quality of life (KDQoL), Karnofsky, sickness impact profile (SIP), general health questionnaire (GHQ), and World Health Organization quality of life (WHO-QoL) (Tonelli et al., 2011).

Among the most popular global tools is the SF-36, while the Kidney Transplant Questionnaire (KTQ) is the most common as a disease-specific tool(Fiebiger et al., 2004)

**Kidney Transplant Questionnaire (KTQ)** is a quality-of-life instrument designed specifically for kidney transplant recipients, it's a disease-specific questionnaire consisting of 25-items that is divided into five domains: physical symptoms (six items), fatigue (five items), uncertainty/fear (four items), appearance (four items), and emotional (six items) (**Table1**). A mean score ranging from 1 to 7 is reported for each of the five domains.

To calculate the score of each dimension the sum of all the items in the dimension is determined and then divided by the number of items in that dimension, with higher scores representing better functioning, or fewer problems(Laupacis et al., 1993; Rostami et al., 2011).

**Table 1: Kidney Transplant Questionnaire (KTQ) instrument dimensions.**

| <b>No.</b>  | <b>Dimensions</b>        | <b>Items</b>  |
|-------------|--------------------------|---|
| <b>I.</b>   | <b>Physical Symptoms</b> | <b>Six patient-specific items</b>   |
| <b>II.</b>  | <b>Fatigue</b>           | <b>weak<br/>low level of energy<br/>sluggish<br/>increased tiredness<br/>very little strength</b>                 |
| <b>III.</b> | <b>Uncertainty/Fear</b>  | <b>protective of transplant<br/>fear or panic related to rejection<br/>uncertain about the future<br/>worried</b> |
| <b>IV.</b>  | <b>Appearance</b>        | <b>excessive hair growth<br/>excessive appetite<br/>excessive weight<br/>acne</b>                                 |
| <b>V.</b>   | <b>Emotional</b>         | <b>Irritable,difficult to get along with<br/>depressed<br/>anxious<br/>frustrated<br/>stubborn<br/>impatient</b>  |

**The Short-form survey (SF-36)**

is a survey that has been used in many studies to measure quality-of- life and it consists of eight dimensions, producing a profile of health-related quality of life. These dimensions are: 1) Physical Functioning; 2) Role Limitations due to Physical Functioning; 3) Bodily Pain; 4) General Health Perceptions; 5) Vitality; 6) Social Functioning; 7) Role Limitations due to Emotional Functioning; and 8) Mental Health. Raw scores are transformed into a score between zero and hundred for each dimension. Higher scores signify better health (Ware Jr & Sherbourne, 1992). Although SF-36 may be useful, it is not disease specific

## **1.8 Problem statement**

The WHO reports that lifestyle-related diseases and kidney disorders are in the top twenty leading causes of deaths in 2004 (Bauman, Phongsavan, Schoeppe, & Owen, 2006). Additionally, patients with end-stage kidney disease often experience complications which include cardiovascular disease, diabetes, hypertension, and other infectious complications (Sarnak et al., 2003).

The purpose of kidney transplantation is to improve the quality of life for patients with end-stage renal disease (ESRD). It is the optimal treatment for those patients.

Unfortunately, many patients may develop vascular problems, graft rejection, viral infections, obstructive hydronephrosis or lymphatic problems. This is reflected in the unsatisfactory scores of quality of life especially in patients experiencing acute graft rejection or adverse events resulting from immunosuppressive therapy (McIntyre, Stewart, & Clinical, 2009).

## **1.10 Immunosuppressive therapy**

Choosing more powerful immunosuppressive drugs has resulted in better quality of life for patients by increasing graft survival, results in improvement in the cardiovascular complications and reduces the side-effects (Artz et al., 2004).

Cardiovascular disease, infections, and malignancy, is the most leading causes of death in kidney transplant recipients with good functional kidney (Briggs, 2001).

Adherence to immunosuppressive therapy is necessary to prevent graft rejection which result a higher number of hospitalizations and costs of therapy (Denhaerynck et al., 2009).

Adherence and devotion to immunosuppressive therapy mostly affected by socio-economic and cultural factors such as age, gender, education, occupational situation, patient-related factors (forgetfulness, daily routines), condition-related factors (time since transplant,

depression), and therapy-related factors (Gonçalves, Reveles, Martins, Rodrigues, & Rodrigues, 2016).

There is an evident need for a collaboration and partnership among the transplant center, community nephrologists, and primary care physicians who are involved in the long-term care of these patients to enhance QoL(Djamali et al., 2006).

Kidney transplants is experienced differently by each recipient depending on the socio-demographic, clinical and psychological factors(Vasudevan, 2014). The differences in the healthcare environments between countries could also affect the quality of life of the kidney transplant recipients(Niu et al., 2015).

Fear of organ rejection and uncertainty about future health are great concerns for the kidney transplant patient. Those patients who had bad memories regarding the period of dialysis expressed greater fear of losing the graft and having to go back to the hemodialysis machine and all the associated complications(de Brito, de Paula, dos Santos Grincenkoy, Lucchetti, & Sanders-Pinheiro, 2015).

Additionally, kidney transplant recipients require careful follow-up in both the early (<6 months) and late post-transplant period. Monitoring should concentrate on graft function and the most common complications of immuno-suppression therapy(Andany & Kasiske, 2002). The long term success of a kidney transplant depends on several factors, all of them relate to the patient following recommended treatments required after the transplant. These include: healthy lifestyle, healthy diet, exercise, lab tests and clinic visits and immunosuppressant medication which must be taken in right dose and time by kidney transplant patients for their whole life .

Therefore, understanding patients' QoL has significant inferences for treatment and therapy decisions.

In Palestine, more than one study characterized quality of life of end-stage kidney disease patients undergoing dialysis. All studies suggested that there is a need to find other renal replacement therapies such as transplantation because of the low quality of life for patients undergoing dialysis in Palestine (A.Al-Shareef, 2011). There is no current data on the quality of life for kidney transplant patients in Palestine.

### **1.11 Study Objectives:**

1. To measure QoL among renal transplant patients who visit MOH facilities in Bethlehem and North Hebron.
2. To identify the effect of socio-demographic variables on the QoL of these patients.

## **Chapter 2: Literature review**

### **1.2 QoL and Kidney Transplantation**

Recent studies have shown that HRQoL improved after successful kidney transplantation in comparison to dialysis. These studies documented that renal transplantation is not only cheaper than renal replacement therapy on the long term and associated with less mortality rates, but also provides a better quality of patients' life. A successful kidney transplant confers a strong lasting protection from cardiovascular death, probably by reversing cardiovascular disease progression in ESRD patients (Meier - Kriesche, Schold, Srinivas, Reed, & Kaplan, 2004).

Prevention and early management of disease progression, cardiovascular complications, infections, and malignancies constitute the cornerstone of this collaborative effort to extend life span and allograft function(Fiebiger et al., 2004).

A study by Zyoud *et al.* (2016) was performed from June 2014 to January 2015, to evaluate QoL of ESRD patients undergoing HD in all dialysis centers in the West Bank in Palestine. This study concluded that healthcare providers should be informed about the low HRQoL among patients with no formal education, female patients, whether the patient lives in refugee camps, and whether the patient has multiple co-morbid diseases and/or multiple chronic medications, and elderly patients in order to take measures to improve their quality of life(Sa'ed et al., 2016).

Another study done by two Nursing students, Sayej and Qtait (2016), at Al-Quds University, Palestine measured quality of life of Palestinian renal failure patients under

hemodialysis which was moderate, they state that the moderate QoL can be made better by promoting health policies that enhance the level of satisfaction of renal failure patients and that stimulates staff awareness and training with regards to supporting and teaching about diet, medication and self-care and increase the attention on emotional, cognitive and social aspects of health. In addition to also focusing more about dialysis departments' environment and facilities(S Sayej, 2016).

One important Palestinian study done by Younis *et al.* (2015) provides a cost analysis on kidney replacement therapy options. The authors found that peritoneal dialysis (PD) and home hemodialysis (HD) are not widely available in Palestine due to the lack of skilled staff, specialists, and centers to follow those patients, provide training and home visits, and provide instructive programs for patients. All of these factors evidently show the advantages of transplantation. However, kidney transplants in Palestine are dependent on related, live donors rather than cadaveric donors, which consequently indicate that fewer patients are eligible for transplant. The authors further suggested that investing in sufficient competent staff, equipment, and clinical infrastructure to replace HD services with transplantation whenever there is available medical indication and suitable kidney donors. Their findings provide a better understanding of the expenses of kidney disease and help advise the Ministry of Health and other related parties in their development of short- and long-term strategies with the aim of saving costs and enhancing the quality of life(Younis et al., 2015).

The extensive interaction between patients and health professionals is regarded as an important contributing factor to QoL, and needs more attention in the field of kidney transplantation.

A Master's degree thesis defense held in 2011 at An-Najah National University identified the major risk factors of ESRD that lead to the onset of ESRD in the Northern West Bank, which recommends the need for conducting and improving national kidney transplantation programs in Palestine, and for raising community awareness about kidney donors (Basheer, 2011). All these studies encourage the Ministry of Health in Palestine to draw attention to the field of kidney transplantation.

Internationally, there are many studies that have been conducted to characterize HRQoL in kidney transplant patients worldwide. To start with, in 2009, a study was conducted in Tehran to measure QoL in renal transplant patients. It was performed on 220 renal transplant patients who were referred to transplantation and nephrology clinic of two Tehran city-selected hospitals. Kidney Transplant Questionnaire (KTQ-25) was used to collect the data. The highest score in this study was that of the dimension of body appearance and the lowest score in this study was the fear dimension. There was no statistical, significant difference in this study between the quality of life scores and the cadaveric transplant and live donors. The average quality of life was significantly higher in men. The authors discovered that Tehran city kidney transplant patients' QoL level was moderate (Tayebi et al., 2010).

Another study, conducted in China between July 2014 and December 2014, in which 136 living donor kidney transplantation recipients were included and the Chinese version of KTQ was used. The highest score of the KTQ was found in the appearance dimension, while the lowest score was found in the uncertainty/fear dimension. The score for "Uncertainty/Fear" was the lowest among all dimensions of this study, which was unlike other findings. This variance could be caused by the differences in the selection of the subjects. For example, most of the other studies did not describe the source of the kidney,

and suggested that the recipients had feelings of fear and anxiety about the donors(Niu et al., 2015).

Another similar study conducted in the USA in 2011 included 114 renal transplant recipients, who were post-transplant for more than two years, and who received immunosuppressant therapy. The KTQ was used to evaluate HRQoL in this study. In general, renal transplant recipients who are at least two years post-transplant are more clinically stable compared with other studies which consider renal transplant recipients within the first year of post-transplant. This consequently gives this study a more stable assessment of HRQoL KTQ-physical, KTQ-fatigue, KTQ-uncertainty/fear, and KTQ-emotional subscales, ranging from 15% to 27% of respondents receiving the highest possible score. A substantial ceiling effect was present for the KTQ-appearance subscale, with 84% of renal transplant recipients receiving the highest possible score(Chisholm-Burns, Erickson, Spivey, Gruessner, & Kaplan, 2011).

Balaska *et al.* (2006) compared and evaluated health-related quality of life (HRQoL) in Greek adult transplant recipients before, and one year after successful renal transplantation (RT). They examined which parameters had the greatest effect on their HRQoL. The SF-36 survey score was used in 85 Greek hemodialysis patients who underwent RT at the Transplant Unit of General Hospital of Athens of whom 44 were men and 41 were women. Thirty-nine patients in this study had received a kidney from a live, relative donor, and 46 patients had received a kidney from a cadaver. The scale scores of a Greek version of the SF-36 survey were compared between the transplant and the hemodialysis patients. The authors also examined the relationship of the scale scores with the age of patients and the donor type. The overall HRQoL of renal allograft recipients was significantly better than that of hemodialysis patients. General health perception, role-physical functioning, role-emotional functioning, and vitality were demonstrated to have a great positive effect on

patients' HRQoL after RT. The lower the patient's age at the time of transplantation, the higher the SF-36 scale scores. The type of the graft donor was also an important factor affecting HRQoL in RT patients(Balaska et al., 2006).

A UK study was conducted to examine the quality of life (QoL) of the live donor renal transplant recipients pre- and post-transplantation, and correlate that with their pre-transplant dialysis status and immunosuppressive regimens post-transplantation. In this study, 57 live donor renal transplant recipients and 38 healthy individuals as controls participated in Division of Renal Transplantation, Sheffield Kidney Institute. The Kidney Transplant Questionnaire (KTQ) and the Medical Outcome Survey Short Form 36 (SF-36) questionnaire were used to assess QoL.

The post-transplantation scores in all SF-36 dimensions were significantly higher in the live donor renal transplant recipients, but remained lower than that of the control group. However, in the KTQ, all dimensions except appearance significantly increased post-transplantation patients transplanted proactively and those on tacrolimus-based immunosuppressive drugs had significantly better QoL. All the patients who reported complaints pre-transplantation had a clinically and statistically significant improvement in QoL post-transplantation(Shrestha, Basarab-Horwath, McKane, Shrestha, & Raftery, 2010).

Bittencourt *et al.* (2004) in Brazil performed a 132 subject study in patients who underwent renal transplant at a university hospital between 1984 and 2001. The purpose of the study was to contrast the quality of life in renal transplant patients with functioning, operative graft and those who restarted dialysis after graft loss. The instrument used to assess quality of life was the WHO-QoL-Brief questionnaire.

This study displayed a better quality of life in renal transplant patients with a functioning graft particularly with regards to the physical and psychological domains(Bittencourt, Alves Filho, Mazzali, & Santos, 2004).

On the same footsteps, at the Brazilian University Medical Center, a qualitative study was undertaken with kidney transplant recipients between August and December 2010, with the participation of 50 patients. In this study, a semi-structured interview was used as the method of data collection. The interview is made up of open-ended and closed questions, and is divided in two sections. The first refers to the patients' clinical and socio-demographic data, and the second inquiries about the main positive changes following KT and the principal difficulties patients faced following KT.

The authors found that kidney transplantation caused various positive changes in the patient's routine, with the return to daily life activities being the most important gain in the participants' opinion. In relation to the stressors, fear related to loss of the graft, and questions relating to the immunosuppressive medication were the main challenges faced following transplantation (de Brito et al., 2015).

A research study held for a three-year period (between May 2010 and May 2013) by Mendonça *et al.* (2014) whose aim was to identify changes on the quality of life after the efficiency of kidney transplantation and to verify the influence of socio-demographic factors on the quality of life of a population that consisted of chronic renal failure patients receiving outpatient treatment at a referral center for kidney transplant in northeastern of Brazil. The inclusion criteria included a total of 63 patients aged over 18 years. Data was collected at a private location, using the WHO Quality of Life WHO-QoL- brief, in two steps in order to assess the perception of kidney recipients before and after transplantation:

- In the first step transplant candidates on the waiting list were interviewed,

- In the second stage, candidates were interviewed after kidney transplantation, respecting the minimum interval of three months that was the necessary time for patient recovery and return to their daily life activities.

The comparison between the mean scores of QoL domains before and after the transplant showed significant improvement in general QoL and in all evaluated domains as well as an affirmative influence of renal transplantation on the patients' perception. This improvement was more significant in general QoL, physical health domain and social relationships domain. Socio-demographic factors did not have an effect on patients indicating that transplantation was the main factor that explains changes in quality of life (Mendonça, Torres, Salvetti, Alchieri, & Costa, 2014).

In the years 2009 and 2010, about 90 kidney transplant patients were selected from 4 hospitals in Tehran and were randomly assigned to 2 groups. The aim of this study was to compare the effect of the continuous care model with routine care on the quality of life among patients who received a kidney transplant. The continuous care model, proposed by Ahmadi (2001) as a native nursing care model, is used to establish and maintain a dynamic, interactive, and mutual relationship between the nurse, the patient, and the patient's family, so that the QoL of the patients may be improved. In the experimental group, continuous care model was applied for 3 months and the control group received routine care.

The scale scores of the Kidney Transplant Questionnaire concerning quality of life were compared between the two groups on a monthly basis. The quality of life scores increased in both groups, the mean scores of the experimental group were significantly higher than those in the control group at 1, 2, and 3 months (Raiesifar et al., 2014).

Georgieva *et al.* (2012) conducted a study on health related quality of life (QoL) and pharmacotherapy cost at the biggest Sofia Hospital serving all transplant patients in Bulgaria. The objective of the study was to analyze the cost of pharmacotherapy and the quality of life of patients after kidney transplantation in comparison to those with chronic kidney disease. The multidimensional questionnaire SF-36 was used to evaluate health related quality of life (QoL). Patients with chronic kidney disease had lower QoL in all domains when compared to transplanted patients. QoL in patients with kidney transplantation especially ensuing successful transplantations assures a normal life; the location in which individuals live and the general health state had a positive correlation. Moreover, people living in towns were shown to have better quality of life, probably due to the fact that they are closer to healthcare services. The findings of this study confirmed the fact that the chronic kidney disease severely hinders the quality of life. In addition, the study revealed that access to healthcare and higher spending on pharmaceuticals has a positive influence on the QoL of transplant patients (Georgieva *et al.*, 2012).

A regional study conducted at center Giza outpatient clinics for kidney Cairo University, Giza, from June 2013 till January 2014, actively followed approximately 500 recipients of a kidney transplant. A sample of 50 patients undergoing kidney transplantation was included in the study using the Short Form Health Survey (SF-36).

Patients' education program enhanced patients HRQoL, their knowledge, their self-efficacy, and their coping strategies. All dimensions of HRQoL of the patients were better after the education program when compared with that of prior to the intervention (Mersal & Aly, 2014).

An East Asian study conducted in the Republic of Korea (KNOW-KT) enrolled 1,000 KT recipients between 2012 and 2015 and followed them up to 9 years. The research is a multi-center, observational cohort study involving 8 transplant centers. The outcome in patients with kidney transplantation from 175 patients was analyzed. At the time of KT and at pre-specified intervals, clinical information, laboratory test results, functional imaging studies on cardiovascular disease and metabolic complications were recorded. The KNOW-KT intended to study allograft survival rate, cardiovascular events, and metabolic profiles as well as revealing the risk factors in Korean KT patients. The HRQoL of patients in the KNOW-KT study was assessed before transplantation and 2 years after transplantation using the Kidney Disease Quality of Life Short Form (KDQoL-SF) including chronic kidney disease targeted area and the Medical Outcome Study 36-item Short Form Health Survey (SF-36). All QoL scores including the total QoL score, chronic kidney disease targeted score, and SF-36 at the 2-year follow-up were significantly increased compared to baseline values. Both physical and mental scale scores were improved after transplantation(Lim et al., 2016).

Another multi-center study took place in France between March 2007 and March 2008, which aimed to identify factors associated with health-related quality of life (HRQoL) through a comprehensive analysis of socio-demographic and clinical variables among renal transplant recipients. Data included socio-demographic parameters, health status, and treatment characteristics. To evaluate HRQoL, the Short Form-36 Health Survey (SF-36) and a HRQoL instrument for RTR were administered.

In this study low SF-36 scores were in: older age, females, un-employed, lower education, and living alone individuals, high BMI, diabetes, infectious disease, critical illness and hospitalization in the last 4 weeks, non-compliance, former smokers, a long duration of dialysis, side effects related to general health and mental health or body modification. As a

result, the variables that predicted worse HRQoL in this study were: side effects, infectious disease, recent hospitalization and female gender(Gentile et al., 2013). Patients without employment or living alone were seen to have lower QoL scores, and women were seen to have lower QoL scores than men(Gentile et al., 2008).

At Louis Pasteur University Hospital Transplantation centre in Kosice, Slovakia a study explored the association between post-transplant factors (kidney function, perceived side effects of immunosuppressive treatment, co morbidity, physical and mental health-related quality of life (HRQoL)) and social participation. The study included 331 patients who underwent a kidney transplant between the years 2003 to 2009. The evaluation was done at 3 months to 6 years after kidney transplantation and their impact on graft loss and mortality for up to 10 years (follow-up). The Short Form Health Survey-36 and the Participation Scale were used, and information on all-cause graft-loss and mortality was noted.

The researchers found that restrictions in social participation were associated with living alone, worse kidney function, more severe side effects of immunosuppressive treatment, and lower physical HRQoL. Additionally, social participation had a positive effect on long-term patient outcomes, decreasing the odds of graft loss and mortality over 10 years (Prihodova et al., 2015).

A further study by Prihodova et al. (2010) focused on the role of personality and actual psychological distress in predicting HRQoL after KT. Socio-demographic parameters (gender, age, education, and average income), medical parameters (glomerular filtration, serum albumin, number of co-morbid diseases) and psychological parameter data (neuroticism, extroversion, and psychological distress) were collected from 177 kidney transplant recipients, and physical and mental HRQoL were measured using the SF-36.

Higher physical HRQoL was linked with younger age, higher education, and higher income, a low number of co-morbid diseases as well as lower neuroticism and distress levels. Higher mental HRQoL was associated with higher education and higher income alike; longer time from KT, higher extroversion and lower neuroticism and distress. Actual distress was the best predictor in both physical and mental HRQoL. Results of this study validate the importance of psychological distress in patients and its effect on their HRQoL after KT. It therefore can be useful in intervention programs focused on increasing HRQoL(Prihodova et al., 2010).

A Middle Eastern study by Al-katheri *et al.* (2015) which explores and compares QoL in renal and liver transplant patients was conducted between January 2013 and January 2014 in Saudi Arabia. A total of 151 renal transplant recipients and 154 liver transplant recipients agreed to participate in the study. The WHOQoL instrument (WHOQoL-BREF) was used to evaluate QoL.

The results show that renal and liver transplant recipients who were males, or single or married or had higher education or who were employed had higher QoL domain scores. It is worthy to note that less than 20% of patients were classified in the poor QoL category for each domain. The findings of this study indicated that both renal and liver transplant recipients had very high QoL domain scores in comparison with international data. Moreover, they were extremely satisfied with their QoL facets as indicated by the WHO-QoL-BREF. Lower QoL results was notably linked with social disadvantage, which indicates that such patients may need more focused attention and counseling following transplantation(Alkatheri et al., 2015).

## Chapter 3: Method

### 1.3 Questionnaire and Translation

The data collection tool used consisted of two parts:

- Appendix 1: socio-demographic characteristics included age, gender, marital status, employment status, educational level, financial income and clinical variables include cause of ESRD disease, duration of previous replacement therapy (dialysis), type of donor and the time period since transplantation, and smoking status.
- Appendix 2: Kidney Transplant Questionnaire (KTQ) for measuring the quality of life for kidney transplant patients.

Advantage of Kidney Transplant Questionnaire KTQ: we use this questionnaire because of its advantage upon others, this disease-specific measures improve the sensitivity of QoL measurement, may help detect differences between alternative interventions for kidney transplant recipients, it was developed as an interview, which may preclude its use in several applications( Jacobs R. et al.,1998 ), and provides more information than the SF-36 (Rebollo, P., et al.,2003) .

A mean score ranging from 1 to 7 is reported for each of the five domains of KTQ. A mean score ranging from 1 to 3.5 is reported to be low(a lot of discomfort) while above 3.5 is moderate(a moderate degree of discomfort) while more than 5 is high QoL(a little degree or no of discomfort). To calculate the score of each dimension the sum of all the items in the dimension is determined and then divided by the number of items in that dimension, with higher scores representing better functioning.

The author of the KTQ were contacted to obtain the English version of KTQ ,which was translated into Arabic by experts after a permission of the author, after that the translated Arabic questionnaire was back translated to English by other experts to be compared with original copy to make sure that the questions have the same meaning.

Modifications to the Arabic versions were made by 3 clinical pharmacy research experts and two pharmacy graduate students, finally the last Arabic version of the questionnaire was reviewed by a doctor and nurses of dialysis unit in Biet Jala governmental Hospital in the city of Bethlehem.

### **2.3 Study population & Sample Size**

According to the MOH recordings the average number of kidney transplant patients in primary healthcare clinics of Bethlehem was 70 and North Hebron (Halhoul) was 46 kidney transplant patients.

Sample size according to the inclusion criteria was 109 patients in both central clinics. Therefore the sample size includes most of the patient population in those two regions it was a convenient sample.

In this study our goal was to choose Bethlehem and Hebron, unfortunately there was a lack of recording for these patients in middle and south Hebron, patients in these two areas were distributed into many clinics which were very difficult to reach on the opposite of Bethlehem and North Hebron which were central clinics and easy to reach.

### **3.3 Study design**

This study was designed as descriptive, non experimental, cross sectional health status study of Quality of life for kidney transplant patients

### **4.3 Study setting**

This study was conducted particularly at the Ministry of Health primary healthcare clinics of Bethlehem and north Hebron in Palestine.

### **5.3 Inclusion criteria**

The inclusion criteria for the recipients were as follows:

- 1) Kidney transplant patients aged more than 20 and less than 71 years of age.
- 2) Patients get follow up in primary healthcare clinics of Bethlehem and northern of Hebron in Palestine.
- 3) Patients have a functioning kidney (free from dialysis).
- 4) More than 3 months post-transplant(after the acute phase of transplant).

### **6.3 Period of the study**

The data was collected between December 2016 and April 2017.

### **7.3 Data collection**

The interviews were conducted for patients who met the study inclusion criteria at a private room in the clinics while the patients came in to receive their monthly medication from the pharmacy of primary healthcare clinics of Bethlehem and north Hebron, first introduced myself and stated the purpose of the study. Some interviews were conducted at home after calling the patients by phone and asking their permission because many of the patients depended on their relatives to get medication every month from the clinics. We used face to face method to collect the data. The questionnaire took about 15 to 20 minutes to complete, the short time required makes the questionnaire suitable for everyday clinical use.

### **7.4 Data Analysis**

Data was analyzed by using SPSS statistical analysis program version 19. Results were reported as mean  $\pm$  standard deviation, minimum value, maximum value, frequencies and percentages, of all socio-demographic characteristics. The association between socio-demographic factors and QOL domains was examined using one-way analysis of variance

ANOVA and t-Test for Independent variables. A *P*-value of 0.05 or less was considered to indicate statistical significance.

Confidence intervals were calculated at the 95% level of confidence.

To determine the QoL from KTQ results for each dimension the sum of all the items in the dimension is determined and then divided by the number of items in that dimension.

This questionnaire has been demonstrated to have good validity and reliability in many previous studies (Rebollo, P., et al.,2003, Tayyebi A. *et al.* 2012, Chisholm-Burns, M.A., et al.,2011)

#### **8.4 Ethical Considerations**

Ethical approval for the study was obtained from the Research Ethics Committee in Al-Quds University and the Ministry of Health (appendix 3).

Permission for translation of the questionnaire was asked from Laupacis (the author of KTQ questionnaire). All patients were first asked if they are willing to participate in this interview and interview was done after they gave verbal consent, names of the patients were deleted after completing the interview.

## Chapter 4 : Results

### 1.4 Description of the KTQ-25 data of the participants

The overall mean quality of life score for kidney transplant patients was  $4.02 \pm 0.84$ , which indicates that the patients in our sample population have a moderate degree of discomfort after undergoing the renal transplantation. The highest score of the KTQ was found in the appearance dimension ( $5.40 \pm 1.23$ ) which suggests that patients suffered from some discomfort, while the lowest score in this study was related to the uncertainty/fear dimension ( $3.36 \pm 1.23$ ) which implies that patients suffered a lot of discomfort after undergoing the renal transplantation. Physical Symptoms dimension ( $3.55 \pm 0.94$ ), this means that patients have a moderate degree of discomfort, the same moderate degree was found in the fatigue ( $4.06 \pm 1.30$ ) and emotional ( $3.78 \pm 1.32$ ) dimensions (**Table 2**).

**Table 2:** *The average quality of life scores based on KT questionnaire 5 dimensions (One-Sample Description Statistics) whereby N=109.*

| Dimension           | N   | Minimum | Maximum | Mean QoL | Std. Deviation | Std. Error Mean |
|---------------------|-----|---------|---------|----------|----------------|-----------------|
| Physical Symptoms   | 109 | 1       | 6       | 3.55     | 0.943          | 0.090           |
| Fatigue             | 108 | 1       | 7       | 4.06     | 1.297          | 0.125           |
| Uncertainty /Fear   | 109 | 1       | 6       | 3.36     | 1.225          | 0.117           |
| Appearance          | 109 | 2       | 7       | 5.40     | 1.234          | 0.118           |
| Emotional           | 108 | 1       | 7       | 3.78     | 1.320          | 0.127           |
| Valid N (list wise) | 108 |         |         |          |                |                 |

QoL: Quality Of Life , std: standard, N:number

## SPSS Statistics Output for Cronbach's Alpha

### 2.4 Reliability Statistics

The coefficient alpha (or Cronbach's alpha) was used to assess the internal consistency of the KTQ. The alpha value was 0.74 which indicates that the KTQ is a reliable test.

*Table 3: The Reliability Statistics table that provides the actual value for Cronbach's alpha.*

| Reliability Statistics |  |            |
|------------------------|--|------------|
| Cronbach's Alpha       | Cronbach's Alpha Based on Standardized Items | N of Items |
| 0.732                  | 0.741  | 5          |

N :number

**Table 4** below describes the value that Cronbach's alpha would be if that particular item was deleted from the scale. We can see that removal of any dimension, except Appearance, would result in a lower Cronbach's alpha. Therefore, removal of the Appearance dimension would lead to a small improvement in Cronbach's alpha, the "Corrected Item-Total Correlation" value was low(0.220) for this item.

*Table 4: The average quality of life scores based on KT questionnaire 5 dimensions Item-Total Statistics*

| Dimension         | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|-------------------|----------------------------|--------------------------------|----------------------------------|------------------------------|----------------------------------|
| Physical Symptoms | 16.60                      | 12.730                         | 0.615                            | 0.479                        | 0.655                            |
| Fatigue           | 16.08                      | 10.846                         | 0.613                            | 0.515                        | 0.635                            |
| Uncertainty Fear  | 16.78                      | 11.480                         | 0.571                            | 0.370                        | 0.654                            |
| Appearance        | 14.74                      | 14.173                         | 0.220                            | 0.091                        | 0.785                            |
| Emotional         | 16.35                      | 11.411                         | 0.516                            | 0.348                        | 0.677                            |

### 3.4 One Sample t-Test

As shown in **table 5**, the one-sample t-test is used to determine whether a sample comes from a population with a specific mean. This population mean is not always known, but sometimes it is hypothesized.

According to the value  $p < 0.05$  for the Physical Symptoms dimension is ( $P = 0.000$ ), the Physical Symptoms dimension has significant statistical effects on QoL, and consequently negatively affects the patients.

The t value = -5.029,  $p > 0.05$  for Fatigue dimension ( $P = 0.636$ ), so it has no statistical significant impact on QoL.

While for Uncertainty/Fear dimension  $P < 0.05$  ( $p = 0.000$ ); statistically there is a significant impact on QoL and it negatively affects the patients where t value = -5.491.

The  $p < 0.05$  in the Appearance dimension ( $p = 0.000$ ), so it can be concluded that the Appearance dimension has statistical significant impact on QoL and positively affects the patients where t value = 11.859.

Finally, the Emotional dimension value of  $p > 0.05$  ( $p = 0.092$ ) suggesting that the emotional dimension has no significant statistical effect on QoL.

**Table 5:** Statistical results of the one-sample t-Test whereby the test value =4.

| Dimension         | T      | df  | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference |       |
|-------------------|--------|-----|-----------------|-----------------|---|-------|
|                   |        |     |                 |                 | Lower                                     | Upper |
| Physical Symptoms | -5.029 | 108 | 0.000           | -0.454          | -0.63                                     | -0.28 |
| Fatigue           | 0.475  | 107 | 0.636           | 0.059           | -0.19                                     | 0.31  |
| Uncertainty Fear  | -5.491 | 108 | 0.000           | -0.644          | -0.88                                     | -0.41 |
| Appearance        | 11.859 | 108 | 0.000           | 1.401           | 1.17                                      | 1.64  |
| Emotional         | -1.701 | 107 | 0.092           | -0.216          | -0.47                                     | 0.04  |

#### 4.4 Description of the socio-demographic data of the participants:

The study participants were 109 kidney transplant patients; 64 patients from Bethlehem representing 58.7% of the sample and 45 patients from North Hebron representing 41.3% of the sample (**Table 6**).

*Table 6: Description of regions*

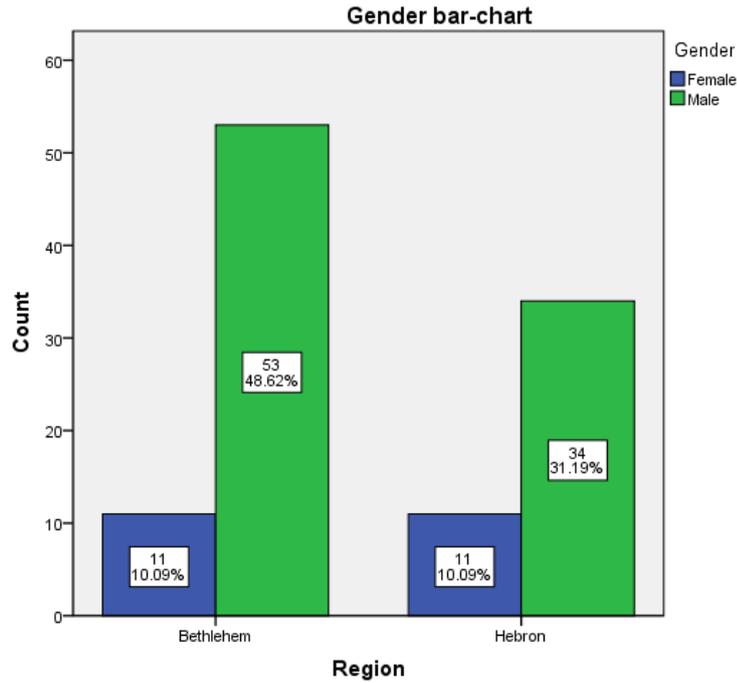
| Region              | Frequency | Percent | Valid Percent | Cumulative Percent(%) |
|---------------------|-----------|---------|---------------|-----------------------|
| <b>Bethlehem</b>    | 64        | 58.7    | 58.7          | 58.7                  |
| <b>North Hebron</b> | 45        | 41.3    | 41.3          | 100.0                 |
| <b>Total</b>        | 109       | 100.0   | 100.0         |                       |

Most of the kidney transplant recipients were male with a percentage of 79.8% whereas females comprised 20.2% (**Table 7**).

*Table 7: percent of kidney transplant recipients by gender.*

| Gender        | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------------|-----------|---------|---------------|--------------------|
| <b>Female</b> | 22        | 20.2    | 20.2          | 20.2               |
| <b>Male</b>   | 87        | 79.8    | 79.8          | 100.0              |
| <b>Total</b>  | 109       | 100.0   | 100.0         |                    |

**Figure 1** below shows the demographic distribution of male and female participants for both Bethlehem and North Hebron. The proportion of women in Bethlehem was 10.09% and that of men was 48.62%, while in North Hebron the proportion of women was 10.09% and 31.19% men.



**Figure 1: Visual representation of the distribution of participants by gender by district.**

In **table 8** below patients were between 20-71 years of age, and their mean age was  $41 \pm 24$  years. 7.3% of the patients are less than 25 years old, 37.6% of whom are classified under the second class (26-40) years while most of them are classified under the third class (41 - 65) years with 50.5%, only 4.6% of patients are above 65 years old.

*Table 8: percent distribution of participants by age.*

| Age Range    | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------|-----------|---------|---------------|--------------------|
| < 25         | 8         | 7.3     | 7.3           | 7.3                |
| 26 - 40      | 41        | 37.6    | 37.6          | 45.0               |
| 41 - 65      | 55        | 50.5    | 50.5          | 95.4               |
| $\geq 65$    | 5         | 4.6     | 4.6           | 100.0              |
| <b>Total</b> | 109       | 100.0   | 100.0         |                    |

Most of the patients were married with a proportion of 81.7%, while 0.9% were widowed and the rest 17.4% were unmarried(**Table 9**).

*Table 9: Description of Marital Status*

|                  | <b>Frequency</b> | <b>Percent</b> | <b>Valid Percent</b> | <b>Cumulative Percent</b> |
|------------------|------------------|----------------|----------------------|---------------------------|
| <b>Married</b>   | 89               | 81.7           | 81.7                 | 81.7                      |
| <b>Unmarried</b> | 19               | 17.4           | 17.4                 | 99.1                      |
| <b>Widowed</b>   | 1                | .9             | .9                   | 100.0                     |
| <b>Total</b>     | 109              | 100.0          | 100.0                |                           |

**Table 10** shows the results in relation to the educational level. Most of the patients completed college degree with (32.1%),29.4% completed high school,12.8% obtained a diploma and only11.9% of patients finished primary school, the same percent was with middle school and only 2 patients(1.8%)had no formal education.

*Table 10: Description of Educational level*

|   | <b>Frequency</b> | <b>Percent</b> | <b>Valid Percent</b> | <b>Cumulative Percent</b> |
|---|------------------|----------------|----------------------|---------------------------|
| <b>I did not learn any formal education</b> | 2                | 1.8            | 1.8                  | 1.8                       |
| <b>Primary school</b>                       | 13               | 11.9           | 11.9                 | 13.8                      |
| <b>Middle school</b>                        | 13               | 11.9           | 11.9                 | 25.7                      |
| <b>High school</b>                          | 32               | 29.4           | 29.4                 | 55.0                      |
| <b>Diploma</b>                              | 14               | 12.8           | 12.8                 | 67.9                      |
| <b>College degree</b>                       | 35               | 32.1           | 32.1                 | 100.0                     |
| <b>Total</b>                                | 109              | 100.0          | 100.0                |                           |

Regarding the job status of the patients as shown in **Table 11** below, the majority of subjects don't work reaching 45.9%of the sample, 28.4% were private employees,9.2 %work in the private sector,11.9% were government employees, and 4.6 % of patients were retired.

*Table 11: Description of Job Status*

|                            | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|-----------|---------|---------------|--------------------|
| <b>Private sector</b>      | 10        | 9.2     | 9.2           | 9.2                |
| <b>Government employee</b> | 13        | 11.9    | 11.9          | 21.1               |
| <b>Retired</b>             | 5         | 4.6     | 4.6           | 25.7               |
| <b>Private Employer</b>    | 31        | 28.4    | 28.4          | 54.1               |
| <b>Do not work</b>         | 50        | 45.9    | 45.9          | 100.0              |
| <b>Total</b>               | 109       | 100.0   | 100.0         |                    |

while in **table12** income level for 53.2% of patients was less than 1500NIS while 32.1% of patients are classified under the second class (1500 – 3000NIS), and only14.7% of patients had an income of more than 3000NIS per month.

*Table 12: Description of Income Level*

|                             | Frequency | Percent | Valid Percent | Cumulative Percent |
|-----------------------------|-----------|---------|---------------|--------------------|
| <b>Less than 1500 NIS</b>   | 58        | 53.2    | 53.2          | 53.2               |
| <b>From 1500 - 3000 NIS</b> | 35        | 32.1    | 32.1          | 85.3               |
| <b>More than 3000 NIS</b>   | 16        | 14.7    | 14.7          | 100.0              |
| <b>Total</b>                | 109       | 100.0   | 100.0         |                    |

#### **Description of the clinical data of the participants:**

When the patients were asked if they smoked or not, the vast majority of patients (85.3%)said they were non-smokers while about 14.7% were smokers(**Table 13**).

*Table 13: Description of the question: Are you smoker?*

|              | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------|-----------|---------|---------------|--------------------|
| <b>No</b>    | 93        | 85.3    | 85.3          | 85.3               |
| <b>Yes</b>   | 16        | 14.7    | 14.7          | 100.0              |
| <b>Total</b> | 109       | 100.0   | 100.0         |                    |

Patients were also asked about disease conditions before their kidney transplant that may have contributed to ESRD and the result was that 18.3%of patient’s ESRD was due to

hypertension, 10.1% was due to diabetic nephropathy, 15.6% due to Glomerulonephritis while the same percent 15.6% of the patient’s ESRD was due to cystic kidney disease. Surprisingly, 47.7% of patients in our sample attributed ESRD to other reasons (**Table 14**).

**Table 14: Cause of ESRD Description**

| <b>Cause of ESRD (Hypertension)</b>           |                  |                |                      |                           |
|---|------------------|----------------|----------------------|---------------------------|
|   | <b>Frequency</b> | <b>Percent</b> | <b>Valid Percent</b> | <b>Cumulative Percent</b> |
| <b>No</b>                                     | 89               | 81.7           | 81.7                 | 81.7                      |
| <b>Yes</b>                                    | 20               | 18.3           | 18.3                 | 100.0                     |
| <b>Total</b>                                  | 109              | 100.0          | 100.0                |                           |
| <b>Causes of ESRD (Diabetic nephropathy)</b>  |                  |                |                      |                           |
| <b>No</b>                                     | 98               | 89.9           | 89.9                 | 89.9                      |
| <b>Yes</b>                                    | 11               | 10.1           | 10.1                 | 100.0                     |
| <b>Total</b>                                  | 109              | 100.0          | 100.0                |                           |
| <b>Causes of ESRD (Glomerulonephritis)</b>    |                  |                |                      |                           |
| <b>No</b>                                     | 92               | 84.4           | 84.4                 | 84.4                      |
| <b>Yes</b>                                    | 17               | 15.6           | 15.6                 | 100.0                     |
| <b>Total</b>                                  | 109              | 100.0          | 100.0                |                           |
| <b>Causes of ESRD (Cystic kidney disease)</b> |                  |                |                      |                           |
| <b>No</b>                                     | 92               | 84.4           | 84.4                 | 84.4                      |
| <b>Yes</b>                                    | 17               | 15.6           | 15.6                 | 100.0                     |
| <b>Total</b>                                  | 109              | 100.0          | 100.0                |                           |
| <b>Causes of ESRD (Other reasons)</b>         |                  |                |                      |                           |
| <b>No</b>                                     | 56               | 51.4           | 51.4                 | 51.4                      |
| <b>Yes</b>                                    | 52               | 47.7           | 47.7                 | 99.1                      |
| <b>Total</b>                                  | 1                | 0.9            | 0.9                  | 100.0                     |

ESRD: End-Stage Renal Disease

The majority (66.1%) of Kidney Donor’s type were biologically blood related (father, mother, brother)while 21.1% were non-biological (spouse, life partner, friend, other),and 10.1 % of the donors were Sibling (other relatives), but the number of cadaveric transplant patients which was one patient was too small to draw a valid conclusion about cadaveric recipients(**Table 15**).

*Table 15: Description of Type of donor*

|  | Frequency | Percent | Valid Percent | Cumulative Percent |
|--|-----------|---------|---------------|--------------------|
| <b>Cadaveric</b>   | 1         | 0.9     | 0.9           | 0.9                |
| <b>Living</b>  | 2         | 1.8     | 1.8           | 2.8                |
| <b>Biological, blood related (father, mother, brother)</b> | 72        | 66.1    | 66.1          | 68.8               |
| <b>Sibling, other relative</b>                             | 11        | 10.1    | 10.1          | 78.9               |
| <b>Non-biological (spouse, life partner, friend)</b>       | 23        | 21.1    | 21.1          | 100.0              |
| <b>Total</b>   | 109       | 100.0   | 100.0         |                    |

As for immunosuppressive medications in our sample, the majority of kidney transplant patients 83.3. % used (prednisone), 45.4% used (Cyclosporine A/Neoral), 70.4% used mycophenolate mofetil (MMF). While 53.7% of the patients used Tacrolimus(Prograf) and only 1.9% of the patients were used Sirolimus (rapamune) (**Table 16**).

*Table 16: Description of Anti-Rejection Medications to prevent Renal Failure*

| <b>Current Anti-Rejection Medications (Prednisone)</b>                       |           |         |               |                    |
|--|-----------|---------|---------------|--------------------|
|  | Frequency | Percent | Valid Percent | Cumulative Percent |
| <b>No</b>  | 18        | 16.5    | 16.7          | 16.7               |
| <b>Yes</b>   | 90        | 82.6    | 83.3          | 100.0              |
| <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| <b>Current Anti-Rejection Medications (Cyclosporine A/Neoral)</b>            |           |         |               |                    |
| <b>No</b>  | 59        | 54.1    | 54.6          | 54.6               |
| <b>Yes</b>   | 49        | 45.0    | 45.4          | 100.0              |
| <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| <b>Current Anti-Rejection Medications (Mycophenolate Mofetil (Cellcept))</b> |           |         |               |                    |
| <b>No</b>  | 32        | 29.4    | 29.6          | 29.6               |
| <b>Yes</b>   | 76        | 69.7    | 70.4          | 100.0              |
| <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| <b>Current Anti-Rejection Medications (Tacrolimus(Prograf))</b>              |           |         |               |                    |
| <b>No</b>  | 50        | 45.9    | 46.3          | 46.3               |
| <b>Yes</b>   | 58        | 53.2    | 53.7          | 100.0              |
| <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| <b>Current Anti-Rejection Medications (Sirolimus (rapamune))</b>             |           |         |               |                    |
| <b>No</b>  | 106       | 97.2    | 98.1          | 98.1               |
| <b>Yes</b>   | 2         | 1.8     | 1.9           | 100.0              |
| <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| Missing  | System    | 1       | 0.9           |                    |
| <b>Total</b>   |           | 109     | 100.0         |                    |

As shown in **table 17** below, about 21.3% of the patients didn't have dialysis procedure before renal transplantation, while 52.8% of the patients did have less than one-year dialysis procedure, 13.9% of the patients did have from 1 - 2 years of dialysis and only 12.0% of the patients did have more than 2 years dialysis.

*Table 17: Description of the Duration of Dialysis Before Renal Transplantation*

|              |   | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------|---|-----------|---------|---------------|--------------------|
| Valid        | Didn't have dialysis procedure            | 23        | 21.1    | 21.3          | 21.3               |
|              | Duration of dialysis less than one year   | 57        | 52.3    | 52.8          | 74.1               |
|              | Duration of dialysis is from 1 - 2 Years  | 15        | 13.8    | 13.9          | 88.0               |
|              | Duration of dialysis is more than 2 Years | 13        | 11.9    | 12.0          | 100.0              |
|              | <b>Total</b>                              | 108       | 99.1    | 100.0         |                    |
| Missing      | System                                    | 1         | .9      |               |                    |
| <b>Total</b> |   | 109       | 100.0   |               |                    |

The majority of the patients 88.9% made only one renal transplant while only 11.1% did more than one renal transplant (**Table 18**); while according to the time passed from transplantation only 3.7% of the patients performed the renal transplant within less than 1 year, while 24.1% performed the renal transplant before 1 to 5 years, most of the patients 38.9% performed the renal transplant before 6 to 10 years ago, 21.3% of the patients performed the renal transplant before 11 to 15 years and 12% of the patients performed the renal transplant before more than 15 years.

**Table 18:** Description of the question: Have you undergone more than one renal transplant? and the date of your last renal transplant?

|  |                | Frequency | Percent | Valid Percent | Cumulative Percent |
|--|----------------|-----------|---------|---------------|--------------------|
| <b>Valid</b>   | <b>No</b>      | 96        | 88.1    | 88.9          | 88.9               |
|  | <b>Yes</b>     | 12        | 11.0    | 11.1          | 100.0              |
|  | <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| <b>Missing</b>   | <b>System</b>  | 1         | .9      |               |                    |
| <b>Total</b>   |                | 109       | 100.0   |               |                    |
| <b>What is the date of your last renal transplant?</b> |                |           |         |               |                    |
|  |                | Frequency | Percent | Valid Percent | Cumulative Percent |
| <b>Valid</b>   | <b>&lt; 1</b>  | 4         | 3.7     | 3.7           | 3.7                |
|  | <b>1 - 5</b>   | 26        | 23.9    | 24.1          | 27.8               |
|  | <b>6 - 10</b>  | 42        | 38.5    | 38.9          | 66.7               |
|  | <b>11 - 15</b> | 23        | 21.1    | 21.3          | 88.0               |
|  | <b>≥15</b>     | 13        | 11.9    | 12.0          | 100.0              |
|  | <b>Total</b>   | 108       | 99.1    | 100.0         |                    |
| <b>Missin g</b>  | <b>System</b>  | 1         | 0.9     |               |                    |
| <b>Total</b>   |                | 109       | 100.0   |               |                    |

The most common physical problems that faces the patients after renal transplantation was aching and tired legs (68.8%) followed by very little strength (61.5%), aching bones (60.6%), muscle pain (52.3), while only 7.3% experienced decreased sexual ability followed by regulating bowel movements (10.1%), difficulty focusing attention(11%), loss of appetite(16.5%) and vomiting (17.4%), and other physical problems as shown in **Table 19.**

Table 19: Description of all Physical Problems of Symptoms Characteristics

| Problems of Symptoms                            |       | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|-------|-----------|---------|---------------|--------------------|
| <b>Loss of weight and muscle</b>                | No    | 82        | 75.2    | 75.2          | 75.2               |
|   | Yes   | 27        | 24.8    | 24.8          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Decreased mental ability</b>                 | No    | 89        | 81.7    | 81.7          | 81.7               |
|   | Yes   | 20        | 18.3    | 18.3          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Itchy / dry skin</b>                         | No    | 76        | 69.7    | 69.7          | 69.7               |
|   | Yes   | 33        | 30.3    | 30.3          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Infections</b>                               | No    | 63        | 57.8    | 57.8          | 57.8               |
|   | Yes   | 46        | 42.2    | 42.2          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Hypotension</b>                              | No    | 88        | 80.7    | 80.7          | 80.7               |
|   | Yes   | 21        | 19.3    | 19.3          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Embarrassed by appearance or access site</b> | No    | 86        | 78.9    | 78.9          | 78.9               |
|   | Yes   | 23        | 21.1    | 21.1          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Aching, tired legs</b>                       | No    | 34        | 31.2    | 31.2          | 31.2               |
|   | Yes   | 75        | 68.8    | 68.8          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Coughing during day or night</b>             | No    | 73        | 67.0    | 67.0          | 67.0               |
|   | Yes   | 36        | 33.0    | 33.0          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Very little strength</b>                     | No    | 42        | 38.5    | 38.5          | 38.5               |
|   | Yes   | 67        | 61.5    | 61.5          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Side-effects from medications</b>            | No    | 67        | 61.5    | 61.5          | 61.5               |
|   | Yes   | 42        | 38.5    | 38.5          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |
| <b>Forgetfulness</b>                            | No    | 60        | 55.0    | 55.0          | 55.0               |
|   | Yes   | 49        | 45.0    | 45.0          | 100.0              |
|   | Total | 109       | 100.0   | 100.0         |                    |

|   |       |     |       |       |       |
|---|-------|-----|-------|-------|-------|
|   | No    | 61  | 56.0  | 56.0  | 56.0  |
| <b>Confusion</b>                                    | Yes   | 48  | 44.0  | 44.0  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 43  | 39.4  | 39.4  | 39.4  |
| <b>Aching bones</b>                                 | Yes   | 66  | 60.6  | 60.6  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 73  | 67.0  | 67.0  | 67.0  |
| <b>Trouble getting to sleep</b>                     | Yes   | 36  | 33.0  | 33.0  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 98  | 89.9  | 89.9  | 89.9  |
| <b>Regulating bowel movements</b>                   | Yes   | 11  | 10.1  | 10.1  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 75  | 68.8  | 68.8  | 68.8  |
| <b>Constipated or having diarrhea</b>               | Yes   | 34  | 31.2  | 31.2  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 90  | 82.6  | 82.6  | 82.6  |
| <b>Vomiting</b>                                     | Yes   | 19  | 17.4  | 17.4  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 65  | 59.6  | 59.6  | 59.6  |
| <b>Headaches</b>                                    | Yes   | 44  | 40.4  | 40.4  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 66  | 60.6  | 60.6  | 60.6  |
| <b>Nausea or upset stomach</b>                      | Yes   | 43  | 39.4  | 39.4  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 68  | 62.4  | 62.4  | 62.4  |
| <b>Shivering</b>                                    | Yes   | 41  | 37.6  | 37.6  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 63  | 57.8  | 57.8  | 57.8  |
| <b>Waking up during the night</b>                   | Yes   | 46  | 42.2  | 42.2  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 91  | 83.5  | 83.5  | 83.5  |
| <b>Loss of appetite</b>                             | Yes   | 18  | 16.5  | 16.5  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   | No    | 66  | 60.6  | 60.6  | 60.6  |
| <b>Lightheaded or dizzy during daily activities</b> | Yes   | 43  | 39.4  | 39.4  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |

|   |       |     |       |       |       |
|---|-------|-----|-------|-------|-------|
|   | No    | 61  | 56.0  | 56.0  | 56.0  |
| <b>Short of breath in daily activities</b>                    | Yes   | 48  | 44.0  | 44.0  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 101 | 92.7  | 92.7  | 92.7  |
| <b>Decreased sexual ability</b>                               | Yes   | 8   | 7.3   | 7.3   | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 97  | 89.0  | 89.0  | 89.0  |
| <b>Difficulty focusing attention</b>                          | Yes   | 12  | 11.0  | 11.0  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 85  | 78.0  | 78.0  | 78.0  |
| <b>Difficulty concentrating</b>                               | Yes   | 24  | 22.0  | 22.0  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 77  | 70.6  | 70.6  | 70.6  |
| <b>Need to rest frequently because of shortness of breath</b> | Yes   | 32  | 29.4  | 29.4  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 57  | 52.3  | 52.3  | 52.3  |
| <b>Increase in appetite</b>                                   | Yes   | 52  | 47.7  | 47.7  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 69  | 63.3  | 63.3  | 63.3  |
| <b>Excessive weight gain</b>                                  | Yes   | 40  | 36.7  | 36.7  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 85  | 78.0  | 78.0  | 78.0  |
| <b>Acne</b>   | Yes   | 24  | 22.0  | 22.0  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 79  | 72.5  | 72.5  | 72.5  |
| <b>Trouble getting a good night's sleep</b>                   | Yes   | 30  | 27.5  | 27.5  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |
|   | No    | 52  | 47.7  | 47.7  | 47.7  |
| <b>Muscle pain</b>  | Yes   | 57  | 52.3  | 52.3  | 100.0 |
|   | Total | 109 | 100.0 | 100.0 |       |
|   |       |     |       |       |       |

The relationship between demographic variables and the quality of life using Independent Sample t-Test and One-way ANOVA Test.

In the study of the relationship between demographic variables and QoL scores, no significant differences are observed if the P values  $> 0.05$  in ANOVA Test and  $> 0.01$  in the independent sample t-Test as shown in table20.

**Residency:** t-test was performed to evaluate the effect of residency on QoL, there was no significant relationship between residency and QoL ( $3.27 \pm 0.782$ ) in Bethlehem compared to QoL ( $3.48 \pm 0.553$ ) in North Hebron,  $t(106) = -1.493, p = 0.138$ .

**Gender:** there was no significant effect between age and QoL score ( $3.3552 \pm 0.679$ ) for females compared to QoL score ( $3.36 \pm .712$ ) for males,  $t(106) = T = 0.008, p = 0.994$ .

**Age:** according to one-way ANOVA test, there was no significant relationship between age and QoL ( $F(3,104) = 0.551, p = 0.648$ ).

**Marital Status:** one-way ANOVA test was performed to examine the relationship between marital status and QoL ( $F(2,105) = 3.505, p = 0.034$ ). There was a significant effect of marital status on QoL, single patients had higher QoL than married ones.

**Education level:** as a result of one-way ANOVA there was no significant relationship between education level and QoL ( $F(5,102) = 0.207, p = 0.959$ ).

**Job status:** there was no statistical significant differences between job status and QoL which was determined by one-way ANOVA ( $F(4,103) = 1.034, p = 0.393$ ).

**Income Level:** this was determined by one-way ANOVA ( $F(2,105) = 1.99, p = 0.141$ ), there was no significant differences between income level groups and QoL.

**Table 20: The relationship between demographic variables and QoL by using Independent Sample t-Test and One-way ANOVA Test**

| Demographic Variable |                                      | QoL Scores    | Statistical test  |          | Significant level |
|----------------------|--------------------------------------|---------------|---|----------|-------------------|
| Region               | Bethlehem (64)                       | 3.27±.782     | T= -1.493   | P = .138 | P < 0.01          |
|                      | Hebron (44)                          | 3.48 ± .553   | T = - 1.590   | P = .115 |                   |
| Gender               | Female (21)                          | 3.36 ± .679   | T= .008   | P = .994 | P < 0.01          |
|                      | Male (87)                            | 3.36 ± .712   | T = .008  | P = .994 |                   |
| Age                  | < 25                                 | 3.5861 ± .538 | Single-factor analysis of variance / f = .551 and P = 0.648 |          | P < 0.05          |
|                      | 26 - 40                              | 3.3232 ± .617 |   |          |                   |
|                      | 41 - 65                              | 3.3243 ± .617 |   |          |                   |
|                      | ≥ 65                                 | 3.6028 ± .649 |   |          |                   |
| Marital Status       | Married (89)                         | 3.31±.705     | Single-factor analysis of variance / f = 3.505 and P = .034 |          | P < 0.05          |
|                      | Unmarried (18)                       | 3.47±.581     |   |          |                   |
|                      | Widowed (1)                          | 5.06±.000     |   |          |                   |
| Education            | I did not learn any formal education | 3.5931 ± .893 | Single-factor analysis of variance / f = .207 and P = 0.959 |          | P < 0.05          |
|                      | Primary school                       | 3.1991 ± .745 |   |          |                   |
|                      | Middle school                        | 3.3241 ± .658 |   |          |                   |
|                      | High school                          | 3.3615 ± .577 |   |          |                   |
|                      | Diploma                              | 3.3671 ± .698 |   |          |                   |
|                      | College degree                       | 3.4051 ± .834 |   |          |                   |
| Job Status           | Private sector employee              | 3.24 ± .855   | Single-factor analysis of variance / f = 1.034 and P = .393 |          | P < 0.05          |
|                      | Government employee                  | 3.57±.715     |   |          |                   |
|                      | Retired                              | 3.57±.901     |   |          |                   |
|                      | Private Employer                     | 3.47 ± .684   |   |          |                   |

|                     |                             |                  |  |          |
|---------------------|-----------------------------|------------------|--|----------|
|                     | <b>Do not work</b>          | 3.24 ±<br>.659   |  |          |
| <b>Income Level</b> | <b>Less than 1500 NIS</b>   | 3.2327 ±<br>.686 | Single-factor analysis of variance / f = 1.99 and P = 0.14 | P < 0.05 |
|                     | <b>From 1500 - 3000 NIS</b> | 3.4860 ±<br>.653 |  |          |
|                     | <b>More than 3000 NIS</b>   | 3.5281 ±<br>.815 |  |          |

## QoL: Quality Of Life

**The relationship between clinical variables and quality of life by using Independent Sample t-Test and One-way ANOVA Test.**

In the study of the relationship between some clinical variables and QoL scores no significant difference observed if the P values > 0.05 in ANOVA Test and > 0.01 in the independent sample t-Test as shown in **table 21**.

**Smoking:** this study found that whether the patient is a smoker or not there was no significant difference on QoL ( $3.58 \pm 0.787$ )smokers compared to ( $3.32 \pm 0.684$ ) non-smokers,  $t(106) = 1.376$ ,  $p = 0.172$ .

**Donor type:** one-way ANOVA( $F(4,103) = 0.532$ ,  $p = 0.713$ )reported that there was no relationship between donor type and QoL .

**Time after transplant:** there was no significant statistical difference between time after transplant (years) and QoL which was determined by one-way ANOVA ( $F(4,102) = 0.755$ ,  $p = 0.557$ ).

**Table 21:** The relationship between clinical variables and QoL by using Independent Sample t-Test.

| Clinical variables          |   | QoL Scores    | Statistical test  |          | Significant level |
|-----------------------------|---|---------------|---|----------|-------------------|
| Are you smoker?             | Yes (16)  | 3.58±.787     | T= 1.376  | P = .172 | P < 0.01          |
|                             | No (92)   | 3.32±.684     | T = -1.246  | P = .228 |                   |
| Donor type                  | Cadaveric   | 3.47 ±.000    | Single-factor analysis of variance / f = .532 and P = 0.713 | P < 0.05 |                   |
|                             | Living  | 4.04 ± .075   |   |          |                   |
|                             | Biological, blood related (father, mother, brother) | 3.33 ± .685   |   |          |                   |
|                             | Sibling, other relative                             | 3.42 ± .651   |   |          |                   |
|                             | Non-biological (spouse, life partner, friend)       | 3.35 ± .816   |   |          |                   |
| Time after transplant(year) | < 1   | 3.4569 ± .719 | Single-factor analysis of variance / f = .755 and P = 0.557 | P < 0.05 |                   |
|                             | 1 – 5   | 3.1775 ± .670 |   |          |                   |
|                             | 6 – 10  | 3.4169 ± .662 |   |          |                   |
|                             | 11 – 15   | 3.4710 ± .750 |   |          |                   |
|                             | ≥15   | 3.4476 ± .603 |   |          |                   |

In the study of the relationship between these clinical variables and QoL scores no significant difference observed if the P values > 0.01 in the independent sample t-Test shown in **table 22**.

**Anti-Rejection Medications results:** In our study there was no significant difference between the anti-rejection medications used and QoL scores.

- If patients used Prednisone or not there was no significant difference on QoL score ( $3.36 \pm 0.701$ ) for patients who were using Prednisone compared ( $3.47 \pm 0.544$ ) with patients who didn't,  $t(105) = -0.657$ ,  $p = 0.513$ .
- QoL scores for patients using Cyclosporine A/Neoral or not had no significant difference on QoL score ( $3.48 \pm 0.672$ ) for patients who were using Cyclosporine A/Neoral compared to QoL score ( $3.29 \pm 0.673$ ) for patients who didn't use Cyclosporine A/Neoral,  $t(105) = 1.448$ ,  $p = 0.151$ .
- Patients using Mycophenolate Mofetil (Cellcept) had no statistical significant difference on QoL score ( $3.32 \pm 0.683$ ) for patients who were using Mycophenolate Mofetil (Cellcept) compared to QoL score ( $3.51 \pm 0.651$ ) for patients who didn't use Mycophenolate Mofetil (Cellcept),  $t(105) = 1.334$ ,  $p = 0.185$ .
- The patients using Tacrolimus(Prograf) had no significant difference on QoL score ( $3.38 \pm 0.652$ ) for patients who were using Tacrolimus(Prograf) compared to QoL score ( $3.37 \pm 0.709$ ) for patients who didn't use Tacrolimus(Prograf) ,  $t(105) = 0.017$ ,  $p = 0.987$ .
- This study found that whether the patient used Sirolimus (rapamune) or not, there was no significant difference on QoL score ( $3.38 \pm 0.652$ ) for patients who were using Sirolimus (rapamune) compared to QoL score ( $3.37 \pm 0.709$ ) for patients who didn't use Sirolimus (rapamune),  $t(105) = -0.060$ ,  $p = 0.953$ .
- This study found that whether the patient used the triple therapy (Prednisone+ Mycophenolate Mofetil (Cellcept)+ Tacrolimus(Prograf) )or not there was no statistically significant difference for QoL score. ( $3.36 \pm 0.725$ ) to the patients do not use the triple therapy (Prednisone+ Mycophenolate Mofetil (Cellcept)+

Tacrolimus(Prograf) compared to QoL score ( $3.36 \pm 0.667$ ) to patient use the triple therapy.

#### **Causes of Renal Failure results:**

In our study there was no significant statistical relationship between the cause of ESRD and QoL score indicted even if renal failure happened because of hypertension or diabetes, nephropathy, Glomerulonephritis, Cystic kidney or other reasons. There was no significant difference on QoL score of patients who had this cause respectively ( $3.23 \pm 0.651$ ,  $3.33 \pm 0.994$ ,  $3.26 \pm 0.684$ ,  $3.46 \pm 0.674$  and  $3.36 \pm 0.901$ ) compared to QoL score of patients who didn't have this cause ( $3.39 \pm 0.714$ ,  $3.36 \pm 0.668$ ,  $3.37 \pm 0.708$ ,  $3.34 \pm 0.709$ ,  $3.34 \pm 0.901$ ).  $P = (0.357, 0.886, 0.568, 0.505, .901)$ ,  $P = (0.335, 0.918, 0.564, 0.496, 0.901)$  respectively.

#### **Undergone more than one renal transplant or not:**

In this study there was no significant difference in QoL score with relation if patients had more than one renal transplant or not, QoL score was ( $3.36 \pm 0.580$ ) for patients who had more than one renal transplantation compared to QoL score ( $3.38 \pm 0.690$ ) for patients who didn't have more than one renal transplantation,  $t(105) = -0.088$ ,  $-0.101$ ,  $p = 0.930$ ,  $0.920$ , respectively.

#### **Co-morbid disease**

This study found that whether the patient had Hypertension and/ or Diabetic( 22.94%) or not (77.06%) there was no statistically significant difference for QoL score ( $3.23 \pm .780$ ) compared to QoL score ( $3.39 \pm .678$ ) for patients who didn't have these disease.

**Table 22: The relationship between clinical variables and QoL by using Independent**

*Sample t-Test.*

| Clinical variables  |             | QoL Scores      |                |              |             |
|---|-------------|-----------------|----------------|--------------|-------------|
| <b>1. Anti-Rejection Medications</b>  |             |                 |                |              |             |
| Prednisone  | Yes<br>(89) | 3.36 ±<br>0.701 | T= -<br>0.657  | P =<br>0.513 | P <<br>0.01 |
|   | No<br>(18)  | 3.47 ±<br>0.544 | T = -<br>0.777 | P =<br>0.443 |             |
| Cyclosporine A/Neoral   | Yes<br>(49) | 3.48 ±<br>0.672 | T= -<br>1.448  | P =<br>0.151 | P <<br>0.01 |
|   | No<br>(58)  | 3.29 ±<br>0.673 | T = -<br>1.448 | P =<br>0.151 |             |
| Mycophenolate Mofetil (Cellcept)  | Yes<br>(75) | 3.32 ±<br>0.683 | T= -<br>1.334  | P =<br>0.185 | P <<br>0.01 |
|   | No<br>(32)  | 3.51 ±<br>0.651 | T = -<br>1.360 | P =<br>0.179 |             |
| Tacrolimus(Prograf)   | Yes<br>(57) | 3.38 ±<br>0.652 | T= -<br>0.017  | P =<br>0.987 | P <<br>0.01 |
|   | No<br>(50)  | 3.37± 0.709     | T = -<br>0.017 | P =<br>0.987 |             |
| Sirolimus (rapamune)  | Yes<br>(2)  | 3.35 ±<br>0.460 | T= -<br>0.060  | P =<br>0.953 | P <<br>0.01 |
|   | No<br>(105) | 3.38 ±<br>0.681 | T= -<br>0.087  | P =<br>0.944 |             |
| Triple Therapy (Prednisone+<br>Mycophenolate Mofetil<br>(Cellcept)+ Tacrolimus(Prograf) ) | No<br>(70)  | 3.36 ±<br>0.725 | T= -<br>.020   | P<br>=.984   | P <<br>0.05 |
|   | Yes<br>(38) | 3.36 ±<br>0.667 | T= -<br>.020   | P<br>=.984   |             |
| <b>2. Causes of Renal Failure</b>   |             |                 |                |              |             |
| Hypertension  | Yes<br>(20) | 3.23 ±<br>0.651 | T = -<br>0.925 | P =<br>0.357 | P <<br>0.01 |
|   | No<br>(88)  | 3.39 ±<br>0.714 | T = -<br>0.980 | P<br>=0.335  |             |
| Diabetic nephropathy  | Yes<br>(11) | 3.33 ±<br>0.994 | T = -<br>0.143 | P =<br>0.886 | P<br><0.01  |
|   | No<br>(97)  | 3.36 ±<br>0.668 | T = -<br>0.105 | P =<br>0.918 |             |
| Glomerulonephritis  | Yes<br>(16) | 3.26 ±<br>0.684 | T = -<br>0.572 | P =<br>0.568 | P <<br>0.01 |
|   | No<br>(92)  | 3.37 ±<br>0.708 | T = -<br>0.586 | P =<br>0.564 |             |

|   |             |                 |               |              |             |
|---|-------------|-----------------|---------------|--------------|-------------|
| Cystic kidney disease   | Yes<br>(17) | 3.46 ±<br>0.674 | T =<br>0.668  | P =<br>0.505 | P <<br>0.01 |
|   | No<br>(91)  | 3.34 ±<br>0.709 | T =<br>0.692  | P =<br>0.496 |             |
| Other reasons   | Yes<br>(52) | 3.36 ±<br>0.901 | T =<br>0.125  | P =<br>0.901 | P <<br>0.01 |
|   | No<br>(55)  | 3.34 ±<br>0.901 | T =<br>0.125  | P =<br>0.901 |             |
| <b>3. Have you undergone more than one renal transplant</b>                                       |             |                 |               |              |             |
| Have you undergone more than one renal transplant   | Yes<br>(12) | 3.36±0.580      | T= -<br>0.088 | P =<br>0.930 | P <<br>0.01 |
|   | No<br>(95)  | 3.38±0.690      | T =-<br>0.101 | P =<br>0.921 |             |
| triple therapy ( <b>Prednisone+</b><br>Mycophenolate Mofetil<br>(Cellcept)+ Tacrolimus(Prograf) ) | No<br>(70)  | 3.36 ±<br>0.725 | T= -<br>.020  | P<br>=.984   | P <<br>0.05 |
|   | Yes<br>(38) | 3.36 ±<br>0.667 | T= -<br>.020  | P<br>=.984   |             |
| Patients with (Hypertension +<br>Diabetic nephropathy)  | No<br>(83)  | 3.39±.678       | T=<br>1.010   | P =<br>.315  | P <<br>0.05 |
|   | Yes<br>(25) | 3.23±.780       | T=<br>.936    | P =<br>.355  |             |

QoL: Quality Of Life

## **Chapter 5 : Discussion**

In this chapter we will discuss the study findings and their implications. This study focuses on determining QoL among renal transplant patients and the effect of socio-demographic variables on the QoL of these patients.

### **1.5 Health -related Quality of life of kidney transplant patient**

#### **1.1.5 Dissection of Kidney Transplant Questionnaire results**

In our study, the mean quality of life for our patients was moderate  $4.02 \pm 0.84$  which was considerably lower than that of Rebollo *et al.* in Spain (5.58), Chisholm-Burns *et al.* in USA (5.5), Tayyebi *et al.* in Iran (4.9) and a Chinese study (4.8) but also arguably higher than Rostami *et al.* in Iran (2.8) while all of them were using KTQ instrument. It is worthy to note that all the studies mentioned used the same questionnaire (KTQ). In our study the highest score was related to the dimension of body appearance ( $5.40 \pm 1.234$ ) which agrees with all mentioned previous studies with the exception of Rostami *et al.* whose highest score was that of fear and uncertainty.

The lowest score in this study was the fear/uncertainty ( $3.36 \pm 1.225$ ) dimension which was consistent with the studies done by Tayyebi *et al.* in Iran and the Chinese study. Internationally, the lowest score was that of the physical symptoms in both of Rebollo *et al.* in Spain , Chisholm-Burns *et al.* in USA. The study of Rostami *et al.* in Iran had the lowest score in the emotional item.

Fear of rejection and uncertainty about the future were the chief concerns of the kidney transplant recipients which can be indicative of high rates of anxiety and stress particularly regarding graft rejection and resuming dialysis especially that these patients had bad memories about dialysis (de Brito, D.C.S., et al., 2015) which illustrates the need for psychological consultation, support before and immediately after the transplant surgery

and maintaining it up at regular intervals. In our study, most of the recipients had receive kidney from a relative (a parent or a sibling) which varies from the other studies from other countries which suggested that the recipients had different feelings of fear, stress and guilt about the donors, which in turn affect their quality of life.

### **2.1.5 Dissection of socio-demographic characteristics**

Our results showed no significant difference for the following socio-demographic and clinical variables include: residency, gender, age, education level, job status( employment), income level, donor type, immunosuppressive therapy, time after transplant, duration of dialysis before renal transplantation ,causes of ESRD, physical problems, if undergone more than one renal\_transplant and\_smoking, while the significant difference for Marital status on QoL only.

### **3.1.5 Residency**

There was no difference in QOL between patients lives in Bethlehem  $3.9276 \pm 0.94$  or in North Hebron  $4.14 \pm 1.24$  both of QoL was moderate.

### **4.1.5 Gender**

In this study, the sample consisted of 79.8% male and 20.2% female this is consist with many studies that prevalence of chronic kidney disease increased significantly in men not in women (Nagata et al., 2010), There was a predominance of males, representing 79.8% of the sample, which consists with the Brazilian study done by *Costa and Nogueira (2014)*. There was no significant difference between gender (male, female) and QoL in our sample. the study of *Junchotikul P et al( 2015)* is consistent with our results that gender was not significantly correlated with quality of life. Several other studies were inconsistent with our result and showed that gender has a significant effect on the QoL with higher QoL for men(Sa'ed, H.Z., et al., 2016, Tayebi, A., et al., 2010, Kamran, F.2013).

### **5.1.5 Age**

In our study, the mean age was  $41 \pm 24$  years, ranging from 20-71 years old which establishes that most kidney transplant recipients were at a productive stage of their lives, only 4.6 % of patients were above 65 years.

There was no significant difference between patient's age groups and QoL which is consistent with many studies [42, 50]. There were no QoL differences between transplant patients under and over 65 years of age, these findings were quiet similar to those reported by *Laupacis et al.* (1996). also result report by *Hedayati et al.* (2016) consist with our results.. This was consistent with the study by *Gentile et al.* (2013). However, the findings of the present study were inconsistent with results reported by *Gentile et al.* (2013), *Tayyebi et al.* (2010) and *Zyoud et al.* (2016) which found that age has a significant negative effect on QoL because of the aging process and its complications.

### **6.1.5 Education level**

In this sample the level of education has no significance effect on QoL of KT patients, the same result was reported by *Lemos et al.* (2015). In contrast to our result, many studies have linked higher educational level with better QoL (Sa'ed, H.Z., et al.,2016, Gentile, S., et al.,2013) .It was expected that educated patients would have more information and understanding about their illness with good communication with medical staff, many studies found that patients who had low knowledge about the disease process had poor QoL scores.

### **7.1.5 Income level**

In our study there was no significant effect of income level on QoL. Many studies disagree with our results which was reported by *Junchotikul et al.* (2015), and *Lemos et al.* (2015), which state that family income was the most important factor affecting QoL. Finances are

a major concern for the recipients because of expensive immune-suppressant medications and the compliance with regular follow-ups post transplant.

#### **8.1.5 Job status**

This study points out that there were no significant differences between groups of employment and QoL. Interestingly, a study done by (Kamran, F. 2012 ) investigated the impact of depression levels on satisfaction with QoL after renal transplantation, no significant differences in depression levels were found among recipients based on their work status . To the contrast, one study indicated that employed recipients were in better condition compared with unemployed recipients, which is stated by (Neipp et al. 2006). Furthermore, *Gabriele Helga Franke* found that employment was the strongest indicator of a high QoL (Franke et al., 1999)

#### **9.1.5 Marital status**

This study showed that there is a significant effect of marital status on QoL, single patients has better QoL than married patients, this result could be explained that single patients live with their family; most of them experience good support from family ties in the traditional Palestinian culture. Family is the first support system for the single patients, parents usually takes the sick person to the hospital and works closely with the healthcare team to provide the best treatment and support, while married patients have many responsibilities towards their health and families. It should be noted that other studies indicated that married patients showed significantly better QOL than single patients, indicating that patients experience good support from their spouses and children (Ogutmen et al., 2006).

## **2.5 Dissection of clinical characteristics**

### **1.2.5 Immunosuppressive therapy**

Findings of the present study revealed that there was no relationship between QoL and the choice

of immunosuppressive therapy. Recipients in our sample received triple therapy with corticosteroids, a calcineurin inhibitor (either tacrolimus or cyclosporine A), and mycophenolate mofetil (MMF). Some individuals are now treated with sirolimus, there were no differences in the evolution of the QOL with the therapies used which consist with the study of Rosa Jofre', MD (Jofre, López-Gómez, Moreno, Sanz-Guajardo, & Valderrábano, 1998) Several studies demonstrate the superiority of some immunosuppressive regimens over others in the QOL domain. In other studies Tacrolimus has been shown to be associated with better QOL than cyclosporine (ciclosporin), as has corticosteroid-free immunosuppressive regimens (Perlman R. and Rao P,2014) .Physical activity, energy and appearance are important domains that are influenced by the mandatory immunosuppressive regimen (Fiebiger, W., C. Mitterbauer,2004).

Also patients used the triple therapy (Prednisone+ Mycophenolate Mofetil (Cellcept)+ Tacrolimus(Prograf) ) had no significant effect on QoL.

It is well-established that poor adherence predicted worse outcomes: patients who were considered as delaying, skipping or altering their medication twice a month in the first year after kidney transplantation were more likely to lose their graft or to die during the follow-up (Butler J. et al. ,2004).

### **2.2.5 Physical problems**

The most common physical problem in our study sample population was aching and tired legs about (75) 68.8% of the sample. This result agrees with the findings of Rostami, S.-A. (2011), that this physical problem was seen in 55% of subjects (Mersal & Aly, 2014). While the lowest common problem was the decreased of sexual ability, many studies reported that sexual desire was increased significantly after kidney transplantation, but about 25% of men and women remained sexually dysfunctional (Schover, Novick, Steinmuller, & Goormastic, 1990), in general sexuality was remarkably stable over the 1-year after kidney transplant (Muehrer & Becker, 2005).

### **Co-morbid disease**

The present study revealed that co-morbidity didn't have any effect on QoL scores. Patient had Hypertension and/ or Diabetic or not there was no statistically significant difference for QoL, however patients who were without these diseases had a slightly higher QoL even its not significant effect.

### **3.2.5 Time after transplant**

There was no observed statistical significant difference between the time that passed from transplantation and QOL scores. Our result is consistent with result of Tayyebi *et al.* (2010). Only 3.7% of the patients performed the renal transplant before less than 1 year, this small percentage could be explained that we excluded recipients less than 3 months post-transplant (after the acute phase of transplant).

### **4.2.5 Duration of Dialysis Before Renal Transplantation**

No significant difference was observed between Duration of Dialysis Before Renal Transplantation groups and QoL, while other studies reported that longer times spent on

dialysis were associated with lower QoL after transplantation (Griva K. et al.,2002). and influence on the accelerated ageing of the transplanted kidney( Domański L. *et al.*,2015).

### **5.2.5 Smoking**

No significant difference was observed on the QoL between smokers or nonsmokers, while the majority of our sample were nonsmoker (85.3%). On the other hand, a health survey conducted in Norway showed that smoking, was significantly associated with ESRD(Hallan et al., 2006).

### **6.2.5 Have you undergone more than one renal transplant**

No significant difference was observed between the two groups that undergone more than one renal transplant or not, however, most of the patients (88.1%) did not have more than one renal transplant.

### **7.2.5 Causes of ESRD**

In our study patients were asked about disease conditions before kidney transplant that may have contributed to ESRD 18.3% had hypertension while 10.1% had diabetic nephropathy. Surprisingly, 47.7% of patients in our sample was attributed ESRD to (other reasons) which is higher than the range worldwide (5–20%)( Boon N. et al.2006) .This result disagreed with results obtained from studies in Palestine; showed that hypertension and diabetes mellitus were the most common causes of ESRD(Sweileh, Sawalha, Sa'ed, Al-Jabi, & Shraim, 2009), the same results reported by (Sayej and Qtait 2016) study in Hebron and Bethlehem.According to Kahder's distribution by cause, most of patients were diabetic (22.5%), hypertensive (11.1%), or both diabetic and hypertensive at the same time (10.6%), and there were a considerable number of patients where the cause was unknown (27.6%) (Khader, Snouber, Alkhatib, Nazzal, & Dudin, 2013), another study in Saudi Arabia was conducted to determine causes of ESRD showed that main causes of (ESRD)

include diabetic nephropathy(28%), hypertension(24%), unknown(23%) (Shaheen & Al-Khader, 2005), and a study was conducted in Egypt showed that hypertension was responsible for most of the cases of renal failure in Egypt. Other significant causes were: chronic Glomerulonephritis and ESRD of unknown etiology (Afifi & Karim, 1999).

### **8.2.5 Donor type**

The number of cadaveric transplant patients was too small to draw a valid conclusion on the impact of donor type (cadaveric or living ) on QoL. However, there was no effect in this study on the three types of donors (Biological: blood related (father, mother or brother), other relatives or Non-biological donors) and the quality of life scores. Many studies reported that QoL appears to be unaffected by donor type. (Evans, Hart, & Manninen, 1984),( Tayebi, A., et al.,2010).At different forms of transplantation, cadaveric or living transplant may cause different feelings of fear and guilt with no effect on quality of life, as a point of fact, feelings of guilt appear to be prominent in living donor type transplantation( Griva K. et al.,2002) .

## **Chapter 6 : Conclusion**

This study was conducted to evaluate QoL among renal transplant patients who visit MOH facilities in Bethlehem and North Hebron by using disease-specific Kidney Transplant Questionnaire in Arabic version and to identify the effect of socio-demographic variables on the QoL for these patients.

Quality of life for kidney transplant patients in our sample was moderate (4.02). While the lowest and highest scores of KTQ dimensions were related to fear/uncertainty and appearance; respectively. This low scores of fear/uncertainty dimension is related to the donor type in our sample which was about (66.1%) biologically blood related (father, mother, brother) the recipients had different feelings of fear, stress and guilt about their relative donors.

The marital status was the only socio-demographic variable which has a negative statistical significant effect on quality of life for married recipients and a positive for single, while other socio-demographic variables like gender, age, education level, job status(employment), income level, donor type, immunosuppressive therapy, time after transplant, duration of dialysis before renal transplantation ,causes of ESRD, Physical problems, if undergone more than one renal transplant and smoking have no significant effect on QoL. The majority of kidney transplant recipients, were married male, without work, with low even no income and had a lot of responsibilities towered their health and families. So they were dependent on social security.

About half (47.7%) of patients of our sample was attributed ESRD to (other reasons) which is higher than the range worldwide (5–20%) this result about cause of ESRD points to the necessity of improved pre-ESRD work-up. While the most common physical

problems that faces the patients after renal transplantation was aching and tired legs (68.8%) followed by very little strength (61.5%), aching bones (60.6%), muscle pain (52.3%).

This results of our study points to the need for support from the whole society, government, family, and medical staff, and the need to design plans for solving recipients problems and increasing their quality of life.

Our study is the first study assessing QoL among kidney transplant patients in Palestine conducting by face-to-face interviews to obtain more complete and high reliable data collection. This data will serve as baseline measurement for future QoL evaluation.

### **Limitations**

- The sample size of the present study was relatively small, there may be a need for larger sample size to verify our findings.
- Renal functions of the recipients were not investigated in the present study.
- The lack of general national statistics and surveys in public health sector.

### **Recommendations**

- Provide medical treatment for physical problems that face the patients.
- Provide financial support for kidney transplant patients.
- Increase the focus on emotional, cognitive and social aspects of health.
- Give the psychological consultation before and after the transplant surgery and maintaining it up at regular intervals as needed by experts.
- The need to have other medical specialists available for kidney transplant patients.

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Appendix 1

|   |  |
|---|--|
| <b>ما هو أفضل وصف لوضعك الوظيفي؟</b>                                    |  |
| تعمل بدوام كامل   |  |
| تعمل بدوام جزئي   |  |
| أعمال منزلية أو مقدم رعاية  |  |
| متقاعد  |  |
| صاحب عمل خاص  |  |
| لا تعمل   |  |
| <b>أي من المعدلات التالية يصف دخلك الشهري بالشيكال من جميع المصادر؟</b> |  |
| 500-0   |  |
| 1000-500  |  |
| 1500-1000   |  |
| 2000-1500   |  |
| 2500-2000   |  |
| 3000-2500   |  |
| 4000-3500   |  |
| أكثر من 4000  |  |
| <b>هل انت مدخن؟</b>   |  |
| نعم   |  |
| لا  |  |
| <b>الحالة الصحية:<br/>اسباب الفشل الكلوي</b>                            |  |
| الضغط   |  |
| السكري  |  |
| التهاب الكلى  |  |
| تكيس الكلى  |  |
| اسباب اخرى  |  |
| <b>نوع المتبرع</b>  |  |
| متوفي   |  |
| حي  |  |
| قريب بالدم (اب, ام, اخ)   |  |
| اقرباء اخرين  |  |
| لا يوجد صلة قرابة   |  |
| <b>الادوية المثبطة للمناعة لمنع رفض الكلى</b>                           |  |

|   |  |
|---|--|
| Prednisone  |  |
| Cyclosporine A/Neoral   |  |
| Mycophenolate Mofetil(Cellcept)                                     |  |
| Tacrolimus(Prograf)   |  |
| Sirolimus   |  |
| <b>مدة علاج غسيل الكلى قبل الزراعة</b>                              |  |
| لم اتعالج بغسيل الكلى   |  |
| مدة الغسيل اقل من سنة   |  |
| مدة الغسيل من سنة الى سنتين   |  |
| مدة الغسيل اكثر من سنتين  |  |
| <b>هل خضعت لأكثر من عملية زراعة كلى؟</b>                            |  |
| نعم   |  |
| لا  |  |
| <b>ما هو تاريخ اخر زراعة كلى قمت بها بالشهر والسنة؟ ...../.....</b> |  |

## Appendix 2

### استمارة زراعة الكلى

هذه الاستمارة صممت لتقييم شعورك العام خلال الأسبوعين المنصرمين. وسيتم سؤالك حول حالتك النفسية، والأعراض الجسدية و المشاكل التي تعرضت لها.

**1-** المرضى المصابون بأمراض الكلى كثيرا ما يشكون من أعراض ومشاكل جسدية. ما هي الأعراض والمشاكل الجسدية التي تعرضت لها في الأسبوعين المنصرمين. المقصود هي أعراض أو مشاكل جسدية مهمة أو مؤثرة في حياتك اليومية وان تكون قد تعرضت لها أكثر من مرة. الرجاء ذكر جميع المشاكل التي واجهتها وتخطر ببالك.

(ضع دائرة حول الرقم المناسب على ورقة الإجابة الخاصة بـ " المشاكل أو الأعراض الجسدية " . اذا كان هناك عرض أو مشكلة غير مذكور في القائمة أضفه إلى القائمة في الفراغ المتوفر) هل تستطيع تذكر أي أعراض أو مشاكل جسدية تعرضت لها خلال الأسبوعين المنصرمين (سجل النقاط الإضافية)

**2-** سوف أقوم الآن بقراءة لائحة من الأعراض والمشاكل الجسدية التي قد يتعرض لها المرضى المصابين بأمراض الكلى في حياتهم اليومية. سوف أتوقف بعد كل بند فترة كافية من الوقت حتى تستطيع أن تحدثني إن كنت قد تعرضت له خلال الأسبوعين المنصرمين. إذا لم تكن قد تعرضت للمشكلة أو الأعراض فقط أجب بـ لا.

(قم بقراءة البنود دون ذكر تلك التي سبق أن وضحها المريض. توقف بعد كل بند حتى تعطي المريض فرصه ليذكر إذا ما كان هو/هي قد تعرضت/ت للعرض أو المشكلة الجسدية خلال الأسبوعين المنصرمين. ضع دائرة حول الرقم المناسب في ورقة الإجابة).

1- فقدان الوزن وضمور العضلات.

- 2- نقص في القدرات الذهنية.
- 3- جفاف أو حكة في الجلد.
- 4- عدوى / التهابات.
- 5- هبوط في ضغط الدم.
- 6- الحرج من التغييرات الخارجية في المظهر.
- 7- آلام وتعب في الأرجل.
- 8- السعال أثناء النهار أو الليل.
- 9- وهن وضعف القوى.
- 10- أعراض جانبية من الأدوية.
- 11- النسيان.
- 12- التشوش أو الإلتباس.
- 13- آلام في العظام.
- 14- صعوبة في النوم.
- 15- صعوبة التحكم بالإخراج.
- 16- الإمساك أو الإسهال.
- 17- المراجعة / الاستفراغ.
- 18- صداع.
- 19- الغثيان أو آلام المعدة.
- 20- الرعشة.
- 21- الاستيقاظ أثناء الليل.

22- فقدان الشهية.

23- الدوخة أو الدوار أثناء القيام بالنشاطات اليومية.

24- الشعور بضيق التنفس أثناء القيام بالنشاطات اليومية.

25- ضعف في القدرة الجنسية

26- صعوبة في الانتباه.

27- صعوبة في التركيز.

28- يحتاج إلى الراحة بشكل متكرر بسبب ضيق التنفس.

29- زيادة في الشهية.

30- زيادة مفرطة في الوزن.

31- بثور في الوجه.

32- انعدام النوم المريح.

33- آلام في العضلات.

3- أ - من قائمة الأشياء التي ذكرتها ما هو الأكثر أهمية في حياتك اليومية؟ سوف أقرأ القائمة

وعند إنهاء القراءة أرجو أن تذكر لي أي من البنود هو الأكثر أهمية؟

(إقرأ جميع البنود التي ذكرها المريض كذلك تلك التي أضافها في نهاية القائمة).

ب- من البنود المتبقية أي منها هو الأهم لك في حياتك اليومية؟ سوف أقرأ لك جميع البنود وعند

إنهاء القراءة أود أن تذكر لي أي من البنود هو الأكثر أهمية.

(إقرأ ما تبقى من بنود في القائمة).

أي من هذه البنود هو الأهم بالنسبة لك في حياتك اليومية.

(قم بتدوين الإجابات على ورقة الإجابة).

ج- أي من البنود المتبقية هو الأهم لك في حياتك اليومية.

(قم بتدوين الإجابات على ورقة الإجابة)

د- أي من البنود المتبقية هو الأهم لك في حياتك اليومية

(قم بتدوين الإجابات على ورقة الإجابة)

هـ- أي من البنود المتبقية هو الأهم لك في حياتك اليومية

(قم بتدوين الإجابات على ورقة الإجابة)

و- أي من البنود المتبقية هو الأهم لك في حياتك اليومية

(قم بتدوين الإجابات على ورقة الإجابة)

(لكل من الأسئلة التالية تأكد من أن تكون البطاقة الخاصة بالإجابة أمام المريض/ة عند طرح السؤال)

أرجو أن تصف مدى المشقة والانزعاج التي سببتها (استعمل عدد الأعراض التي حددها المريض)

أعراض خلال الأسبوعين المنصرمين.

1- الرجاء تحديد مدى المشقة والانزعاج الذي سببها (استعمل الأعراض من البند 3-أ- ) خلال

الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء)

(1) درجة كبيرة جداً من الإنزعاج

(2) درجة كبيرة من الإنزعاج

(3) كثير من الانزعاج

(4) درجة متوسطة من الانزعاج

(5) بعض الإنزعاج

(6) قليل من الإنزعاج

(7) لم أشعر بالإنزعاج

2- الرجاء تحديد مدى المشقة والانزعاج الذي سببها (استعمل الأعراض من البند 3-ب- ) خلال الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك (البطاقة الخضراء)

1) درجة كبيرة جداً من الإنزعاج

2) درجة كبيرة من الإنزعاج

3) كثير من الانزعاج

4) درجة متوسطة من الانزعاج

5) بعض الإنزعاج

6) قليل من الإنزعاج

7) لم أشعر بالإنزعاج

3- الرجاء تحديد مدى المشقة والانزعاج الذي سببها (استعمل الأعراض من البند 3-ج- ) خلال الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك (البطاقة الخضراء)

1) درجة كبيرة جداً من الإنزعاج

2) درجة كبيرة من الإنزعاج

3) كثير من الانزعاج

4) درجة متوسطة من الانزعاج

5) بعض الإنزعاج

6) قليل من الإنزعاج

7) لم أشعر بالإنزعاج

4- الرجاء تحديد مدى المشقة والانزعاج الذي سببها (استعمل الأعراض من البند 3-د- ) خلال

الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء)

1) درجة كبيرة جداً من الإنزعاج

2) درجة كبيرة من الإنزعاج

3) كثير من الانزعاج

4) درجة متوسطة من الانزعاج

5) بعض الإنزعاج

6) قليل من الإنزعاج

7) لم أشعر بالإنزعاج

5- الرجاء تحديد مدى المشقة والانزعاج الذي سببها (استعمل الأعراض من البند 3-هـ- ) خلال

الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك (البطاقة الخضراء)

1) درجة كبيرة جداً من الإنزعاج

2) درجة كبيرة من الإنزعاج

3) كثير من الانزعاج

4) درجة متوسطة من الانزعاج

5) بعض الإنزعاج

6) قليل من الإنزعاج

7) لم أشعر بالإنزعاج

6- الرجاء تحديد مدى المشقة والانزعاج الذي سببها (استعمل الاعراض من البند 3-و- ) خلال الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء)

1) درجة كبيرة جداً من الإنزعاج

2) درجة كبيرة من الإنزعاج

3) كثير من الانزعاج

4) درجة متوسطة من الانزعاج

5) بعض الإنزعاج

6) قليل من الإنزعاج

7) لم أشعر بالإنزعاج

7- ما مدى الإنزعاج خلال الاسبوعين المنصرمين بسبب الشهية المفرطة؟

الرجاء تحديد مدى المشقة والانزعاج الذي سببته الشهية المفرطة خلال الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء)

1) درجة كبيرة جداً من الإنزعاج

2) درجة كبيرة من الإنزعاج

3) كثير من الانزعاج

4) درجة متوسطة من الانزعاج

5) بعض الإنزعاج

6) قليل من الإنزعاج

7) لم أشعر بالإنزعاج

8- كم من الوقت كنت تشعر بالضعف خلال الأسبوعين المنصرمين؟ الرجاء تحديد مقدار الوقت الذي شعرت به بالضعف خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات.

(2) في أغلب الأوقات.

(3) في معظم الأوقات.

(4) في بعض الأوقات.

(5) في قليل من الأوقات.

(6) نادرا.

(7) لم أشعر بهذه الأعراض.

9- كم من الوقت كنت تشعر قلة الصبر خلال الأسبوعين المنصرمين؟ الرجاء تحديد مقدار الوقت الذي شعرت به بقلة الصبر خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات.

(2) في أغلب الأوقات.

(3) في معظم الأوقات.

(4) في بعض الأوقات.

(5) في قليل من الأوقات.

(6) نادرا.

(7) لم أشعر بهذه الأعراض.

**10-** كم من الوقت كنت تشعر بالاكئاب والحزن خلال الأسبوعين المنصرمين؟ الرجاء تحديد مقدار الوقت الذي شعرت به بالاكئاب خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادرا

(7) لم أشعر بهذه الأعراض

**11-** كم من الوقت كنت تشعر بالعناد خلال الأسبوعين المنصرمين؟ الرجاء تحديد مقدار الوقت الذي شعرت به بالعناد خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادرا

(7) لم أشعر بهذه الأعراض

**12-** كم من الوقت كنت تشعر بالخمول والكسل خلال الأسبوعين المنصرمين؟ الرجاء تحديد مقدار الوقت الذي شعرت به بالخمول خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادرا

(7) لم أشعر بهذه الأعراض

**13-** كم من الوقت كنت تشعر بالقلق والهمل خلال الأسبوعين المنصرمين؟ الرجاء تحديد مقدار الوقت الذي شعرت به بالقلق خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادرا

(7) لم أشعر بهذه الأعراض

**14-** ما مدى الصعوبة أو المشقة التي واجهتها خلال الأسبوعين المنصرمين بسبب ضعف القوى؟  
الرجاء تحديد مدى الصعوبة والمشقة التي واجهتها خلال الأسبوعين المنصرمين، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة البيضاء).

(1) درجة كبيرة جداً من الصعوبة والمشقة.

(2) درجة كبيرة من الصعوبة والمشقة.

(3) كثير من الصعوبة والمشقة.

(4) درجة متوسطة الصعوبة والمشقة.

(5) بعض الصعوبة والمشقة.

(6) قليل من الصعوبة والمشقة.

(7) لا صعوبة أو مشقة.

**15-** كم شعرت بالخوف أو قلق حيال رفض الجسم للعضو المزروع؟ الرجاء تحديد شعورك بالخوف أو القلق حيال رفض الجسم للعضو المزروع، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء).

(1) في جميع الأوقات.

(2) في أغلب الأوقات.

(3) في معظم الأوقات.

(4) في بعض الأوقات.

(5) في قليل من الأوقات.

(6) نادراً.

(7) لم أشعر بهذه الأعراض.

16- كم شعرت بالقلق إزاء مستقبلك خلال الأسبوعين المنصرمين؟ الرجاء تحديد شعورك بالقلق إزاء

مستقبلك، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات.

(2) في أغلب الأوقات.

(3) في معظم الأوقات.

(4) في بعض الأوقات.

(5) في قليل من الأوقات.

(6) نادرا.

(7) لم أشعر بهذه الأعراض.

17- كم شعرت بالقلق والخوف خلال الأسبوعين المنصرمين؟ الرجاء تحديد شعورك بالقلق، وذلك

باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء).

(1) في جميع الأوقات.

(2) في أغلب الأوقات.

(3) في معظم الأوقات.

(4) في بعض الأوقات.

(5) في قليل من الأوقات.

(6) نادرا.

(7) لم أشعر بهذه الأعراض.

**18-** ما مدى الإنزعاج خلال الأسبوعين المنصرمين بسبب زيادة في نمو الشعر؟ الرجاء تحديد مدى المشقة والانعراج الذي سببها الزيادة في نمو الشعر خلال الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء )

(1) درجة كبيرة جداً من الإنزعاج

(2) درجة كبيرة من الإنزعاج

(3) كثير من الانزعاج

(4) درجة متوسطة من الانزعاج

(5) بعض الإنزعاج

(6) قليل من الإنزعاج

(7) لم أشعر بالإنزعاج

**19-** ما مدى الإنزعاج خلال الأسبوعين المنصرمين بسبب زيادة في الوزن؟

الرجاء تحديد مدى المشقة والانعراج الذي سببها الزيادة في الوزن خلال الأسبوعين المنصرمين، وذلك باختيار أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء )

درجة كبيرة جداً من الإنزعاج

درجة كبيرة من الإنزعاج

كثير من الانزعاج

درجة متوسطة من الانزعاج

بعض الإنزعاج

قليل من الإنزعاج

لم أشعر بالإنزعاج

20- ما مدى الإنزعاج خلال الأسبوعين المنصرمين بسبب البثور في الوجه؟

الرجاء تحديد مدى الانزعاج الذي سببها البثور في الوجه خلال الأسبوعين المنصرمين، وذلك باختيار

أحد الخيارات المدونة في البطاقة أمامك ( البطاقة الخضراء)

درجة كبيرة جداً من الإنزعاج

درجة كبيرة من الإنزعاج

كثير من الانزعاج

درجة متوسطة من الانزعاج

بعض الإنزعاج

قليل من الإنزعاج

لم أشعر بالإنزعاج

21- كم شعرت بالحرص على كليتك المزروعة خلال الأسبوعين المنصرمين؟ الرجاء تحديد شعورك

بالحرص على كليتك المزروعة، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة

الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادراً

(7) لم أشعر بذلك

22- كم من الوقت شعرت أنك عصبي وغير سلس في المعاملة خلال الأسبوعين المنصرمين؟

الرجاء تحديد شعورك أنك عصبي وغير سلس في المعاملة، وذلك باختيار واحدة من الخيارات المدونة

في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادراً

(7) لم أشعر بهذه الأعراض

23- ما مدى الصعوبة أو المشقة التي واجهتها خلال الأسبوعين المنصرمين بسبب الاجهاد والتعب؟

الرجاء تحديد مدى الصعوبة والمشقة التي واجهتها خلال الأسبوعين المنصرمين، وذلك باختيار واحدة

من الخيارات المدونة في البطاقة أمامك (البطاقة البيضاء)

(1) درجة كبيرة جداً من الصعوبة والمشقة

(2) درجة كبيرة من الصعوبة والمشقة

(3) كثير من الصعوبة والمشقة

(4) درجة متوسطة الصعوبة والمشقة

(5) بعض الصعوبة والمشقة

(6) قليل من الصعوبة والمشقة

(7) لا صعوبة أو مشقة

24- كم من الوقت شعرت بالاحباط العام في المعاملة خلال الأسبوعين المنصرمين؟ الرجاء تحديد شعورك بالاحباط العام، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك (البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادرا

(7) لم أشعر بهذه الأعراض

25- كم من الوقت شعرت بانخفاض في مستوى الطاقة خلال الأسبوعين المنصرمين؟ الرجاء تحديد شعورك بانخفاض في مستوى الطاقة، وذلك باختيار واحدة من الخيارات المدونة في البطاقة أمامك

(البطاقة الزرقاء)

(1) في جميع الأوقات

(2) في أغلب الأوقات

(3) في معظم الأوقات

(4) في بعض الأوقات

(5) في قليل من الأوقات

(6) نادرا

(7) لم أشعر بهذه الأعراض



نوعية الحياة لمرضى زراعة الكلى في عيادات وزارة الصحة الفلسطينية في محافظة بيت لحم  
وشمال الخليل.

إعداد: خلود حسن طافش ذويب

إشراف: د. حسين الحلاق

الملخص:

**الخلفية:** تُعتبر جودة الحياة (Quality of Life) مؤشراً قوياً لنتيجة مرضى المرحلة النهائية لمرض الكلى. الغرض من زرع الكلى هو تحسين نوعية الحياة للمرضى الذين يعانون من مرض الكلى في مرحلته النهائية، حيث يُعدُّ العلاج الأمثل لهؤلاء المرضى. بناءً عليه، كان الهدف من هذه الدراسة قياس مؤشّر جودة الحياة لدى مرضى زرع الكلى في بيت لحم وشمال الخليل في فلسطين.

**الطريقة:** تمّ إجراء دراسة وصفيّة مستعرضة على 109 مريض لزراع الكلى تمّ إحالتهم إلى وزارة الصحّة وعيادات الرعاية الصحيّة الأوليّة في بيت لحم وشمال الخليل في فلسطين في الفترة ما بين كانون الأوّل 2016 إلى نيسان 2017، وذلك باستخدام استبيان زرع الكلى (KTQ-25) لتقييم مؤشّر جودة الحياة وتحديد تأثير المتغيرات الاجتماعيّة والديموغرافيّة على نوعية الحياة. تمّ تحديد موثوقيّة الاستبيان (KTQ-25) بواسطة طريقة كرونباخ ألفا (Cronbach's Alpha) وكانت 0.74، كما تمّ تحليل البيانات والإحصاءات الوصفيّة بواسطة البرنامج الإحصائي SPSS 19.

**النتيجة:** كان متوسط مؤشّر جودة الحياة لمرضى زرع الكلى  $(4.02 \pm 0.84)$ . وكانت أعلى درجة من استبيان KTQ-25 هي فئة "المظهر"  $(5.40 \pm 1.23)$ ، في حين حصلت فئة "عدم اليقين/الخوف" على أدنى درجة  $(3.36 \pm 1.23)$ . بالنسبة للمعلومات الديموغرافيّة، فقد تكوّنت العينة من 109 مريض زرع الكلى منهم 79.8% ذكوراً و20.2% من الإناث، كان متوسط عمرهم  $41 \pm$

24) سنة. وكان معظمهم متزوجون بنسبة 81.7%، و 45.9% بدون عمل، و 53.2% ذوي دخل منخفض، وبالنسبة الى سبب الفشل الكلوي 47.7% نُسبَت إلى أسبابٍ أخرى. أما بالنسبة لنوع الجهة المانحة للكلية، فكان 66.1% من مصدر ذات صلة بالدم. وكانت أكثر المشاكل الجسدية شيوعاً هي الألم وتعب القدمين (68.8%). تمّ ملاحظة وجود تأثير معنوي للحالة الزوجية على نوعية الحياة حيث كان مؤشر نوعية الحياة للمرضى غير المتزوجين أعلى من أولئك المتزوجون ( $p = 0.034$ )، ولميكنُ هناك فرقٌ كبيرٌ ( $p < 0.05$ ) بين المتغيرات الاجتماعية الديموغرافية الأخرى ونوعية الحياة.

**الاستنتاج:** كانت جودة الحياة لمرضى زرع الكلى في هذه الدراسة متوسطة. وتشير نتائج هذه الدراسة إلى الحاجة إلى الدعم من المجتمع ككل والحكومة عامّة، ومن الأسرة والطاقم الطبي خاصةً، بالإضافة إلى الحاجة إلى وضع خططٍ لحلّ بعض المشاكل التي يواجهها مرضى زرع الكلى لزيادة جودة حياتهم.

**الكلمات الدالة:** جودة الحياة، زرع الكلى، استبيان زرع الكلى ، فلسطين