بسم الله الرحمن الرحيم

Assessment of Soc ioeconomic And Psychological Impact of Hemodialysis Among Patients With End Stage Renal Disease In Bahri Teaching Hospital From August-December 2022

Thesis Submitted for Partial Fulfillment of the Requirement for Bachelor in Medicine and Bachelor of Surgery (MBBS)

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الاستهلال

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Dedication

This research is lovingly dedicated to our respective parents, who have been our continuous source of inspiration.

To our brothers, sisters and friends who shared our worries and always showed care and support.

Finally we would like to thank our supervisor for his time, guidance and the advice he offered and to the research department.

Acknowledgment

All our thanks to Allah first

We are gratefully acknowledging the staff of internal Medicine Department for their cooperation and help throughout the duration of this study.

Our gratitude to Dr. Olaa for supervising and for his precious time he offered us.

We acknowledge staff personnel in bahri teaching hospital in Renal Dialysis Centre and also great thanks for participants with our prayers to be well.

Our regards and blessing to all those who helped us in any aspect throughout the writing of this research

Abberviation	Term
BDI	The Beck Depression Inventory
CAPD	Continuous Ambulatory Peritoneal Dialysis
CESD	Center for Epidemiologic Studies Depression Scale
CKD	Chronic kidney Disease
CRF	Chronic Renal Failure
ESRD	End Stage Renal Disease
ESRF	End Stage Renal Failure
GFR	Glomerular Filtration Rate
HD	Hemodialysis
PD	Peritoneal Dialysis
PHQ	Patient Health Questionnaire
QoL	Quality of Life
RRT	Renal Replacement Therapy

Abstract

1.2 Background:

End-stage renal failure, also known as end-stage renal disease (ESRD), is the final, permanent stage of chronic kidney disease, where kidney function has declined to the point that the kidneys can no longer function on their own.

1.3 Justification:

Renal failure is a common health problem worldwide and dialysis is considered as the most effective replacement therapy. It affects the social quality of life of patients and may lead to some sort of dysfunction. The cost of dialysis in developing countries exceeds the financial ability of the majority of patients also affect their psychologicl health

This study aims to assess the socioeconomic and psychological problems that facing dialysis patients and try to find suitable solutions for it as much as possible.

1.4 General objective:

Assessment of socioeconomic and psychological impact of end stage Renal disease

1.5 Specific :Objectives

-To identify sociodemographic characteristics that affect on end stage Renal disease.

-To study the psychological effect of dialysis and related changes.

-To assess social impact of dialysis on end stage Renal disease patients.

-To compare between income of patient and the cost of hemodialysis.

Aim of the study

To assess the socio-economic impact and psychological effect of renal dialysis on patients of end stage Renal disease

Method A descriptive cross sectional hospital based study was conducted at bahri teaching hospital in Renal Dialysis Center in August 2022 and it included 151 patients with end stage renal disease on dialysis process.

All patients were interviewed to collect the socio-demographic and clinical data based designed questionnaire and the collected data was analyzed by statistical package for the social sciences.

Result the average age of study population was (>46) year which represent (52.3%) ,with gender predominance for male (51.7%) , the majority of them were university educated (27.8%) ,about (48.3%) of them were unemployed, (73.5%) married (3.3%) of the participants were divorced due to morbidity , (33.7%) of patients had low economic status while (25.8%) had moderate to high economic status , (42.4%) receive dialysis for ≥ 5 years , (95%) have permanent dialysis ,(53%) their income didn't cover their cost of dialysis and life demand , (4%) of patients turn to sale their property to deal with the cost of dialysis , other (86.1%) receive financial support from their families , (72.8%) of patients their social life affected, (27.2%) not affected , from (n=16) of student patients there was (n=13) left their study while (n=3) continued their study regularly , (40%) of the patients were depressed while (60%)

weren’t depressed and the majority of the depressed were female (61.7%).

Conclusion Renal dialysis is a life-sustaining treatment for patients with end stage renal disease; however, it adversely affects patients’ social life and psychological status also their economic status was affected negatively in bahri teaching hospital in Renal Care Center because the cost of dialysis exceed their monthly income.

مستخلص الدراسة

المقدمه :

الفشل الكلوي في المرحلة النهائية والمعروف أيضا باسم مرض المرحلة النهائية هو المرحلة النهائية الدائمة من الكلى المزمنة حيث تتدهور وظائف الكلى لدرجة أن الكلى لم تعد قادرة على التفريغ بمفردها ، يجب أن يخضع المريض المصاب بالتهاب كلوي في المرحلة النهائية لغسيل الكلى أو زرع الكلى من أجل للبقاء على قيد الحياة لأكثر من بضعة أسابيع.

التبرير:

يعد الفشل الكلوي مشكلة صحية شائعة في جميع أنحاء العالم ، ويعتبر غسيل الكلى هو العلاج البديل الأكثر فعالية. إنه يؤثر على نوعية الحياة الاجتماعية للمرضى وقد يؤدي إلى نوع من الخلل الوظيفي. تكلفة غسيل الكلى في البلدان النامية تتجاوز القدرة المالية لغالبية المرضى كما تؤثر على صحتهم النفسية

تهدف هذه الدراسة إلى تقييم المشكلات الاجتماعية والاقتصادية والنفسية التي تواجه مرضى غسيل الكلى ومحاولة إيجاد الحلول المناسبة لها قدر الإمكان.

الهدف العام:

تقييم التأثير الاجتماعي والاقتصادي والنفسي لمرض الكلى في المرحلة النهائية

الهدف المحدد:

- التعرف على الخصائص الاجتماعية والديموغرافية التي تؤثر علي مرضي الكلي في المرحله النهائيه.

- دراسة التأثير النفسي لغسيل الكلى والتغيرات المرتبطة به.

-ا لتقييم الأثر الاجتماعي لغسيل الكلى على مرضى الكلى في المرحلة النهائية.

المقارنة بين دخل المريض وتكلفة غسيل الكلى.

المنهجية أجريت دراسة وصفية مقطعية مستندة في مستشفى بحري التعليمي للغسيل الكلوي في شهر اغسطس 2022 وشملت 151 مريض يعانون من الفشل الكلوي ويتلقون غسيل الكلى.

تمت مقابلة جميع المرضى لجمع البيانات الأساسية و السريرية على أساس الاستبيان المصمم و تم تحليل البيانات التي تم جمعها بواسطة برنامج الاحصاء للعلوم الاجتماعية.

النتيجة متوسط عمر مجتمع الدراسة أكثر من 46 سنة بنسبة (52.3%)، أغلبهم ذكور (51.7%)، وغالبيتهم من المتعلمين ذوي تعليم جامعي (27.8%)، وحوالي (48.3%)منهم عاطلون عن العمل، و(73.5%) منهم متزوجون و (3.3%) منهم أدى المرض لطلاقهم ، (33.7%) من المرضى يعانون من وضع واقتصادي منخفض، في حين أن (25.8%) لديهم حالة اقتصادية متوسطة إلى مرتفعة، و (42.4%) يتلقون غسيل الكلى لمدة 5 سنوات وأكثر ، و (95%)منهم مداومون على الغسيل ، (4%)من المرضى قاموا ببيع ممتلكاتهم لتغطية تكلفة غسيل الكلى ، و (86.1%)منهم يحصلون على دعم مالي من أسرهم ، (72.8%) من المرضى تضررت حياتهم الاجتماعية ، (27.2%)لم تضرر حياتهم الاجتماعية، من أصل (ن=16) من الطلاب كان هناك (ن =13) تركوا دراستهم (ن =3) يواصلون الدراسة بصورة طبيعية ، (40%)من المرضى يعانون من الاكتئاب بينما (60%)لا يعانون الاكتئاب وغالبية الذين يعانون من الاكتئاب من النساء(61.7%).

الاستنتاج غسيل الكلى هو علاج مستدام لمرضى الداء الكلوي بمراحله الأخيرة. إلا أنه يؤثر سلبا على الحياة الاجتماعية والحالة النفسية للمرضى كما تأثر وضعهم الاقتصادي سلبا في مستشفى بحري التعليمي لأن تكلفة غسيل الكلى تفوق دخلهم الشهري.

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CHAPTER 1

INTRODUCTION

1.1 Introduction:

End-stage renal failure, also known as end-stage renal disease (ESRD), is the final, permanent stage of chronic kidney disease, where kidney function has declined to the point that the kidneys can no longer function on their own. A patient with end-stage renal failure must receive dialysis or kidney transplantation in order to survive for more than a few weeks

Long complexThe available therapeutic options for ESRD are life-long, complex, and costly. These include kidney transplantation, hemodialysis (HD), and peritoneal dialysis (PD). Two forms of PD are currently in use, Continuous Ambulatory Peritoneal Dialysis (CAPD) in which fluids are exchanged manually, and Automated Peritoneal Dialysis (APD)(1)

Renal disease is common throughout the world. In the United State The incidence and prevalence rates of ESRD show a rapid increase (1). According to the National Center for Chronic Disease Prevention and Health Promotion, about 30 million people, or 15% of adults, in the U.S. are estimated to have chronic kidney disease. Chronic kidney disease can often be treated before it progresses to end-stage renal failure or leads to other health problem In Korea, the number of dialysis centers and machines has continuously increased, and 62.1% of patients receiving RRT were being treated with HD (Son et al., 2009). An international comparison showed that Taiwan has the greatest incidence and second-greatest prevalence of ESRD (Kuo et al., 2007). Furthermore, renal disease is one of the top 10 causes of death in Taiwan, and roughly 95% of ESRD patients are on HD. [1]

Currently, in Sudan there are 47 HD centers equipped with 539 dialysis machines. In 2011, the total number of HD patients was reported to be 11.053 patients, 38.1% of them are on chronic HD. Most of the HD

patients were adults (96%), with females constituting 34% of them peritoneal dialysis was started in 1968, while hemodialysis was started in 1973.In 1995, there were only 16 hemodialysis machines serving 56 patients in two centers. There are also 15 peritoneal dialysis beds for 70 intermittent peritoneal dialysis patients in three centers. Continuous ambulatory peritoneal dialysis is not being practiced in Sudan. It has been concluded that there is a tremendous shortage of renal services in Sudan. There are more efforts being made to improve these services. According to the Federal Ministry of Health records in 2017 there are 31 renal dialysis units in 12 states serving about 1608 patient of renal failure. [1]

While HD does not cure renal disease, its use does allow patients with ESRD to survive (Weisbord et al., 2007a). Nevertheless, HD is a lifelong treatment that significantly and sometimes adversely affects patients both physically and mentally (Kimmel, 2001). Common psychological effects include depression, anxiety; fatigue, decreased quality of life (QoL) and increased suicide risk (Chen et al., 2010). The global effects of continual treatment lead to changes in patients' family roles and ability to work, sexual function, time and mobility with feelings of loss of control. Further stressors, including medication effects, dietary constraints and fear of death these very real psychological consequences of treatment may affect survival in HD patients (Chilcot et al., 2011; Kimmel & Peterson, 2005). Therefore, it is imperative to identify and treat these psychological symptoms among HD patients. [1]

1.2Problem statement:

Chronic kidney disease (CKD) has been recognized as a leading public health problem worldwide. The global estimated prevalence of CKD is 13.4% (11.7-15.1%), and patients with end-stage kidney disease (ESKD) needing renal replacement therapy is estimated between 4.902 and 7.083 million. And the costs of renal replacement therapy are exceedingly high

and are consuming a significant proportion of health care budgets of developed countries, while in developing countries are out of reach.and also have impact on their psychological health mainly they enter in a depression because of long term disease and dialysis in a lack of psychological support

1.3 Justification:

End Stage Renal Disease is a common health problem worldwide and dialysis is considered as the most effective replacement therapy. It affects the social quality of life of patients، their psychologicl health and may lead to some sort of dysfunction. The cost of dialysis in developing countries exceeds the financial ability of the majority of patients.

This study aims to assess the socioeconomic and psychological problems that facing dialysis patients and try to find suitable solutions for it as much as possible.

1.4 General objective:

Assessment of socioeconomic and psychological impact of end stage Renal disease

1.5 Specific Objective:

-To identify sociodemographic characteristics that affects Quality of Life.

-To study the psychological effect of dialysis and related changes.

-To assess social impact of dialysis on end stage Renal disease patients.

-To compare between income of patient and the cost of hemodialysis.

CHAPTER 2

LITERATURE REVIEW

2.1chronic kidney disease (CKD)

Chronic kidney disease (CKD) is progressive loss in kidney function over a period of months or years. The symptoms of worsening kidney function are not specific, and might include feeling generally unwell or having a reduced appetite. Often, chronic kidney disease is diagnosed as a result of screening of people who are at risk, such as those with high blood pressure, diabetes, or a family history. This disease may also be identified when it leads to one of its recognized complications, such as cardiovascular disease, anemia, pericarditis or renal osteodystrophy. CKD is a long-term form of kidney disease; thus, it is differentiated from acute kidney disease in that the reduction in kidney function must be present for over 3 months

Chronic kidney disease is identified by a blood test for creatinine. Creatinine levels may be normal in the early stages of CKD, and the condition is discovered if urinalysis (testing of a urine sample) shows the kidney is allowing the loss of protein or red blood cells into the urine. To fully investigate the underlying cause of kidney damage, various forms of medical imaging, blood tests, and sometimes a kidney biopsy (removing a small sample of kidney tissue) are employed to find out if a reversible cause for the kidney malfunction is present.(2)

Prior guidelines classified the severity of CKD in five stages, with stage 1 being the mildest and stage 5 being a severe illness with poor life expectancy if untreated. Stage 5 CKD, also called end-stage kidney disease, usually means the person requires renal replacement therapy, which may involve a form of dialysis or a kidney transplant. Recent international guidelines reclassified CKD based on cause, glomerular

filtration rate (G1, G2, G3a, G3b, G4 and G5), and albuminuria (A1, A2, A3).

2.1.1. Signs and symptoms:

CKD is initially without specific symptoms and is generally only detected as an increase in serum creatinine or protein in the urine. As the kidney function decreases

Blood pressure is increased due to fluid overload and production of vasoactive hormones created by the kidney via the renin-angiotensin system

Urea accumulates, leading to azotemia and ultimately uremia (symptoms ranging from lethargy to pericarditis and encephalopathy). Due to its high systemic circulation, urea is excreted in eccrine sweat at high concentrations and crystallizes on skin as the sweat evaporates ("uremic frost").

Potassium accumulates in the blood (hyperkalemia with a range of symptoms including malaise and potentially fatal cardiac arrhythmias). Hyp

Erythropoietin synthesis is decreased causing anemia.

Fluid volume overload symptoms may range from mild edema to life-threatening pulmonary edema.

Hyperphosphatemia, due to reduced phosphate excretion, follows the decrease in glomerular filtration. Hyperphosphatemia is associated with increased cardiovascular risk, being a direct stimulus to vascular calcification.. Moreover, circulating concentrations of fibroblast growth factor-23 (FGF-23) increase progressively as the renal capacity for

phosphate excretion declines, but this adaptative response may also contribute to left ventricular hypertrophy and increased mortality in CKD patients.

Hypocalcemia, due to 1,25 dihydroxyvitamin D3 deficiency (caused by stimulation of FGF-23 and reduction of renal mass), and resistance to the calcemic action of parathyroid hormone.

The concept of chronic kidney disease-mineral bone disorder (CKD-MBD) currently describes a broader clinical syndrome that develops as a systemic disorder of mineral and bone metabolism due to CKD manifested by either one or a combination of: 1) abnormalities of calcium, phosphorus (phosphate), parathyroid hormone, or vitamin D metabolism; 2) abnormalities in bone turnover, mineralization, volume, linear growth, or strength (renal osteodystrophy); and 3) vascular or other soft-tissue calcification. CKD-MBD has been associated to poor hard outcomes.

Metabolic acidosis (due to accumulation of sulfates, phosphates, uric acid etc.) may cause altered enzyme activity by excess acid acting on enzymes; and also increased excitability of cardiac and neuronal membranes by the promotion of hyperkalemia due to excess acid (acidemia).

People with CKD suffer from accelerated atherosclerosis and are more likely to develop cardiovascular disease than the general population.

Sexual dysfunction is very common in both men and women with CKD. A majority of men have a reduced sex drive, difficulty obtaining an erection

2.1.2. Causes:

The most common recognized cause of CKD is diabetes mellitus. High blood pressure is also a very common cause of chronic kidney disease. Other causes of CKD include idiopathic (i.e. unknown cause, often associated with small kidneys on renal ultrasound) and glomerulonephritis.(17) Together, these cause about 75% of all adult cases.)

Vascular disease includes large vessel disease such as bilateral renal artery stenosis and small vessel disease such as ischemic nephropathy, hemolytic-uremic syndrome, and vasculitis.

Glomerular disease comprises a diverse group and is classified into:

Primary glomerular disease such as focal segmental glomerulosclerosis and IgA nephropathy (or nephritis)

Secondary glomerular disease such as diabetic nephropathy and lupus nephritis

Congenital disease such as polycystic kidney disease.

Tubulointerstitial disease includes drug- and toxin-induced chronic tubulointerstitial nephritis, and reflux nephropathy.

Obstructive nephropathy is exemplified by bilateral kidney stones and diseases of the prostate such as benign prostatic hyperplasia.

On rare cases, pinworms infecting the kidney can also cause nephropathy.

Nontraditional causes of CKD (CKDu) are denoted if the common causes of CKD are not present:

CKD of unknown cause is the subject of study by the Sri Lanka Ministry of Health and the World Health Organization 2009–2012.

Mesoamerican nephropathy, a form of CKDu, is "a new form of kidney disease that could be called agricultural nephropathy".

2.1.3. Classification of CKD:

The terminology for patients with declining renal function has varied over time and situation. Classification of renal diseases used to be categorized by the primary cause. In 2009, the National Kidney Foundation and Kidney Disease Outcomes Quality Initiative (NKF/KDOQI) published their guidelines with the purpose to unify the classification and definition of CKD.(10)The new classification system is based on the level of glomerular filtration rate (GFR).The accepted definition of CKD is kidney damage for ≥3 months, defined by structural or functional abnormalities of the kidney (pathological abnormalities or abnormalities of imaging or the composition of blood or urine), with or without decreased GFR. CKD is also defined as GFR <60 ml/min/1.73m for ≥3 months, with or without kidney damage. There are currently five stages of CKD (Table 1).

Table 1.1: classification of chronic kidney disease

STAGES	DESCRIPTION
Stage1	A normal eGFR greater than or equal to 90 mL/min/1.73m2
Stage 2	Slightly decreased eGFR between 60–89 mL/min/1.73m2 If your kidney function is at stage 1 or 2, you only have CKD if you have albuminuria, hematuria, a pathological abnormality or a structural abnormality.
Stage3a	Mild–moderate decrease in eGFR between 45–59 mL/min/1.73m2
Stage3b	Moderate–severe decrease in eGFR between 30–44 mL/min/1.73m
Stage4	severe decrease in eGFR between 15–29 mL/min/1.73m2
Stage5	kidney failure as eGFR decreases to less than 15 mL/min/1.73m2 or dialysis is started

2.1.4. Chronic kidney disease diagnosis

CKD is normally defined and diagnosed using the criteria proposed in the guidelines of the Kidney Disease: Improving Global Outcomes (KDIGO) (22):

1- Glomerular filtration rate (GFR) <60 mL/min/1.73m2 for ≥3 months, with or without kidney damage and/or

2- Kidney damage for ≥3 months, as defined by structural or functional abnormalities of the kidney, with or without decreased GFR, manifested by either:

a) Pathological abnormalities; or

b) Markers of kidney damage, including abnormalities in the composition of the blood or urine, or abnormalities in imaging tests. The best overall index of kidney function in health and disease is the GFR, whereas albuminuria is the most analyzed marker of kidney damage (indicates an increased glomerular permeability).

2.2 End-stage renal disease (ESRD)

End-stage renal disease (ESRD) is defined as irreversible decline in a person's own kidney function, which is severe enough to be fatal in the absence of dialysis or transplantation. ESRD is included under stage 5 of the National Kidney Foundation Kidney Disease Outcomes Quality Initiative classification of chronic kidney disease (CKD), where it refers to individuals with an estimated glomerular filtration rate less than 15 mL per minute per 1.73 m2 body surface area, or those requiring dialysis irrespective of glomerular filtration rate.(23) Reduction in or absence of kidney function leads to a host of maladaptive changes including fluid retention (extracellular volume overload), anaemia, disturbances of bone

and mineral metabolism, dyslipidaemia, and protein energy malnutrition. This review deals with ESRD in adults only. Fluid retention in people with ESRD contributes significantly to the hypertension, ventricular dysfunction, and excess cardiovascular events observed in this population. Anaemia associated with CKD is normocytic and normochromic, and is most commonly attributed to reduced erythropoietin synthesis by the affected kidneys. Additional factors contribute to the anaemia, including: iron deficiency from frequent phlebotomy, blood retention in the dialyser and tubing, and gastrointestinal bleeding; severe secondary hyperparathyroidism; acute and chronic inflammatory conditions (e.g., infection); and shortened red blood cell survival. Disturbances of bone and mineral metabolism such as hyperparathyroidism, hyperphosphataemia, and hypo- or hypercalcaemia, are common in people with CKD.(23) If untreated, these disturbances can cause pain, pruritus, anaemia, bone loss, and increased fracture risk, and can contribute to hypertension and cardiovascular disease (CVD).(24)

2.2.1 Incidence and Prevalence

According to the US Renal Data System 2009 annual report, there were 111,000 new cases of ESRD in 2007 — equivalent to an annual incidence of 361 cases per million population. The prevalence of ESRD in the US in 2007 was 527,283 (1698 cases per million population). According to international comparative data published in the US Renal Data System 2009 annual report, the highest incidence (415 per million population) and prevalence (2288 cases per million population) rates of ESRD in 2007 worldwide occurred in Taiwan. In 2007, Japan also observed relatively high incidence (285 per million population) and prevalence (2060 cases per million population) of ESRD, which included only people receiving maintenance dialysis.(25) In comparison, the incidence

of treated ESRD among all registries reporting to the European Renal Association–European Dialysis and Transplant Association Registry (ERA-EDTA) was 116 per million population in 2007. The overall prevalence of treated ESRD in 2007 among all registries reporting to the ERA-EDTA Registry was 662 per million population.(26)In 2007, the Australia and New Zealand Dialysis and Transplant Registry reported an annual incidence of treated ESRD of 110 people per million population in Australia and 109 people per million population in New Zealand. The prevalence of treated ESRD in 2007 was 797 people per million population for Australia and 793 people per million population for New Zealand.(27)

2.2.2Etiology and Risk factors

The amount of daily proteinuria remains one of the strongest predictors of progression to ESRD. Hypertension is a strong independent risk factor for progression to ESRD, particularly in people with proteinuria. Age is also a predictor for ESRD; people aged over 65 years have a four- to fivefold increase in risk of ESRD compared with people under 65 years of age.(11) Additional risk factors for developing ESRD include a history of chronic renal insufficiency, diabetes mellitus, heroin abuse, tobacco or analgesic use, non-white race or ethnicity, lower socioeconomic status, obesity, hyperuricaemia, and a family history of kidney disease.(28)

2.2.3 Prognosis

The overall prognosis of untreated ESRD remains poor. Most people with ESRD eventually die from complications of CVD, infection, or, if dialysis is not provided, progressive uraemia (hyperkalaemia, acidosis, malnutrition, altered mental functioning). Precise mortality estimates, however, are unavailable because international renal registries omit

individuals with ESRD who do not receive renal replacement therapy. Among people receiving renal replacement therapy, CVD is the leading cause of mortality, and accounts for more than 40% of deaths in this population. Extracellular volume overload and hypertension — which are common among people with chronic kidney disease — are known predictors of left ventricular hypertrophy and cardiovascular mortality in this population. Even after adjustment for age, sex, race, or ethnicity, and the presence of diabetes, annual cardiovascular mortality remains roughly an order of magnitude higher in people with ESRD than in the general population, particularly among younger people. (28)

2.3 Dialysis

2.3.1 Definition:

Dialysis is a procedure to remove waste products and excess fluid from the blood when the kidneys stop working properly. It often involves diverting blood to a machine to be cleaned.

Normally, the kidneys filter the blood, removing harmful waste products and excess fluid and turning these into urine to be passed out of the body.

Duration of dialysis, It depends. In some cases, kidney failure may be a temporary problem and dialysis can be stopped when kidneys recover.

But often, someone with kidney failure will need a kidney transplant. It's not always possible to carry out a kidney transplant straight away, so dialysis may be needed until a suitable donor kidney becomes available.

If a kidney transplant isn't suitable, dialysis may be needed for the rest of your life**.** [3]

2.3.2 Types of dialysis:

There are two main types of dialysis: hemodialysis and peritoneal dialysis.

2.3.2.1. Hemodialysis:

Hemodialysis is the most common type of dialysis and the one most people are aware of. During the procedure, a tube is attached to a needle in your arm. Blood passes along the tube and into an external machine that filters it, before it's passed back into the arm along another tube.

This is usually carried out three days a week, with each session lasting around four hours. [3]

2.3.2.2. Peritoneal dialysis:

Peritoneal dialysis uses the inside lining of your abdomen (the peritoneum) as the filter, rather than a machine. Like the kidneys, the peritoneum contains thousands of tiny blood vessels, making it a useful filtering device.

Before treatment starts, an incision is made near your belly button and a thin tube called a catheter is inserted through the incision and into the space inside your abdomen (the peritoneal cavity) this is left in place permanently.

Fluid is pumped into the peritoneal cavity through the catheter. As blood passes through the blood vessels lining the peritoneal cavity, waste products and excess fluid are drawn out of the blood and into the dialysis fluid. The used fluid is drained into a bag a few hours later and replaced with fresh fluid. Changing the fluid usually takes about 30-40 minutes and normally needs to be repeated around four times a day. If you prefer, this can be done by a machine overnight while you sleep. [3]

2.3.3Initiation of dialysis:

In clinical practice there is a wide variation in the timing of the starting dialysis therapy in patients with stage 5 CKD. There is a general tendency to start dialysis earlier with eGFR close to 15 mL/min rather than below 10 mL/min, despite a recent study showing that early initiation of dialysis was not associated with an improvement in survival or clinical outcomes.

This underscores the fact that decisions about the timing of starting dialysis therapy should be taken individually rather than by a numerical parameter. [4]

2.3.4 Indication of dialysis:

A. Clinical:

- **P**ulmonary edema
- **P**ericarditis
- **P**ersistent diarrhea.
- **P**reoperative.
- **C**oma.
- **C**onvulsion.
- **D**eterioration of general health.[5]

B. Laboratory:

- **Urea** : > 200 mg/dl (N : 20 - 40 mg/dl)
- **Creatinine** : > 8 mg/dl , > 7 in DM (N : 0.7 - 1.2 mg/dl)
- **K** : > 5.5 mEq/L (N : 3.5 - 5.5 mEq/L)
- **HCO3** : < 15 mEq/L
- **PH** : < 7.15
- **Creatinine clearance** : < 15 ml / min. [5]

2.3.5Complication of dialysis:

- Hypotension.
- Anaphylactic reactions to ethylene oxide, which is used to sterilize most dialyzers.
- The hard-water syndrome (caused by failure to soften water resulting in a High calcium concentration prior to mixing with dialysate Concentrate).
- Hemolytic reactions and air embolism.
- Peritonitis.
- Infection around the catheter site.

- CAPD is often associated with constipation.[4]

2.3.6 Complications of all long-term dialysis:

-arrhythmias and cardiovascular disease

- sepsis are the leading causes of death in long-term dialysis patients. Causes of fatal sepsis include peritonitis complicating peritoneal dialysis and *Staph. Aurous* infection (including endocarditis) complicating the use of indwelling access devices for hemodialysis.

-Dialysis amyloidosis: This is the accumulation of amyloid protein as a result of failure of clearance of β2-microglobulin, a molecule of 11.8 kDa. [4]

- Depression:

Depression is the most common psychiatric illness in patients with end-stage renal disease (ESRD). The reported prevalence of depression in dialysis population varied from 22.8% (interview-based diagnosis) to 39.3% (self- or clinician-administered rating scales). Such differences were attributed to the overlapping symptoms of uremia and depression. Systemic review and meta-analysis of observational studies showed that depression was a significant predictor of mortality in dialysis population. The optimal screening tool for depression in dialysis patients remains uncertain. The Beck Depression Inventory (BDI), Patient Health Questionnaire (PHQ) and Center for Epidemiologic Studies Depression Scale (CESD) have been validated for screening purposes. [6]

2.4Previous studies:

2.4.1 GLOBAL PERSPECTIVES IN RRT:

Although there is a lack of uniform data around the world, the total number of those who need RRT is growing in all high-income countries and also in middle income countries.

In the United States in 2003, 360,000 people with ESRD were on RRT. There were 150,000 10years ago, and according to a recent forecast analysis there will be 650,000 10 years from now. The forecasted point prevalence of total ESRD counts had an exponential growth trend, whereas the forecasted incident counts demonstrated a more linear trend. This different pattern of growth is probably attributable to improved survival rates for dialysis and transplantation: death rates are lower and patients are accumulated at a rate that exceeds reduced influx of new patients.

Growth in the ESRD population has relevant implications for health care systems. The 1-year cost per patient on maintenance hemodialysis is more than US $52,000, and the cost for transplantation is approximately US $18,500. In the United States, the expenditure of Medicare for dialysis is 5%of total budget but serves only 0.7% of patients assisted by Medicare. In Europe, the proportion of the total health care budget absorbed by RRT varied in 1994 from 0.7% in the United Kingdom to 1.8% in Belgium, whereas the population with ESRD is only 0.022% to 0.04%, respectively, of the total population.

Although there are not similar studies in other countries, it is likely that in all high-income countries, the number of people requiring RRT will grow at a similar rate during the next decade.

It is interesting to examine the changing pattern of ESRD in Central and Eastern Europe. Data collected from 15 Central and Eastern European countries documented an expansion of renal replacement in this region during the last decade. When these countries were associated with the former Soviet Union, the availability of RRT was very poor. From 1990 to 1996, a period that followed profound socioeconomic changes in Central and East Europe from 1989, the number of hemodialysis centers increased by 56% and the number of centers performing peritoneal

dialysis increased by 296%. The number of patients increased by 78% (hemodialysis) and 306% (peritoneal dialysis), respectively. Still, the total number of patients on dialysis (prevalence) and the number of those who initiate every year (incidence) are still different in the European Union and Central and Eastern Europe. Such a great difference clearly underlines that socioeconomic status is the major determinant of availability of RRT.

Data for many of the low-income countries are not available, but given the prevalence of poor socioeconomic factors, the incidence of ESRD is likely to be greater than in high-income countries. In poor nations, for example in sub-Saharan Africa, economic and manpower factors dictate a conservative approach to therapy in most instances, but the majority of those with ESRD perish because of lack of funds; very few can afford regular maintenance dialysis and renal transplantation is often not available. Limitations to regular maintenance dialysis include the paucity of dialysis units, restriction of those units to urban centers, and absence of government funding or subsidy and health insurance to cover high costs of dialysis. The few available units are plagued with multiple problems: old machines frequently break down, and there is an absence of adequate maintenance, technical support, and spare parts, and lack of consumables and frequent power outages. In India and Pakistan, treatment of ESRD is a low priority for cash-strapped public hospitals, and in the absence of health insurance plans, or private insurance, less than 10% of all patients receive any kind of RRT.

The vast majority of patients starting hemodialysis dies or stops treatment because of cost constraints within the first 3 months, and less than 2% of patients are started on ambulatory peritoneal dialysis. Although renal transplantation is the cheapest option, only about 5% of all patients with ESRD end up having a transplant.

In summary, the incidence of ESRD is increasing worldwide at an annual growth rate of 8%, far in excess of the population growth rate of 1.3%. Nearly 1 million people or only 15% of the world population are receiving hemodialysis worldwide, 80% of whom are treated in Europe, North America, and Japan. Twenty percent are treated in 100 developing countries that make up over 50% of world population, and a sizeable proportion of people living in the poorest countries dies of uremia because of the complete lack of RRT. [7]

2.4.2NATIONAL STUDIES:

In a study of characteristics of hospitalized patients with end stage renal failure (ESRF) in Salma Renal Dialysis Centre, Khartoum ,Sudan which done by Abdelsafi A Gabbad1*, Hager I Babikir2, Hadeel H Abd allah2**:** The required data were collected by direct interview with 50 patients who were hospitalized at the Centre. It was found that most of patients were males 32(64%) while the rest 18(36%) were females. About 3(6%) of patients were in age group ≤ 20 years, 24(48%) were aged 21-40 years of old, 19(38%) were 41-60 years and only 4(8%) were above 60 years. Illiterate patients represented 26% and educated ones were 74% of the sample. The disease occurred suddenly in 31(62%) and gradually in 19(38%) of patients**.** [8]

Other Study was done to assess Costs of Hemodialysis and Kidney Transplantation in Sudan which done by Mohamed Elhafiz Elsharif, Elham Gariballa Elsharif t, Waheeb Hassan Gadour they conduct a cross-sectional study to estimate the costs of kidney transplantation and compare those with the costs of hemodialysis per year. They enrolled 78 patients on regular hemodialysis for at least 2 years and 33 kidney transplant patients on regular follow-up at Gezira Hospital for Renal Diseases and Surgery in Sudan.

Results The annual cost of hemodialysis was found to be US $ 6847.00. The total cost of the first year after transplantation was US $ 14 825.04 and the cost of kidney transplantation after the first year was US $ 10 651.00. The total hospitalization days and absence from work were less in the transplant group.

Conclusions Hemodialysis in Sudan is less expensive than transplantation. [7]

2.4.3Regional study:

In previous study was performed under the title "Peritoneal Dialysis in Africa" conducted by Hasan Abu Aisha and Sarra Elamin the study gave the following result:

In 2007, Africa's dialysis population constituted only 4.5% of the world's dialysis population, with a prevalence of 74 per million population (pmp), compared to a global average of 250 pmp. In almost half the African countries, no dialysis patients are reported. The prevalence of peritoneal dialysis (PD) was 2.2 pmp, compared to a global prevalence of 27 pmp, with the bulk of African PD patients (85%) residing in South Africa. In North African countries, which serve 93% of the African dialysis population, the contribution of PD to dialysis is only 0% – 3%. Cost is a major factor affecting the provision of dialysis treatment and many countries are forced to ration dialysis therapy. Rural setting, difficult transportation, low electrification rates, limited access to improved sanitation and improved water sources, unsuitable living circumstances, and the limited number of nephrologists are obstacles to the provision of PD in many countries. [9]

Prevalence of depression and associated factors among hemodialysis patients in Jazan area, Saudi Arabia:

A cross-sectional study conducted by Asim Othayq and Abdulwahab Aqeeli; The study found the overall prevalence of depression among patients on hemodialysis to be 43.6 per cent. Of them, 12.8 per cent were mildly depressed, 15.6 per cent were moderately depressed and 15.1 per cent fell in the severe or extremely severe category.

Patients' age ranged between 16 and 90 years (mean ± SD: 48.5 ± 14.8). Almost half of them (47 per cent) were in the age group 31-50 years, whereas 17.5 per cent of them were aged over 60 years. Female patients represent 59.7 per cent, with almost two-thirds of them (66.4 per cent) being married. Majority of patients live with others (95.7 per cent) and were not working (85.3 per cent). Regarding educational level, 60.7 per cent of the participants were illiterate, whereas 9.4 per cent were at least university graduates. The prevalence of current smoking, diabetes and hypertension among patients were 4.7, 23.2 and 68.2 per cent, respectively. Moreover, 55.9 per cent of the patients had sleep disturbances, and 31.3 per cent were physically active. The duration of hemodialysis ranged between one month and 31 years with a mean of five years and a standard deviation of 5.1. Approximately, 27.5 per cent of the patients had hemodialysis duration that exceeded five years, whereas 20.9 per cent of them had a duration of one year or less of hemodialysis. Depression was more likely to be reported among patients who were female (50.8 per cent, $p = 0.010$), divorced or widowed (72.4 percent, $p = 0.001$), illiterate (53.1 percent, $p = 0.002$), had sleep disturbance (57.6 percent, $p < 0.001$) and were physically inactive (49.7 percent, $p = 0.009$). Smoking history, histories of diabetes and hypertension and duration of hemodialysis were not significantly associated with depression. [10]

2.4.4Global studies:

Social Life of Patients Undergoing Hemodialysis

This study was conducted in four hospitals in Athens (three in public centers and one in private sector and shows the following Results**:**

The average age of the subjects was 50-59 years old and 69% were male. The majority (66%, n=66) was married while 6.06% (n = 6) has a total employment, 3.03% (n = 3) has a part time employment, 10.10% (n = 10) are unemployed while 80.81% (n = 80) are retired , a 27.3% (n=27) were in moderate economic status, a 29.3% (n=29) were in poor economic status 23.2% (n = 23) have a good economic situation, while 11.1% (n = 11) and 9.1% (n = 9) have a very good and excellent economic situation respectively. The largest percentage of the respondents 41.7% (n=40) agreed that end stage renal disease affected negatively the quality of their life Physical health and emotional problems affected social relationships and activities for 21.6% (n =21) and 12.4% (n =12) of the participants respectively. While 45.3% (n=43) used to spend too much time trying to cope with nephropathy. A 32.7% (n=32) reported a lot satisfaction from the time they spend with family and friends while a 68.3% (n = 67) were feeling that were burden to their family because of nephropathy. A 17.7% (n = 17) answered that they were often isolated from other people, 37.5% (n= 36) behaved with irritation to other a few times and a 23.7% (n = 23) had trouble in thinking and concentrating few times. Concerning the support provided from family and friends, a 52% (n = 51) was very satisfied, respect to work, 71.9% (n = 69) of the participants reported that their health was not a barrier to work. the majority of the participants(n= 44) (44%) had been receiving dialysis for one to three years, while(n= 28) (28%) four to eight years, (n=14) (14%) over eight years and (n=14)

(14%) less than one year. Finally, (n=95) (95%) patients had to receive dialysis three times a week, each session lasting for four hours**.** [11]

According to study on Psychological Impact of Hemodialysis on Patients with Chronic Renal Failure which done by Liang-Jen Wang and Chih-Ken Chen they found that Depression is one of the most common psychological problems among HD patients. We still lack reliable data that can be used to directly compare the prevalence of depression between HD patients and the general population. However, extant investigations generally agree that the rate of depression is high among HD patients.

In the general population, the lifetime prevalence of major depressive disorder is about 16.2% (Kessler et al., 2003). However, the rates vary widely across countries, ranging from 1.5% in Taiwan to 19% in Beirut, Lebanon (Weissman et al., 1996). Chilcot et al. (2008) reported that the prevalence of major depression among ESRD patients is approximately 20% to 30%. When we reviewed the recent literature, depression rates among HD patients ranged from 19.3% (Araujo et al., 2011) to 60.5% (Kao et al., 2009). The variation in prevalence rates of depression might be accounted for by differences in sample sizes and assessment tools (Watnick et al., 2005). Despite such discrepancies, depression is unquestionably one of the most important mental illnesses among HD patients. Strong correlations have been noted between depression and longitudinal outcome among HD patients, including poor treatment adherence and higher mortality rates (Drayer et al., 2006; Kimmel et al., 1993). In addition, depression in HD patients is associated with higher rates of hospital admission, and a greater likelihood of emergency department visits (Abbas Tavallaii et al., 2009; Hedayati et al., 2008).[1]

Study	Number of patients	Prevalence of depression
Ibrahim & Salamony (2008)	60	Depression: 33.3%
Kao et al. (2009)	861	Depression: 60.5%
Bossola et al. (2010)	80	52.5%

CHAPTER 3

METHODOLOGY

3.0Research Methodology:

3.1Study Design:

The study design was Descriptive cross sectional in hospital based study design.

3.2Study area :

The study was conducted at bahri teaching hospital indialysis center the center was located at Khartoum State, Sudan ,in Khartoum north

3.3Study duration :

The study was conducted in the duration from August- December 2022

3.4Study Population:

The study included Patients with end stage renal disease that receive renal dialysis as replacement therapy and presented to bahri teaching hospital are of different ages, resident, occupation, educational level and socioeconomic status.

3.4.1Inclusion Criteria:

All patients with end-stage renal disease who undergo renal dialysis at Bahriteachinghospital.

3.4.2Exclusion Criteria:

Patients not on regular hemodialysis "patients with acute kidney injury "

3.5 Sample Size:

A sample of 151 out of 243 registered hemodialysis patients was recruited by convenient sampling. The sample size is determined using Slovin`s formula :

$$\mathbf{n=}\frac{N}{(1+Ne^2)}$$

Whereas**:**

n:The sample size to be computed

N: Total population

e:The degree of accuracy desired (accepted margin of error=0.05)

The total population (N) =243 so when we apply the formula the sample size (n) will equal 151.

We use this equation because we have well defined population group "propability sample "

3.6Sampling technique and data collection:

Non-probability Convenient sampling method based on interview.

3.6.1Instruments:

The data was collected by well-designed, interviewer questionnaire of Close ended questions.

3.6.2The Variables:

:Dependences

- Age.
- Gender.
- Educational level.
- Occupation.
- Marital status.
- Income.
- Cost of dialysis.
- **:Independences**
- Social impact of dialysis.
- Psychological effect of dialysis on patients.

3.5.3Data Analysis:

The collected data was analyzed using Statistical Package of Social Science also known as (SPSS) version 25.

3.7Ethical Considerations:

- License has been obtained from Napata College of medicine.
- Permission from Bahri teaching hospital
- Verbal consent from the patients.
- Research purpose and objectives has been explained to the participants in clear and simple words.
- Ethical conduct had been maintained during data collection and throughout the research process.

CHAPTER
RESULT

Results

Figure (i): Distribution of study population by gender **n=151**

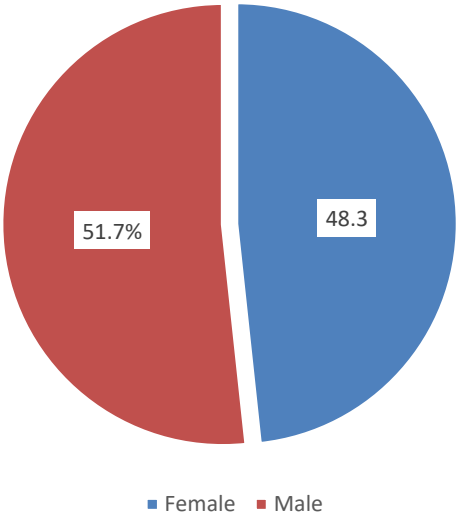


Figure (ii): distribution of study population by Age **n=151**

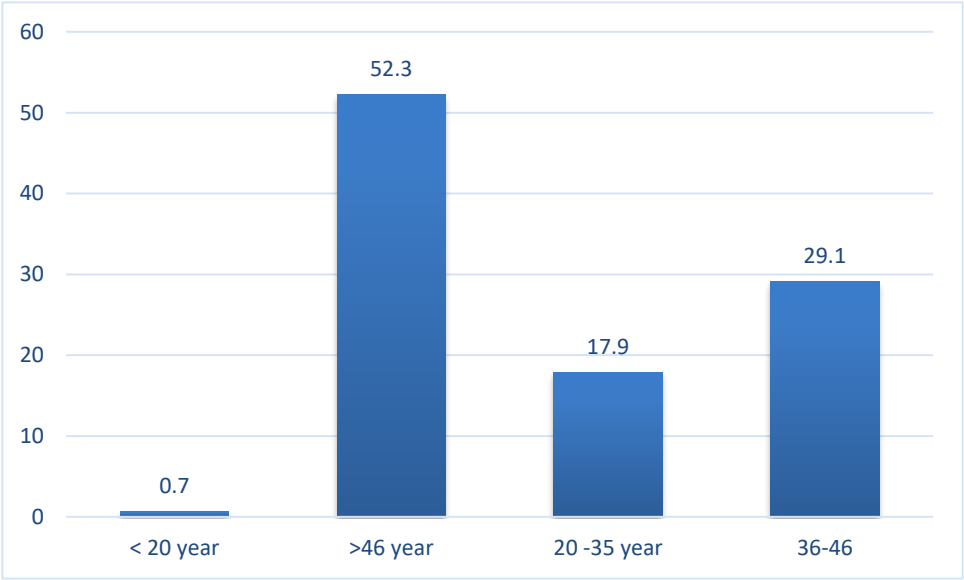


Table (2): distribution of study population by educational level **n=151**

Educational level	Frequency	Percent
Illiterate	19	12.6
Primary	21	20.5
Secondary	31	13.9
University	42	25.2
Postgraduate	31	27.8
Total	151	100.0

Table 3): Distribution of study population by occupation **n=151**

Occupation	Frequency	Percent
Free worker	34	22.5
Governmental employee	23	15.2
Housewife	34	22.5
Pension unemployed	23	15.2
Private sector employee	21	13.9
Student	16	10.6
Total	151	100.0

Figure (iii): Distribution of study population by marital status **n =151**

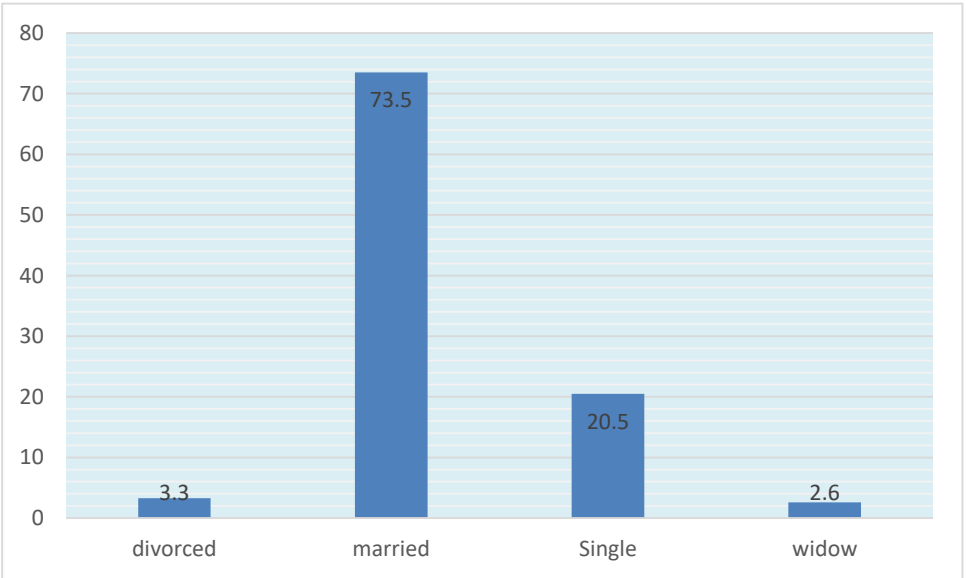


Table (4): Distribution of study population by monthly income **n=151**

SDG/Month	Frequency	Percent
Undefined	61	40.4
60.000 - 100.000 SD	13	8.6
40.000-60.000 SD	23	15.2
Less than 40.000 SD	28	18.5
More than 100.000 SD	26	17.2
Total	151	100.0

Table (5) Distribution of study population by Duration of end stagerenalfailure **n=151**

Years	Frequency	Percent
1 -2 years	33	21.9
3 - 4 years	34	22.5
5 years or more	70	46.4
Less than 1 year	14	9.3
Total	151	100.0

Table (6): Distribution of study population by Duration of hemodialysis dialysis **n=151**

Years	Frequency	Percent
1 -2 years	34	22.5
3 - 4 years	37	24.5
5 years or more	64	42.4
Less than 1 year	16	10.6
Total	151	100.0

Figure (IV): Distribution of study population by continuity of dialysis

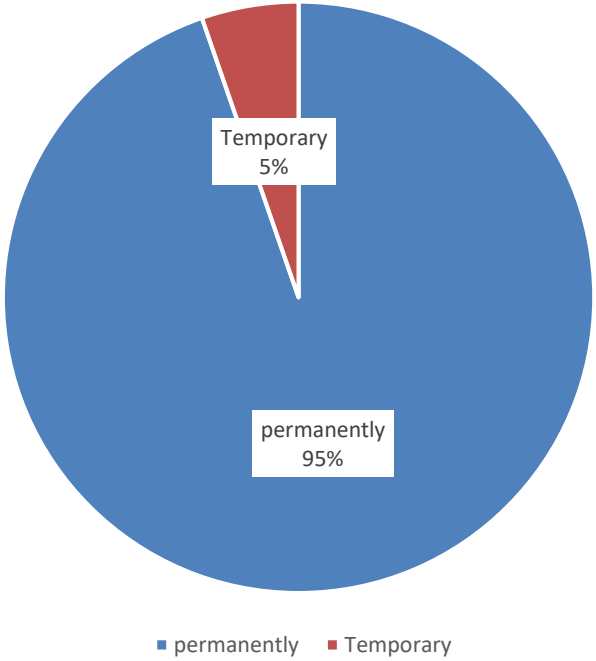


Table (7): Distribution of study population by Number of sessions per week

Number of sessions	Frequency	Percent
Twice	141	93.4
Three	10	6.6
Total	151	100.0

Table (8): Distribution of study population by Hours of dialysis per session

Hours	Frequency	Percent
3	1	.7
4	150	99.3
Total	151	100.0

Figure (V): Distribution of study population by presence of health insurance

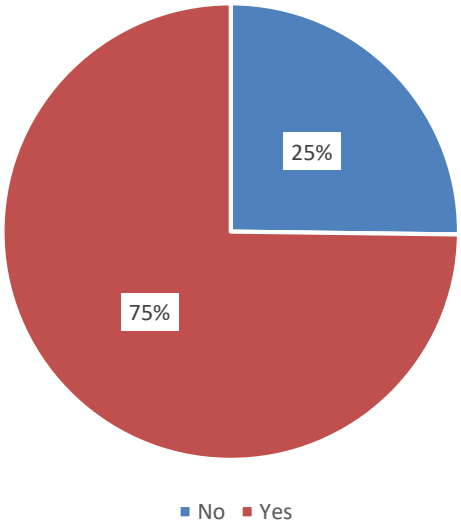


Figure (VI): Distribution of study population by the cost of medication for dialysis per month

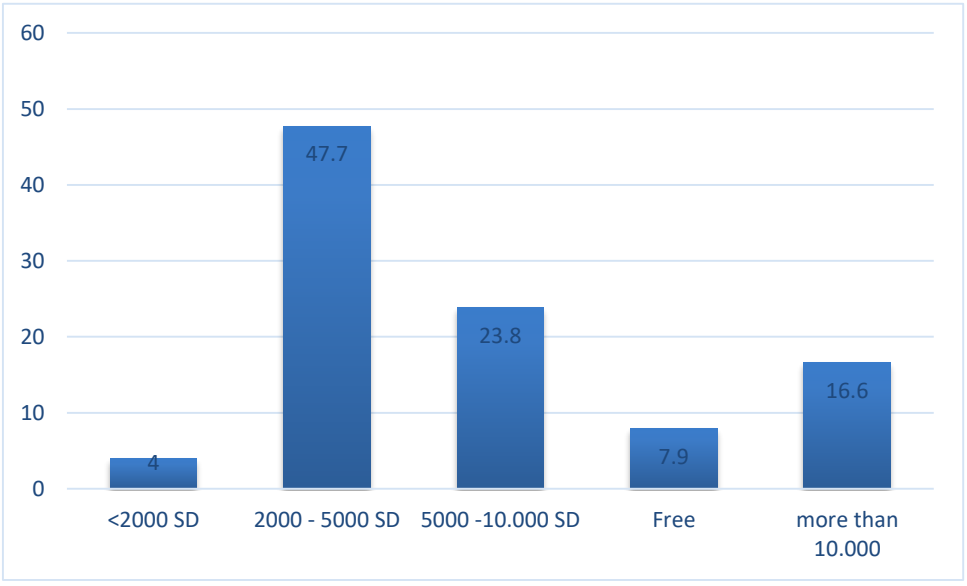


Figure (VII): Distribution of study population by the cost of investigation and laboratory tests per month

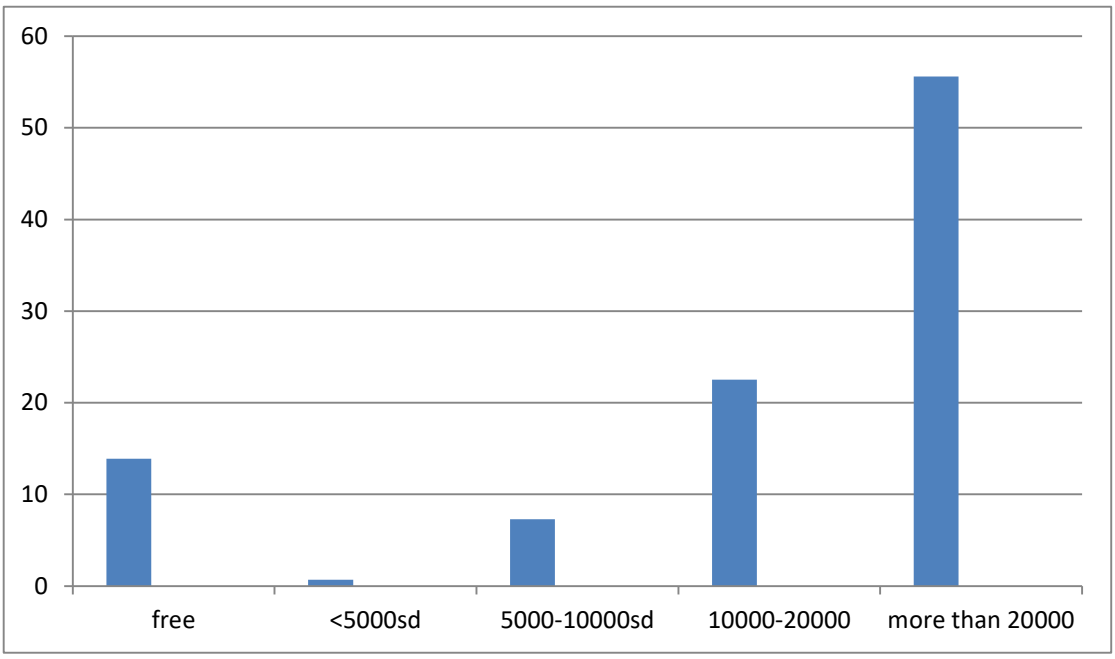


Table (9): Distribution of study population by the Transportation means

Means of transportation	Frequency	Percent
Private car	81	53.6
public transportation	70	46.4
Total	151	100.0

Table (10): Distribution of study population by the cost of Transportation per session

Cost of transportation	Frequency	Percent
Free	50	33.1
< 5000	1	.7
5000 _ 10.000 SD	3	2.0
>10.000 SD	97	64.2
Total	151	100.0

Figure (VIII): Distribution of study population by the income coverage of demand and cost of treatment

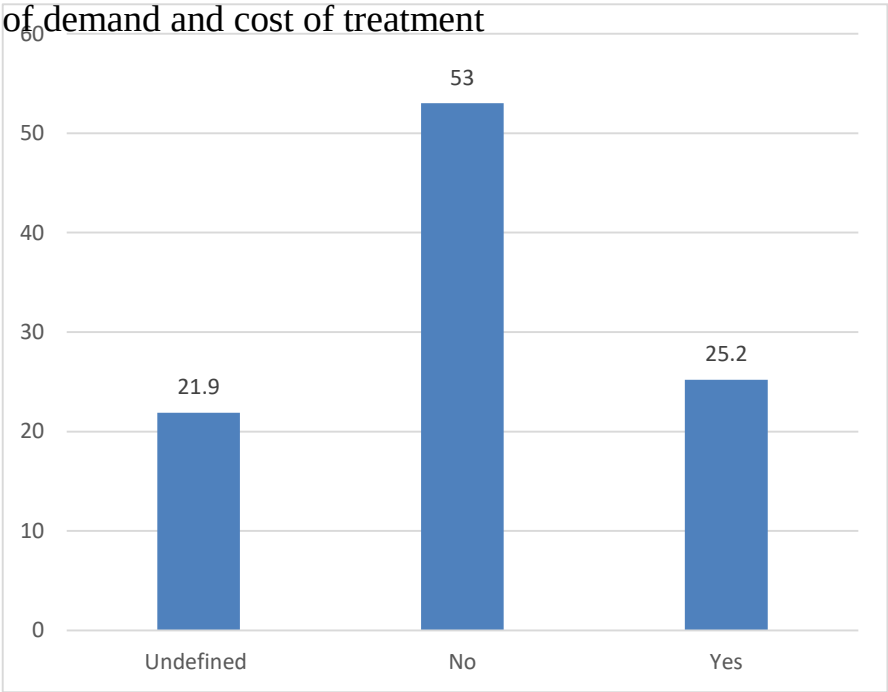
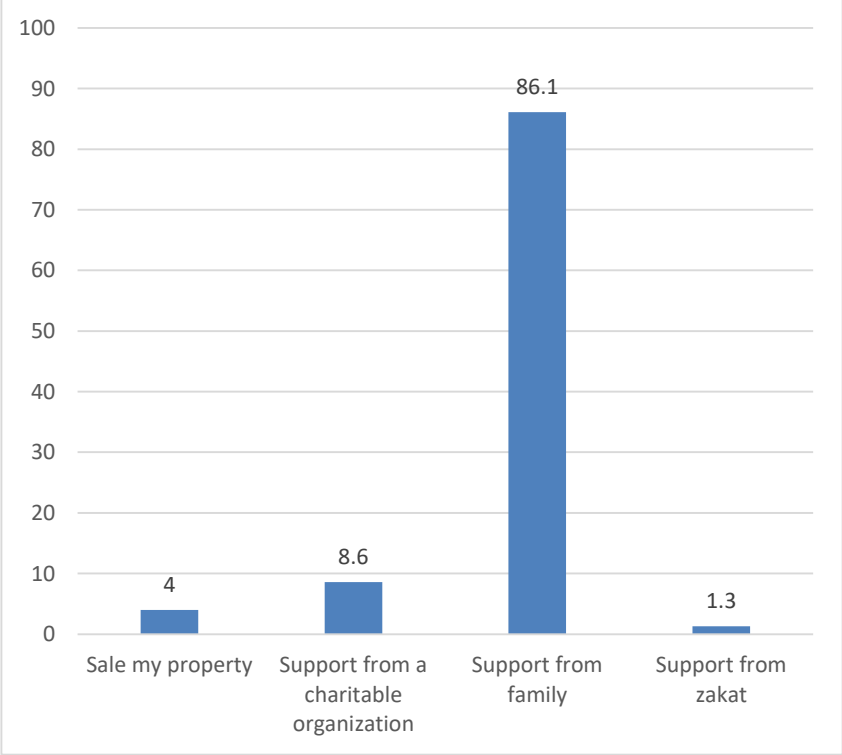


Figure (IX): Distribution of study population by financial support in treatment continuation[7]



Figure(X): Distribution of study population by presence of other sources of income

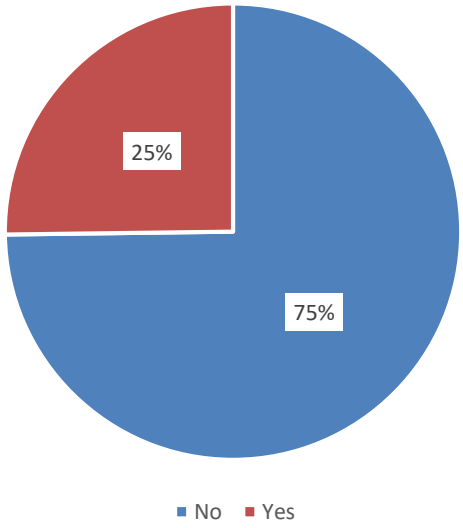


Table (11): Impact of Hemodialysis dialysis on social life

1. Impact on social life		
	Yes	No
Frequency	110	41
Percent	72.8	27.2
2. Impact on social events		
	Yes	No
Frequency	84	67
Percent	55.6	44.4
3. Impact on family/friends relationships		
	Yes	No
Frequency	37	114
Percent	24.5	75.5
4. Impact on husband/wife relationship		
	Yes	No
Frequency	18	93
Percent	16.2	83.8
5. Divorce cases affected by dialysis		
	Yes	No
Frequency	5	13
Percent	27.8	72.2
6. Impact on education of student		
	Yes	No
Frequency	13	3
Percent	81.25	18.75

Figure (XI): Psychological impact of hemodialysis according to gender

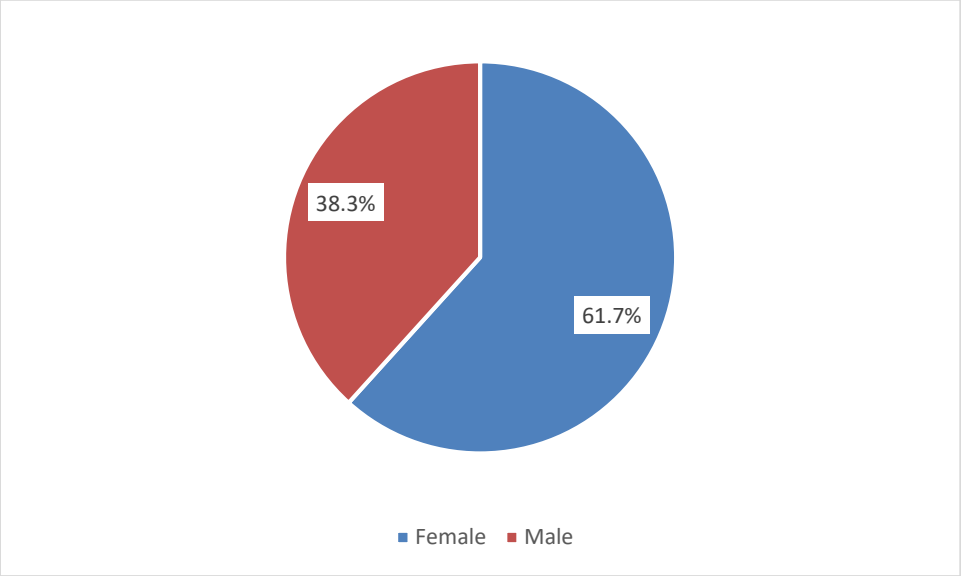


Figure (XII): Relationship between depression due to dialysis and gender

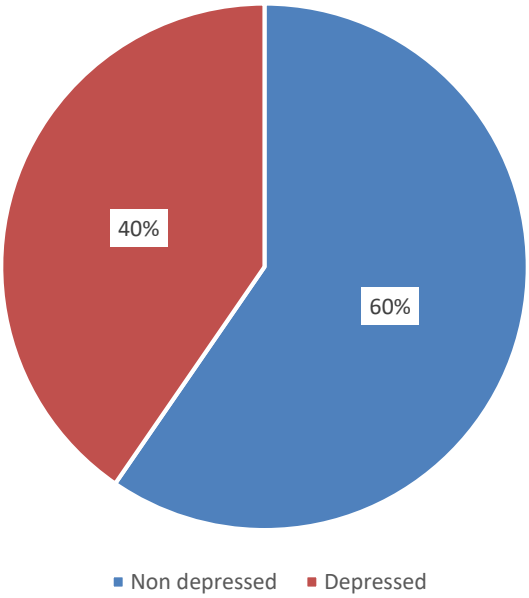


Table (12): Relationship between depression due to dialysis and age

Age	depression	Frequency
< 20 year	1.7	1
20 -35 year	23.3	14
36-46 year	31.7	19
>46 year	43.3	26

Figure (XIII): Relationship between severity of depression due to dialysis and gender

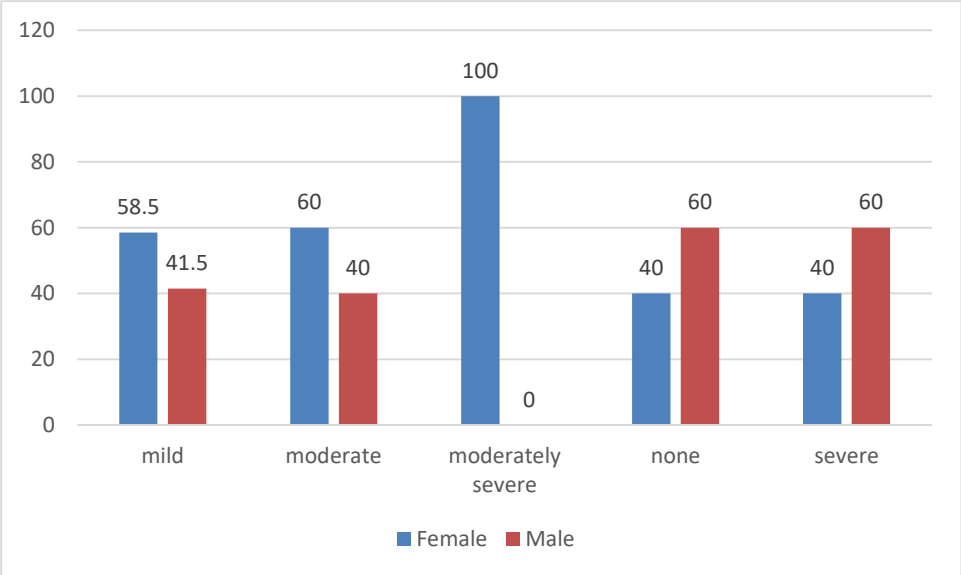


Table (13): Relationship between severity of depression due to dialysis and age

Age	Mild	moderate	Moderately severe	none	severe
< 20 year	2.4	0	0	0	0
20 -35 year	21.9	10	40	14.4	40
36-46	41.6	20	20	26.6	0
>46 year	34.1	70	40	58.9	60

CHAPTER 5
DISCUSSION

5.1Discussion:

A descriptive cross-sectional facility based study has been conducted on 151 patients to assess the socioeconomic and psychological impact of renal dialysis among end stage renal disease patients in Bahri Teaching hospital

According to our study there is male percentage predominance 51.7% comparing to female percentage 48.3%. This percentage is lower than study that has been conducted in Sudan in Salma Renal Care Center in 2015[8] with 64% male predominance. Regarding the age of the participants 0.7% were <20 year,17.9% were 20-35 year, 29.1% were 36-46 year, with the majority of the participants 52.3% were > 46 year, in contrast in the same previous study[8] 48% of the participants were 21-40 year old.

The educated participants were 87.4% higher than the same previous study [8] with 74% of participants educated.

Regarding the occupation 48.3% of the participants were unemployed. In contrast other study has been conducted in four hospitals in Athene [11] 10% were unemployed.

Regarding the marital status 2.6% were widows, 3.3% were divorced, and 20.5% were single and the majority 73.5% were married higher than that in Athene[11] 66%.

Regarding the economic status 33.7% of the patients who were included in the study are of low economic status and 8.6% of them are of moderate status in compare to Athens [11] 27.3% of patients were in moderate economic status while 29.3% in low economic status. Due to their low economic status there is shortage in funds of dialysis which forced 4% of

patients to sale their property to deal with the cost of dialysis; while 86.1% receive financial support from their families.

The largest percentage of the patients 72.8% agreed that end stage renal failure affected negatively the quality of their social life; for instance 55.6% of them stopped going to social events, 24.5% have bad relationship with their families and friends, 81.3% of students stopped their education and 16.2% of the married get divorced.

The study revealed that the majority of the patients 60% have depression which is higher than that in Saudi Arabia [10] 43.6%.

Depression was more likely to be reported among patients who were males 61.7% which is higher than Saudi Arabia 49.2%, in contrast the study in Saudi Arabia shows; depression was more likely to be reported among patients who were females 50.8% which is higher than our study 38.3% females.

Patients in age more than 46 year was found to be the most affected participants with 43.3% depressed.

5.2Conclusion:

-Hemodialysis is a life-sustaining treatment for patients with ESRD; however, it adversely affects patients' social life and relationships also their economic status was affected negatively in Bahri teaching hospital because the cost of dialysis exceed their monthly income.

-Depression was highly prevalent among patients on hemodialysis in females, old age as well as those having sleep disorders were more likely to have depression. Our findings draw attention to the importance of screening hemodialysis patients for depression to intervene early.

5.3Recommendation:

-We recommend having a psychotherapists ,psychologist and psychiatrist in Bahri Teaching Hospital to educate patients how to cope with the dialysis process and to provide suitable psychotherapy for each patient .However, counseling intervention should be provided to unit's staff through educational programs aimed at raising awareness and promoting bio psychosocial approach to the disease and the patient. Support groups would be appropriate to the individual psychological approach .

-make connection between charity organizations and patients to provide financial support for dialysis patients to decrease the cost of medication for dialysis

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ANNEXES

بسم الله الرحمن الرحيم

Bahri University – College of Medicine

Questionnaire about Socioeconomic and Psychological impact of Renal Dialysis

Section (A) Sociodemographic factor:

1. **Gender**:

a. Male ( )
b. Female( )

2. **Age** :

a. < 20 year ( )
b. 20 -35 year ( )
c. 36 – 46 year ( )
d. >46 year ( )

3. Educational level :

a. Illiterate.( )
b. Primary.( )
c. Secondary.( )
d. University.( )
e. Postgraduate.( )

4. **Occupation** :

a. Student.( )
b. Free worker.( )
c. Governmental employee.( )
d. Private sector employee.( )
e. Pension unemployed.( )

5. **Marital status** :

   a. Single. ( )
   b. Married.( )
   c. Divorced.( )
   d. Widow.( )

6. **How much is your income/month?**

a. Less than 40.000 SD. **( )**
b. 40.000– 60.000 SD. **( )**
c. 60.000 – 100.000 SD.**( )**
d. More than 100.000 SD.**( )**
e. Undefined **( )**

Section (B): **Economical status:**

7. **For how long you have renal failure?**

a. Less than 1 year **( )**
b. 1 – 2 years**( )**
c. 3 – 4 years **( )**
d. 5 years or more**( )**

8. **For how long you on renal dialysis?**

a. Less than 1 year **( )**
b. 1 – 2 years **( )**
c. 3 – 4 years **( )**
d. 5 years or more **( )**

9. **Was the dialysis?**

a. Temporary( )
b. permanently( )

10. **How many sessions per week?**

a. Once( )
b. Twice( )
c. Three( )
d. four ( )

11. **How many hours the single session take?**

a. 2 ( )
b. 3 – 4 ( )
c. 4 ( )

12.Do you have Health insurance?

a. Yes ( )
b. No( )

13.What is the Cost of medication for dialysis per month?

a. Free ( )
b. <5000 SD ( )
c. 5000 – 10.000 SD ( )
d. 10.000 – 20.000 SD ( )
e. More than 20.000 SD ( )

14.What is the Cost of investigation and laboratory tests per month?

a. Free( )
b. <5.000 SD ( )
c. 5000 – 10000 SD( )
d. 10.000 – 20.000 SD ( )
e. More than 20.000 SD( )

15.By what do travel to reach the dialysis center?

a. Private car( )
b. public transportation( )

16.What is the Cost of transportation for one session?

a. Free
b. <5000 SD( )
c. 5.000 -10.000 SD( )
d. More than 10.000 SD( )

17.DO you think your income enough to cover your demand and cost of treatment?

a. Yes ( )
b. no ( )

18.Who help you to continue your treatment?

a. Support from family ( )
b. Support from a charitable organization ( )
c. Support from Zakat ( )
d. Sale my property( )

19.Do you have another source of income :

a. Yes ( )
b. no ( )

Section (C): Social status:

20.Did the dialysis affect your social life?

a. Yes ( )
b. no ( )

21.If yes did you stop going to social events?

a. Yes ( )
b. no ( )

22.Did the dialysis effect your relationship with your family and friends?

a. Yes ( )
b. no ( )

23.Did the dialysis effect your relationship with your husband/wife?

a. Yes ( )
b. No( )

24.**If yes did you divorced** :

a. Yes( )
b. No ( )

25.If you are student do you continue your study :

a. Yes ( )
b. no ( )
c. yes but irregularly ( )

Section (D): **Psychological status:**

26.Do you feel little interest or pleasure in doing things?

a. Not at all( )
b. Several days( )
c. More than half of the days ( )
d. Nearly everyday ( )

27.Do you feel down, depressed or hopeless?

a. Not at all ( )
b. Several days ( )
c. More than half of the days( )
d. Nearly everyday ( )

28. Do you have trouble falling or staying sleep or sleeping to much?

a. Not at all( )
b. Several days( )
c. More than half of the days( )
d. Nearly everyday ( )

29.Do you feel tired or having little energy?

a. Not at all ( )
b. Several days ( )
c. More than half of the days( )
d. Nearly everyday( )

30.Do you have poor appetite or overeating?

a. Not at all ( )
b. Several days ( )
c. More than half of the days( )
d. Nearly everyday ( )

31.Do you feel bad about yourself or that you have let yourself or your family down?

a. Not at all ( )
b. Several days ( )
c. More than half of the days( )
d. Nearly everyday( )

32.Do you have trouble concentrating?

a. Not at all ( )
b. Several days ( )
c. More than half of the days( )
d. Nearly everyday( )

33. **Do you move or speak so slowly that other people could have noticed, or the opposite being so restless that you have been moving around a lot more than usual?**
    a. Not at all ( )
    b. Several days ( )
    c. More than half of the days ( )
    d. Nearly everyday( )
34. **Do you have thoughts that you would be better off dead or of hearting yourself in some way?**
    a. Not at all ( )
    b. Several days ( )
    c. More than half of the days( )
    d. Nearly everyday ( )

e. جامعة بحري - كلية
f. استبيان حول التأثير الاجتماعي والاقتصادي والنفسي لغسيل الكلى
g. قسم (أ) العامل الاجتماعي الديموغرافي:
h. جنس تذكير أو تأنيث:
i. ( ) ذكر
j. ( ) أنثى
k.
l. سن :
m. () أقل من 20 سنة
n. () 20-35 سنة
o. () 36-46 سنة
p. () 46 < سنة
q. المستوى التعليمي :
r. () أمي.
s. ( ) ابتدائي.
t. ( ) ثانوي.
u. ( ) جامعة.
v. ( ) دراسات عليا.
w.
x. إشغال :
y. () طالب.
z. () عامل حر.
aa. () موظف حكومي.
bb. () موظف في القطاع الخاص.
cc. () معاش عاطل عن العمل.
dd.
ee. الحالة الاجتماعية :
ff. () غير مرتبطة.
gg. ( ) متزوج.
hh. ( ) مطلق.
ii. () أرملة.
jj.
kk. كم هو دخلك / شهر؟
ll. () اقل من 40.000 جنيه سوداني.
mm. () 40.000-60.000 SD.
nn. () 60.000 - 100.000 جنيه سوداني
oo. () أكثر من 100.000 جنيه سوداني

pp.( ) غير معرف
qq.
rr. القسم (ب) الوضع الاقتصادي:
ss. إلى متى لديك الفشل الكلوي؟
tt. ( ) أقل من 1 سنة
uu.() 2-1 سنة
vv.() 4-3 سنوات
ww. () 5 سنوات أو أكثر
xx.
yy.إلى متى أنت على غسيل الكلى؟
zz.( ) أقل من 1 سنة
aaa. () 2-1 سنة
bbb. () 4-3 سنوات
ccc. () 5 سنوات أو أكثر
ddd.
eee. هل كان غسيل الكلى؟
fff.( ) مؤقت
ggg. ( ) بشكل دائم
hhh.
iii. كم عدد الجلسات في الأسبوع؟
jjj. ( ) مرة واحدة
kkk. ( )مرتين
lll. ( )ثلاثة
mmm. () أربعة
nnn.
ooo. كم ساعة تستغرق الجلسة الواحدة؟
ppp. () 2
qqq. () 4-3
rrr.() 4
sss.
ttt.
uuu. هل لديك تأمين صحي؟
vvv. ( ) نعم
www. ( )لا
xxx.
yyy. ما هي تكلفة دواء غسيل الكلى في الشهر؟
zzz. ( ) حر

aaaa. () SD 5000>
bbbb. () جنيه سوداني 10.000 - 5000
cccc. () جنيه سوداني 20.000 - 10.000
dddd. () أكثر من 20.000 جنيه سوداني
eeee.
ffff. ما هي تكلفة التحاليل والفحوصات المخبرية شهريا؟
gggg. ( )حر
hhhh. () دقة قياسية 5.000>
iiii. () SD 10000-5000
jjjj. () جنيه سوداني 20.000 - 10.000
kkkk. () أكثر من 20.000 جنيه سوداني
llll.
mmmm. بماذا تسافر للوصول الى مركز غسيل الكلى؟
nnnn. ( ) سيارة خاصة
oooo. ( ) وسائل النقل العامة
pppp.
qqqq. ما هي تكلفة النقل لجلسة واحدة؟
rrrr. حر
ssss. () SD 5000>
tttt. () جنيه سود 10000 - 5.000
uuuu. () أكثر من 10.000 جنيه سوداني
vvvv.
wwww. هل تعتقد أن دخلك كاف لتغطية طلبك وتكلفة العلاج؟
xxxx. ( ) نعم
yyyy. ( ) لا
zzzz. من يساعدك على مواصلة علاجك؟
aaaaa. () دعم من الأسرة
bbbbb. () دعم من منظمة خيرية
ccccc. () دعم الزكاة
ddddd. () بيع الممتلكات الخاصة بي
eeeee.
fffff. هل لديك مصدر دخل آخر:
ggggg. ( ) نعم
hhhhh. ( ) لا
iiiii.
jjjjj. القسم (ج): الحالة الاجتماعية:
kkkkk. هل أثر غسيل الكلى على حياتك الاجتماعية؟

lllll. ( ) نعم
mmmmm. ( ) لا
nnnnn.
ooooo. إذا كانت الإجابة بنعم ، هل توقفت عن الذهاب إلى المناسبات الاجتماعية؟
ppppp. ( ) نعم
qqqqq. ( ) لا
rrrrr.
sssss. هل أثر غسيل الكلى على علاقتك بأسرتك وأصدقائك؟
ttttt. ( ) نعم
uuuuu. ( ) لا
vvvvv.
wwwww. هل أثر غسيل الكلى على علاقتك بزوجك / زوجتك؟
xxxxx. ( ) نعم
yyyyy. ( ) لا
zzzzz.
aaaaaa. إذا كانت الإجابة بنعم ، فطلقت:
bbbbbb. ( ) نعم
cccccc. ( ) لا
dddddd.
eeeeee. إذا كنت طالبا ، فتابع دراستك:
ffffff. ( ) نعم
gggggg. ( ) لا
hhhhhh. () نعم ولكن بشكل غير منتظم
iiiiii.
jjjjjj.
kkkkkk. القسم (د): الحالة النفسية:
llllll. هل تشعر بقليل من الاهتمام أو المتعة في فعل الأشياء؟
mmmmmm. ( ) على الاطلاق
nnnnnn. ( ) عدة أيام
oooooo. () أكثر من نصف الأيام
pppppp. ( ) كل يوم تقريبا
qqqqqq. هل تشعر بالإحباط أو الاكتئاب أو اليأس؟
rrrrrr. ( ) على الاطلاق
ssssss. ( ) عدة أيام
tttttt. () أكثر من نصف الأيام
uuuuuu. ( ) كل يوم تقريبا

vvvvvv. هل تجد صعوبة في السقوط أو الاستمرار في النوم أو النوم لفترات طويلة؟

wwwwww. على الاطلاق( )

xxxxxx. عدة أيام( )

yyyyyy. أكثر من نصف الأيام ()

zzzzzz. كل يوم تقريبا ( )

aaaaaaa. هل تشعر بالتعب أو أن لديك القليل من الطاقة؟

bbbbbbb. على الاطلاق ( )

ccccccc. عدة أيام ( )

ddddddd. أكثر من نصف الأيام ()

eeeeeee. كل يوم تقريبا( )

fffffff. هل تعاني من ضعف الشهية أو الإفراط في الأكل؟

ggggggg. على الاطلاق ( )

hhhhhhh. عدة أيام ( )

iiiiiii. أكثر من نصف الأيام ()

jjjjjjj. كل يوم تقريبا ( )

kkkkkkk. هل تشعر بالسوء حيال نفسك أو أنك تخذل نفسك أو عائلتك؟

lllllll. على الاطلاق ( )

mmmmmmm. عدة أيام ( )

nnnnnnn. أكثر من نصف الأيام ()

ooooooo. كل يوم تقريبا( )

ppppppp. هل لديك صعوبة في التركيز؟

qqqqqqq. على الاطلاق ( )

rrrrrr. عدة أيام ( )

sssssss. أكثر من نصف الأيام ()

ttttttt. كل يوم تقريبا( )

uuuuuuu. هل تتحرك أو تتحدث ببطء شديد بحيث يمكن أن يلاحظه الآخرون ، أم أن العكس هو الذي لا يهدأ لدرجة أنك تتحرك كثيرا أكثر من المعتاد؟

vvvvvvv. على الاطلاق ( )

wwwwwww. عدة أيام ( )

xxxxxxx. أكثر من نصف الأيام ()

yyyyyyy. كل يوم تقريبا( )

zzzzzzz. هل لديك أفكار أنه من الأفضل لك الموت أو أن تسمع نفسك بطريقة ما؟

aaaaaaaa. على الاطلاق ( )

bbbbbbbb. عدة أيام ( )

ccccccccc. أكثر من نصف الأيام ()

ddddddddd. كل يوم تقريبا ( )