

Depression in Chronic Kidney Disease Patients

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Abstract: Depression means feeling low or sad all day without any significant reason. Chronic kidney disease, is a kidney disorder where the kidneys completely fail to excrete the waste products from the body. Due to the chronicity of the kidney disease, in this ailment patients along with their physical illness, face many psychological problems mainly depression. Along with the regular stress of life this diagnosis of CKD puts more pressure psychologically. Psychiatric disorders like depression sometimes diagnosed after the CKD diagnosis. This study focuses on the influence of depression on these patients and influence of demographic variables. The tool used in this study is Beck Depression Inventory (BDI) a scale invented by Beck and accepted universally. A simple random sampling is done for selecting hospital and the responses have been collected from the clients of selected hospital. A stratified random sampling is used to divide the sample in three different age groups. Results of the study revealed strong relationship between depression and CKD. Age or employment does not change the severity of depression. That means the study shows no significant influence of demographic variables on the depression on CKD patients. The BDI scale show majority of CKD patients are suffering from moderate and severe depression. Some patients may require medical management and some may be benefited from counselling and cognitive behavioural therapy.

Keywords: Chronic kidney disease, Health care, Depression, Cognitive behavioural therapy.

1. Introduction

Depression: Depression is a mood disorder, which is presented with many symptoms. The main ones are persistent low mood and sadness, and also with regular loss of interest in activities of daily living. Just because someone is suffering from CKD, doesn't mean that they will experience depression [1]. This is an illness needs to be treated by a professional just as any other illnesses like HTN or Diabetes mellitus. Sleeping more than usual, wake up early even though it's not one's routine, over eating or not eating, and suicidal ideation. The most dangerous feature of depression is that if it is left untreated it can escalate to be suicidal. It is treated with pharmacology medication or talk therapy or a combination of both [2].

2. Risk Factors of Depression

The risk factors are;

Abuse: Past history of physical abuse during childhood, may be sexual or emotional abuse, which the person probably unable to disclose to any family member due to fear of disapproval or insult, can increase the vulnerability. People may suffer from

clinical depression due to hidden anger and frustration later in life.

Certain medications: Some drugs, such as iso-tretinoin (acne treatment), some of the antiviral medications used to treat viral infections, anti-cancer drug, (chemotherapy) such as interferon-alpha, and good few steroids, can increase the risk.

Conflict: Personal conflicts or family disputes may lead to depression in someone who has the biologically vulnerable mind.

Death or a loss: Death or loss of a loved one may cause extreme sadness and probably unable to move or make conversation with people, though this is natural phenomena, sometimes if ignored some people may end up with severe depression.

Genetics: With a family history having any mental disorders such as anxiety, phobia or depression will have some impact. It's thought that depression is a complex trait. There may be many different genes involved in the trait. Each gene might exert small effects and all put together the contribution to risk of depression is greater. Some of the *purely* genetic diseases such as Huntington's chorea or cystic fibrosis the genetics are simple and straight forward unlike depression. Female sex hormones and Circadian rhythm disturbances also play a role as risk factors.

Substance abuse: Though some drugs or alcohol temporarily might help in alleviating the problem temporarily but ultimate effect is to aggravate depression.

Personal problems: Some of the mental illnesses may cause isolation and the person affected may be curtailed from family programs or social activities. The families still are not accepting the mental illness as physical illness. Some parts of India still consider it as taboo or social stigma which ultimately can contribute to the risk of serious illnesses. There is a possibility that depression may co-exist with any major chronic illness. Some instances there may be underlying medical conditions triggering the mental illness. [5].

3. Types of Depression

Major Depressive Disorder: MDD (major depressive disorder), is diagnosed when a person presenting with at least five or more symptom criteria listed in the Diagnostic and Statistical Manual of Mental Disorders also known as DSM. Mental health conditions are diagnosed by professionals using this manual. The criteria as per DSM-V classifications are along

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with more than five symptoms one must experience developing clinical depression at least once a day or must be having the symptoms consistently for a period not less than 2 weeks:

- Irritable and feeling sad throughout the day.
- Interest will be lost in those activities which one used to enjoy before the onset of the disorder.
- Change in appetite which is a sudden onset or losing or gaining weight.
- Change in sleep patterns; one might find trouble sleeping or too sleepy.
- Experiencing feeling of restlessness without any reason.
- Extreme tiredness and completely lethargic.
- Feeling of guilty or worthless, for silly reasons as one would never think about it when normal.
- Experiencing difficulty in concentrating, problem thinking, or finding it extreme difficult in making decisions.
- Suicidal ideation or constant thinking about harming oneself.

Persistent Depressive Disorder (PDD): is a type of depression where the symptoms are chronic and most part of the symptoms is low mood. Also known as dysthymia, but not much in use anymore. *Causes*: It is more prevalent in women, though the exact cause is not known but some people have family history. Major depression symptoms are experienced by the PDD sufferers at some point in their lives. Elderly people who are suffering from PDD may require assistance in activities of daily living, as they struggle with isolation, or have medical illnesses [6], [7].

Unipolar Depression: Symptoms of low mood and low interest in pleasurable activities. The predominant feature may be depressed mood, they may also have anxiety and other symptoms of depression - but might not have any manic episodes.

Bipolar Depression: is characterized by having both manic symptoms and depressive episodes as presented in unipolar depression. In between the unipolar and bipolar there will be time periods of normal mood (previously called manic depression).

Postpartum Depression: Women after childbirth may suffer from this mood disorder. Extreme sadness may be experienced by the mother after delivery along with anxiety for no reason. The exhaustion after delivery may provoke the situation. It will be difficult for them to complete daily routines such as attending to personal hygiene, feeding the baby and care of the baby etc.

Premenstrual Dysphoric Disorder: It is more serious than premenstrual syndrome; PMDD may start a week or two before the period starts and may cause severe irritability or depressive episodes or anxiety. These symptoms may last for two to three days once the period commences. Treatment may be required such as rest, relaxation and sometimes medication to help to alleviate these symptoms. Symptoms of PMDD include: Irritability may last too long in few of the women as well as anger together might affect other family members around them.

Sadness or despair lasting for too long or even suicidal ideation will obviously disturb others in the family. Tension, getting anxious about every little thing at home and panic attacks leading to mood swings which ultimately disturbing the whole family routines.

Seasonal Affective Disorder (SAD): Seasonal changes causing a type of depression. SAD will have symptoms starting in the beginning of winter months and lasts through winter and sunshine being the prime importance. Taking steps to keep the mood and motivation steady is important throughout the year.

Atypical Depression: Also known as atypical feature with signs of brightening of mood when there is a positive event. Same as any other depression the key symptoms include over appetite, too much sleep, feeling heavy or feeling rejected. Causes may be brain differences; brain chemicals also known as neurotransmitters carry signals once received to other parts of brain and body. If there an abnormal or impaired nerve receptors the nerve function and systems change which may be the leading cause to depression. Inherited traits; Genetic composition is also the cause of depression.

4. Chronic Kidney Disease

The term 'Chronic Kidney Disease' means complete damage to both the kidneys that could get worse over time. In a worst case scenario when the damage is worse, kidneys stop working completely. This in turn causing kidney failure, also known as end stage renal disease. If the kidneys fail, patient needs haemodialysis or kidney transplantation for survival. The risk factors are;

- Diabetes mellitus
- High Blood Pressure (Hypertension)
- Patients with Heart Disease, brain stroke
- Family history of kidney disease
- People taking excessive pain killer medications,
- Smokers with kidney stones
- Long standing and recurrent kidney infections.
- Urinary tract infections
- Being African –American or Asian
- Age factor being over 60 years' old

5. Signs and Symptoms

CKD patients usually deteriorate slowly; sometimes person may be asymptomatic until the kidneys are completely damaged. The symptoms are;

- Muscle cramps.
- Sudden onset of itching.
- Nausea and Vomiting due to higher level of urea in blood (uraemia).
- Appetite will be lost due inadequate excretion of waste from body.
- Swelling or oedema of feet & ankles or whole body. (anasarca).
- Passing too much of urine (polyuria) or not enough urine (oliguria).
- Shortness of breathing on exertion or without exertion.

- Unable to sleep and so on.

CKD patients could also have few other problems with other parts or organs of the body functioning. Some of the common complications of CKD include anaemia, renal osteo-dystrophy (bone disease), cardio vascular diseases, high potassium; high calcium also known as dys-electrolytemia and fluid overload. There are 5 stages of CKD, which are based on how well the kidney can function by filtering waste and extra fluid out of blood. The eGFR is a blood test that measures how well the kidney filters waste from the blood. Control measures are as follows.

- Better control of blood sugar levels in diabetes mellitus patients
- Keep blood pressure in a safe level.
- Strictly adhering to low salt, low fat and low protein diet.
- Exercise being at its best; minimum of 30 minutes' walk per day on an average of 5 days a week
- Healthy weight is the best tool of prevention of many diseases
- Curtailing from unhealthy habits such as smoking, use of tobacco, drugs alcohol etc.
- Talk to the specialist doctor about medicines that can help in protecting the kidneys
- Kidney health diet as per dieticians order to be followed.

The main purpose of this study is to help patients in gaining a better understanding of the chronic illness and relationship between CKD and depression. How much awareness the patients have regarding their illness they are suffering from. How the disease related to depression. There had not been much studies to slow or reduce the incidents of depression in CKD patients who are on dialysis , or may be waiting for a kidney transplantation.

- Depression has negative psychological effects on CKD patients.
- Along with physical exhaustion anxiety and depression would cause mental exhaustion too.
- The family members are going to suffer along with the patient.

CBT and talk therapy are the suitable therapy to overcome depression in these chronic patients.

It is not reliably established whether prolonged exposure to the dialysis, diet restrictions, and regular use of medications would have more impact on their lifestyle. What is the impact on family members (spouse, parents, children etc.) as well. Benefits of clinical counselling, balancing time between rest and travel to treatment, everything plays very important role on betterment of CKD patients. No much material available for our review of such studies, principally for the reason that more importance is given to the diagnosis, analysis, and preventive measures of depression along with treatment of CKD. Now the question arises how the CKD patient maintains the mental balance? There is a possibility and there have been examples that the CKD patients to a certain degree tends to adapt some of the behavioural patterns of other CKD patients whom they meet

in the dialysis department [22]. They develop a defence mechanism to unconsciously reject the state of their general condition and also involuntarily reduce the burden of treatment fatigue for themselves. In order to maintain the mental balance there is a need to diffuse the 'involuntary invasion' by the physical problem, it is vital to find out the means of achieving it.

There could be probably remedies which may be achieved by diverting the mind away from the physical illness. Involving in randomly selected activities which could give them comfort would be the choice at the time. Though they are suffering from this chronic disease, it is important for them to have socialisation, participation in social functions to keep them emotionally involved in society. My study aims to investigate further the impact of depression on top of their already existing physical illness, chronic kidney disease (CKD). Demographic data sheet is used to understand depression in chronic kidney disease patients among demographic variables i.e., income per annum, employment, area, educational qualification. It will help to understand how demographic variables are related to depression [23].

6. Methodology

This study is designed to undertake the study on depression in CKD patients of different age groups and this study will be carried out in hospitals under the supervision of Nephrologists in and around Vijayawada city, Andhra Pradesh. Permission to carry out the study has been accepted by the hospital. Methodology of study includes Research problem, Objectives, Hypothesis, Sample, Research design, Test/ Tools, for data collection and data analysis techniques. This proposes to use a cross sectional exploratory survey design by recruiting an available purposive sample of patients.

Objectives of study: The specific objectives proposed are: To study the effects of depression on CKD patients. The influence of selected demographic variables like different age groups are studied, i.e., Group 1(25-45), Group 2, (46-65) and Group 3 (65 And above). To study difference in depression levels in employed and unemployed group of CKD patients. To identify the relationship between severity of depression and demographic variables.

Hypothesis: The following hypothesis is postulated; there will be depression in chronic kidney disease patients among different age groups. There will be significant influence of demographic variables in severity of depression. There will be significant relationship between severity of depressions in CKD patients.

Population of the Study: All the patients who participated in this study are from a specific population i.e., from the hospitals with different age groups and from different areas. Sampling is done randomly.

Sampling: In order to collect data for the study, chronic kidney disease patients are selected by stratified random sampling technique.

Research Design: To study the severity of anxiety and depression while compare it with different age groups and other variables. To find out which age group suffers from more

Table 1

Sample area	Group 1 25 -45years		Group 2 46-65 years		Group 3 65 & above		Total
	Expected sample size	Taken sample Size	Expected Sample size	Taken sample Size	Expected Sample size	Taken sample size	Taken sample size
Sunrise Hospitals Vijayawada	50	50	50	60	50	40	150
Total	50	50	50	60	50	40	150

depression a descriptive approach is used.

Tools for the Study: 1. Demographic data sheet: This device is expected to contain queries for elicitation of details on personal, familial, socio-economical and related details on or about the sample included in the study. Important Demographic variables in Demographic data sheet are *Area:* Rural and Urban. *And Employment:* Employed and Unemployed.

Tools /Tests for Data selection: Tools are the procedures of the research that are linked up with nature of problem under investigation. The relevant details of the tool used in this investigation is Becks Depression Inventory (BDI).

Intervention: In present research efforts have been made to encourage CKD patients to deal with their physical illness positively, by evaluating their mental status, whether they are suffering from anxiety and depression? If yes, the levels of anxiety and depression are estimated. In this study first a good rapport was established with patient by asking questions.

Scope of the Study: This study is based on the responses of CKD patients from a multi-speciality hospital where the patients come from in and around Vijayawada. In this study data will be collected from Sunrise Hospitals (Dr Sai Krishna, Nephrologist). The data collected will show the level of depression in CKD patients. Then the data collected will be separated according to their groups i.e., Group1, Group 2, Group 3 to show which group has higher level of depression comparing to other groups. Demographic variables are also collected from patients regarding their anxiety and depression levels and the factors affecting them.

Statistical Analysis Technique: Keeping in view of the objectives of the study, Descriptive statistical analysis is used to explain the variables of the study. For this purpose, Mean, Standard deviation, correlation and “t” test was computed to study the relationship between variables. The result so obtained interpreted and discussed in the light of problem factors to make the result meaningful.

7. Findings

Depression has major impact on everyone’s life. In case of physical conditions such as CKD it disturbs the quality of life. Depression could be the culprit to increase hospitalization, mortality and morbidity in CKD patients. By evaluating the levels of depression, we could treat them early and prevent frequent hospitalisation.

A. BDI (Beck Depression Inventory)

The levels of depression among number of patients according to their age groups in my sample.

Table 2

Age group	Mild	Moderate	Severe
25-45	12	34	4
46-65	16	30	14
65 and above	6	28	6

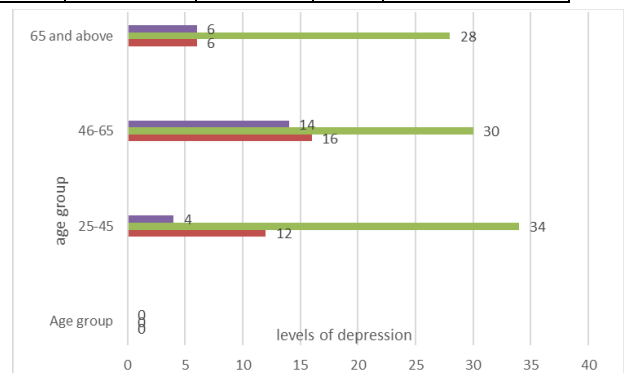


Fig. 1. Levels of depression

- In the age group of 25-45, mild depression 24%.
- Moderate depression 68%.
- Severe 8%
- In the age group of 46-65 Mild 27%.
- Moderate 50%
- Severe 23%.
- Mild depression in the age group of 65 and above are 15%
- Moderate 70%
- Severe 15%.

According to the above table and calculations majority of CKD patients suffer from moderate depression in all the age groups. The number of patients suffering from mild depression is second highest number in the given population. Minimal numbers of patients suffer from severe depression. This comparison works the same with all selected age group of patients.

8. Depression in Different Age Groups Measured Using BDI Scale

- It is clearly shown in all the measurements that, there is significant relation between depression and CKD in all different age groups.
- In the study it shows that there is some influence of demographic variables such as age and employment, in changing the severity of depression among CKD patients. Employed people suffer less when compared to unemployed patients.
- While comparing the demographic variable age; the middle age group of 46-65 suffered more compared to the other two age groups of younger (25-45) and elder (65 and above) groups.
- Here it does not show strong relationship but positive relationship between depressions among different age group of CKD patients. All the CKD patients are suffering from

depression which is mild form and does not require any treatment. Moderate people suffer from moderate depression and very less people suffer from severe form of depression and they require hospitalisation.

9. Summary

Total number of patients suffering from severe depression is less comparing to mild and moderate depression sufferers. While studying about employed and unemployed category, comparatively the unemployed suffered more than employed of moderate and severe depression; however, the severe depression is the culprit of hospitalisation. Both the studied category using BDI showed majority of patients suffer from mild and moderate depression, does not matter whether they are young or old, employed or un-employed. My study shows there is a strong relationship between depression and CKD. The level of depression varies in different age groups and employment. My conclusion is more patients suffer from the moderate and mild form of depression and severe depression is not experienced by majority of CKD patients.

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