



Correlation Between Anxiety, Depression And Physical Activity In Patients With Chronic Kidney Disease

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Abstract:

BACKGROUND: The patients with chronic kidney disease are compromised with the symptoms of anxiety, depression which potentially impacts on the physical activity and overall quality of life. In order to understand the condition in these patients is difficult for improving the management and outcomes. The aim of the study was to check the correlation between the anxiety, depression and the physical activity in the patients with chronic kidney disease.

MATERIALS AND METHODOLOGY: The study was conducted with 80 patients with known case of chronic kidney disease in tertiary care hospital including both the males and the females of age group between 35 to 65 years. The anxiety and depression are checked by using the Hospital anxiety and depression questionnaire which includes 14 questions and 2 subscales. The 6 Minute Walk Test is the sub-maximal test which is performed by the patient by walking for 6 minutes comfortably. The Pre vitals and the Post vitals of the patient are to be measured which includes Blood Pressure, Pulse rate, Respiratory rate and the rate of perceived exertion before and after the test respectively. The consent form was signed by the participants willingly. The collected data was statistically analyzed for the results.

Results: Among the 80 patients studied 55% of patients suffering from abnormal levels of anxiety, 53% of patients are suffering from abnormal levels of depression and while in case of 6mwt 76% of patients failed to attain the normal range.

Conclusion: There is positive correlation between anxiety and depression, negative correlation between anxiety and physical activity and positive correlation between depression and physical activity scores.

Keywords: Chronic kidney disease, correlation, anxiety, depression physical activity.

I. INTRODUCTION

The kidneys are one of the vital organs of the renal system that helps in maintaining the normal functioning of the human body.¹ The function of kidney is to maintain the electrolyte balance, water transport, excreting metabolic waste products, conserving nutrients and regulating acid base balance.² The renal system maintains the volume and composition of the extracellular fluid of the body.² It is controlled by GFR i.e. glomerular filtration rate and Tubular reabsorption.² If the kidneys do not work properly, the toxic waste and the extracellular fluid accumulates in the body which leads to increase in blood pressure. ²The kidney disease is long standing disease of kidney that leads to renal failure. Renal failure results in changes in various body function. ³The chronic kidney disease is the abnormal deterioration of functions of kidney that

progress over time and develops for many years.³ Chronic kidney disease may affect the 10% of the global population. Chronic kidney disease is a disease with poor prognosis that causes loss of renal function and progresses to the end stage of the renal disease.² It is based on either the kidney damage or decreased function of the kidney for three or more months irrespective of the cause. The patients with CKD encounter significant psychological challenges that affect their well being.⁶ Many people with CKD who require dialysis treatment were reported with severe psychological distress.³ Patients with chronic kidney disease often present with symptoms like Anxiety and Depression. Anxiety is characterized by disruptive feelings of uncertainty, dread and fearfulness.¹⁶ Anxiety is depressive symptom among the patient undergoing haemodialysis in patients with chronic kidney disease.¹⁶

Depression is also a common symptom in patients with chronic kidney disease with life time risk of ~7% population.³ Many patients with chronic kidney disease are unmotivated to incorporate the exercise in daily living.³ Patient with chronic kidney disease have reduced level of physical activity which reduces the physical functioning of the body. Lower physical activity is associated with the poorer quality of life.

The Hospital anxiety and depression scale is a questionnaire used to evaluate the level of anxiety and depression which consists of two subscales and 14 questions.⁷ The 6 Minute Walk Test is the sub-maximal type of test which is performed by patient itself comfortably. It is performed by the patients to assess their physical activity or physical functioning of the body.⁴ So, the present study is to check the correlation between the anxiety, depression and the physical activity in patients with chronic kidney disease.

II. Material and Methods

Study population and sample

The study included 80 patients in the age group 35-65 years. The correlational study was conducted at YCRH Dialysis unit and Deshpande hospital dialysis unit, Latur. Participants were selected according to inclusion and exclusion criteria. The aim, objective and method of study was explained to the participants Ethical clearance was taken from the Institute Ethical Committee of Maharashtra Institute of Physiotherapy, and written consent was obtained from all patients at the time of study enrollment.

Inclusive criteria were: [1] Known case of CKD. [2] Age group of 35 to 65 yrs. [3] Both males and females are included. [4] Patients willing to participate.

Exclusive criteria were: [1] Patients with restless leg syndrome. [2] Musculoskeletal issues. [3] Patients with unstable vitals. [4] Neurological issues.

Methodology:

Anxiety and depression is assessed by using Hospital Anxiety and Depression Scale in comfortable position in which score from 0 to 7 indicates in the normal range, 8 to 11 indicates borderline and 11 to 21 indicates abnormal anxiety or depression.

Physical activity is assessed by 6 Minute Walk Test in which patient is made to walk for 6 minutes comfortably. Pre and post vitals are to be taken. The distance is to be calculated by the lap counter in meters. A healthy subject can walk from 380m to 700 m.

III. STATISTICAL ANALYSIS

Data will be collected using a structured proforma. Data entered in MS Excel sheet and analyzed by using SPSS24.0 version. Qualitative data will be expressed in terms of proportions. Quantitative data will be expressed in terms of Mean and Standard Deviation.

RESULT

SECTION I: - A. FINDINGS RELATED TO DESCRIPTIVE STATISTICS

Table no.1

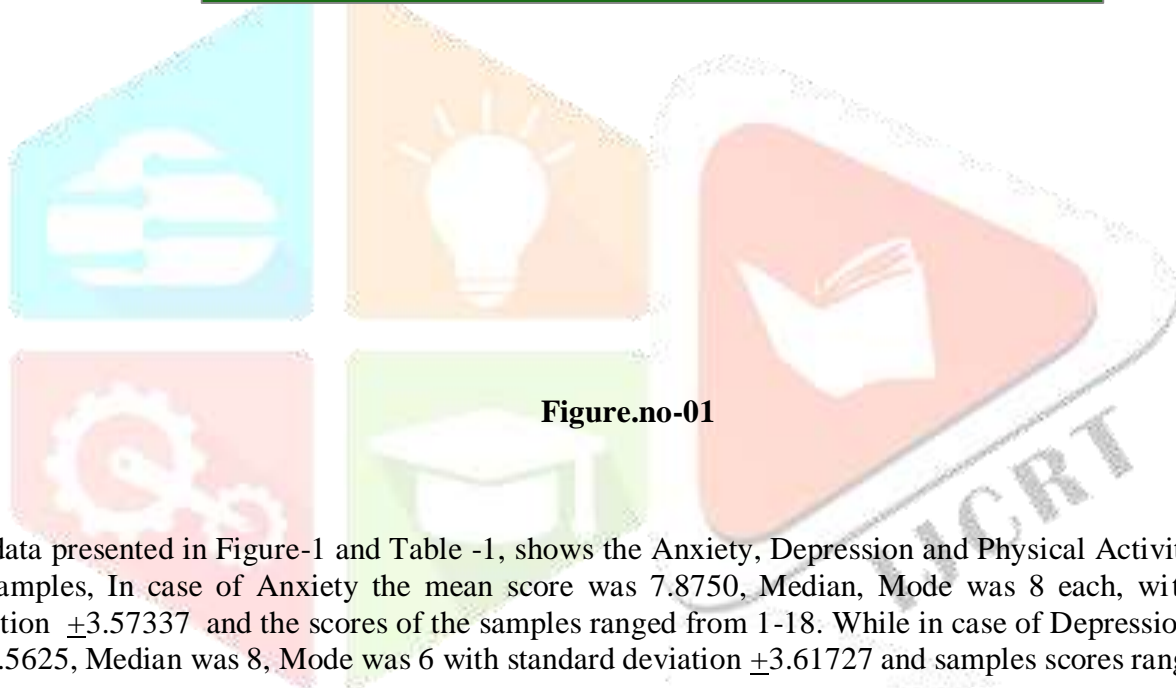
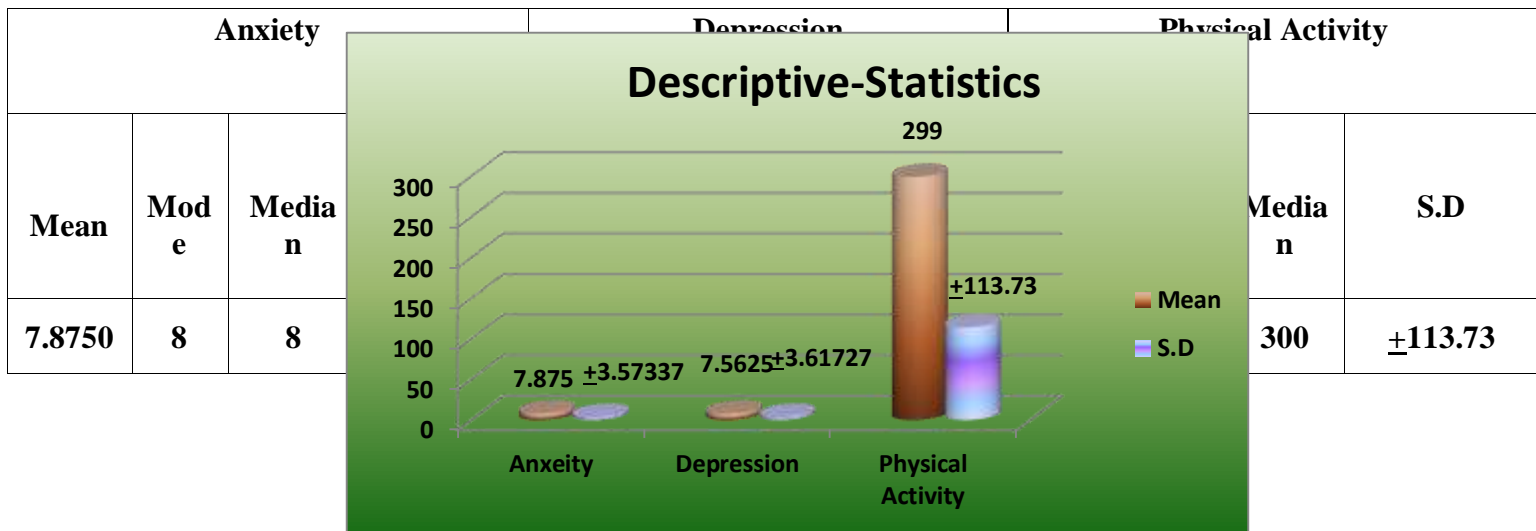


Figure.no-01

The data presented in Figure-1 and Table -1, shows the Anxiety, Depression and Physical Activity scores of the samples, In case of Anxiety the mean score was 7.8750, Median, Mode was 8 each, with Standard deviation ± 3.57337 and the scores of the samples ranged from 1-18. While in case of Depression the Mean was 7.5625, Median was 8, Mode was 6 with standard deviation ± 3.61727 and samples scores ranged from 1-18.

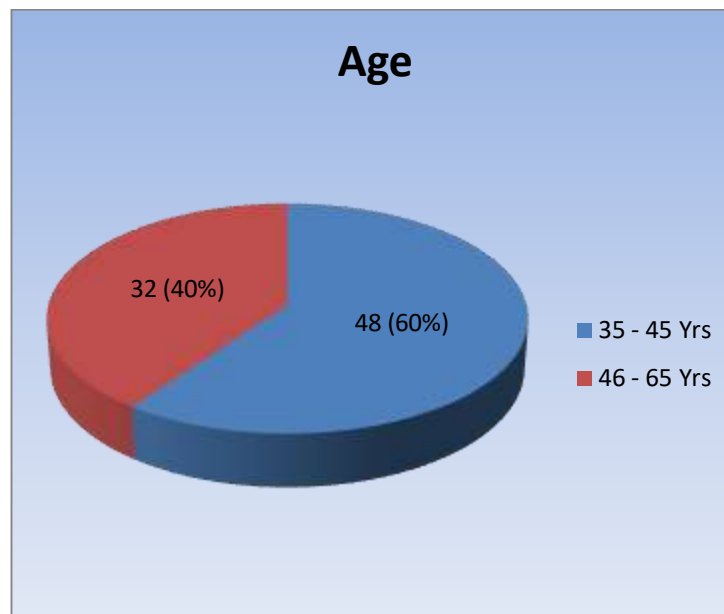
In case of Physical activity the mean score was 299, Median and Mode was 300 respectively with Standard deviation ± 113.73 and the scores ranged from 90 – 540.

B. FINDINGS RELATED TO DISTRIBUTION OF SAMPLES ACCORDING THEIR DEMOGRAPHIC VARIABLES.

Table.no-02

N=80

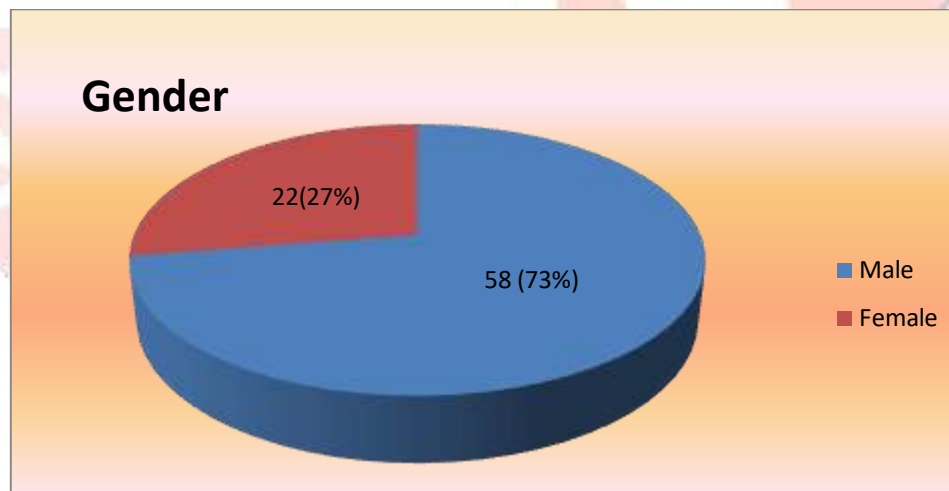
Demographic Variables			
Sr.no	Age	Frequency	Percentage
1.	35-45 Yrs	48	60
2.	46 – 65 Yrs	32	40

**Figure.no-02**

The data presented in table.no-02 and Figure.no-02 reveals the distribution of samples according to their age groups, Majority 60% (48) were in the age group of 35-45 Yrs followed by 40% (32) were in the age group of 46-65 Yrs.

Table.no-03

Demographic Variable			
Sr.no	Gender	Frequency	Percentage
1.	Male	58	73
2.	Female	22	27

**Figure.no-03**

The data presented in Table.no-02 and Figure.no-02 reveals the distribution of samples according to their Gender, According to Gender wise, Majority samples i.e.73 % (58) belonged to Male followed by least i.e. 27 % (22) belonged to Female.

C. FINDINGS RELATED TO DISTRIBUTION OF SAMPLES ACCORDING TO THEIR ARBITATARY DIVISIONS

Sr.no	Research Variables	Normal		Abnormal	
		Frequency	Percentage	Frequency	Percentage
1	Anxiety	36	45 %	44	55 %
2	Depression	37	46.25 %	43	53.75 %
3	Physical Activity	20	25 %	60	75 %

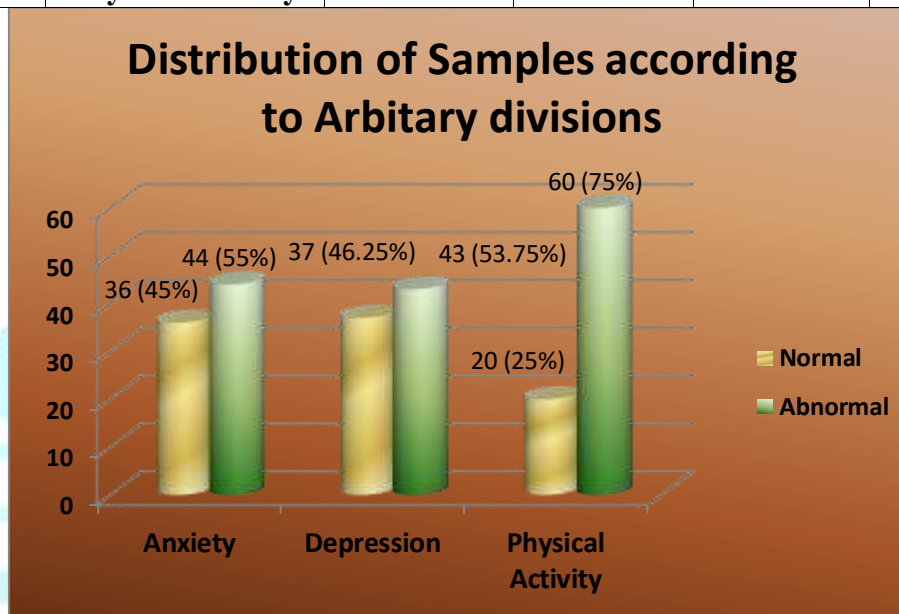


Figure.no-03

The data presented in Table.no-03 and Figure.no-03 reveals the distribution of samples according to their arbitrary divisions, in case of Anxiety, Majority i.e. 55 % (44) samples suffered from abnormal levels of Anxiety, while 45 % (36) samples were reported to have Anxiety levels within Normal, while in case of Depression, Majority i.e. 53.75 % (43) samples were reported to suffer from abnormal levels of Depression and 46.25 % (37) samples were reported to have Depression within normal limits and in case of Physical activity samples were subjected to 6 minute walk test, Majority i.e. 75 % (60) samples failed in attaining/achieving normal scores while 25 % (20) samples were successful in obtaining normal scores.

SECTION II: - FINDINGS RELATED TO CO-RELATIONS

In order to find the co-relations among study variables, Karl Pearson's 'r' was computed to test the Research Hypothesis. Further for statistical convenience the Research hypothesis was sub-divvied as below.

H_{1a}: There will be significant correlation between Anxiety and Depression in patients with chronic kidney disease.

H_{1b}: There will be significant correlation between Anxiety and Physical activity in patients with chronic kidney disease.

H_{1c}: There will be significant correlation between Depression and Physical activity in patients with chronic kidney disease.

Table.no-04

N =80

Score	Chronic Kidney Disease Patients		
	Mean score	Correlation coefficient	P-Value
Anxiety	7.8750	0.867	0.0001
Depression	7.5625		

‘Y’ (79) = 0.2185; P<0.05

The data presented in Table 4 shows that there is positive correlation between Anxiety scores and Depression, thus the research hypothesis H_{1a} is supported and the null hypothesis is rejected ($r = -0.490$, $p < 0.05$), indicating higher the levels of Anxiety leads to higher Depression levels among Chronic Kidney disease patients.

Table.no-05

N=80

Score	Chronic Kidney Disease Patients		
	Mean score	Correlation coefficient	P-Value
Anxiety	7.8750	-0.490	0.0001
Physical Activity	299		

‘Y’ (79) = 0.2185; P<0.05

The data presented in Table 4 shows that there is negative correlation between Anxiety scores and Depression, thus the research hypothesis H_{1a} is supported and the null hypothesis is rejected ($r = -0.490$, $p < 0.05$), indicating higher the levels of Anxiety lowers the Depression levels among Chronic Kidney disease patients.

Table.no-06

N =80

Score	Chronic Kidney Disease Patients		
	Mean score	Correlation coefficient	P-Value
Depression	7.5625	-0.473	0.0001
Physical Activity	299		

‘Y’ (79) = 0.2185; P<0.05

The data presented in Table 4 shows that there is negative correlation between Anxiety scores and Depression, thus the research hypothesis H_{1a} is supported and the null hypothesis is rejected ($r = -0.490$, $p < 0.05$), indicating higher the levels of Anxiety lowers the Depression levels among Chronic Kidney disease patients.

IV. CONCLUSION

In case of anxiety, majority i.e. 55 % (44) samples suffered from abnormal levels of anxiety. In case of depression, majority i.e. 53.75 % (43) samples were reported to suffer from abnormal levels of depression. In case of physical activity samples were subjected to 6 minute walk test, majority i.e. 75 % (60) samples failed in attaining/achieving normal scores. Hence there will be significant correlation between anxiety, depression and physical activity.

V. LIMITATIONS AND FUTURE SCOPE

Limitations:[1]CKD patients have multiple co morbidities such as DM and HTN and any cardiovascular disease which may independently affect the physical activity of the subject.[2]The mental health and physical

activity may also get affected based on stages of CKD. [3]This study was only bounded to 35-65years of age group. [4]The study was limited to YCR hospital and Deshpande Hospital, Latur.

Future scope: [1]Different outcome measures can be used for future studies. [2]Further studies can be done to look for modifying the interventions for good quality of life.

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