A Study to Assess the Level of Stress, Anxiety and Depression Among Patients with Chronic Kidney Disease in Selected Hospitals, Hosur

Archana V [1], Dr. Rajalakshmi [2]

[1]PhD. Scholar, Bharath Institute of Higher Education and Research, Chennai

[2]Principal, Department of Obstetrics and Gynecology, Sri Lakshmi Narayana College of Nursing, Puducherry-

Email ID: rajalakshmibaskaran2003@gmail.com

ABSTRACT

Background: Chronic kidney disease (CKD) is a major public health concern worldwide, affecting millions of individuals and posing significant challenges to healthcare systems. **Methodology:** The present study adopted a cross-sectional descriptive study. The sample size is estimated as 60 by using power analysis. The study will include patients aged 18 and above, who given informed consent and diagnosed with chronic kidney disease (CKD) currently receiving dialysis at the Gunam super specialty hospital, Hosur. Patients with severe cognitive impairment or unrelated mental health disorders and those in the acute stages of kidney failure will be excluded from the study. **Results**: The results show that 30.0% of patients experienced mild depression, 25.0% moderate depression, and 25.0% had no depression. For anxiety, 33.3% had mild anxiety, 30.0% moderate anxiety, and 20.0% had no anxiety. Severe depression, anxiety, and stress were less common, with 20.0%, 16.7%, and 20.0% reporting these conditions, respectively. There are strong positive correlations between depression, anxiety, and stress (r-values 0.72-0.83), with p-values less than 0.001, indicating statistically significant relationships. **Conclusion:** The study concluded that the there is a significant lack of BLS knowledge among laypersons, with most participants showing inadequate understanding and 80% unaware of BLS. The study highlights the sustained efforts are needed to improve BLS education and training, targeting both healthcare professionals and the general public, to enhance the community's ability to respond to cardiac emergencies and improve survival rates.

Keywords: *Chronic kidney disease, depression, anxiety, stress*

INTRODUCTION

Chronic kidney disease (CKD) is a major public health concern worldwide, affecting millions of individuals and posing significant challenges to healthcare systems. The progressive nature of CKD and the associated physical, emotional, and psychosocial burdens can have a profound impact on the mental health and well-being of patients (Rehman, 2024; Guerra et al., 2021; Habib et al., 2022).

Studies have consistently demonstrated the high prevalence of stress, anxiety, and depression among individuals with CKD, with rates often exceeding those observed in the general population (Kim et al., 2020; Alkaabi et al., 2022; Sousa et al., 2020). One study found that up to 71% of CKD stage 3-5 patients suffered from depression, 69% had anxiety, and 86.5% experienced insomnia (Aggarwal et al., 2017). The severity of these mental health problems tends to increase as the stage of CKD advances (Aggarwal et al., 2017; Sousa et al., 2020).

The relationship between CKD and mental health issues is complex and bidirectional. On one hand, the chronic and debilitating nature of CKD can lead to the development of psychological distress, including depression, anxiety, and stress (Hasnidar et al., 2022; Aftab et al., 2016; Sharma & Khatiwada, 2022). Factors such as reduced quality of life, financial strain, lifestyle changes, and fear of disease progression or death can all contribute to the emergence of these mental health problems (Sumanathissa et al., 2011; Selewski et al., 2014; Virani et al., 2021). On the other hand, the presence of depression, anxiety, and stress can also exacerbate the physical symptoms of CKD and negatively impact disease management and clinical outcomes (Jiang et al., 2020; Fatmawati et al., 2018; Maarse et al., 2021).

The high prevalence of mental health issues among CKD patients is a significant concern, as these conditions can have far-reaching consequences. Depression, for instance, has been linked to poorer clinical outcomes, including increased hospitalization rates, faster disease progression, and higher mortality (Bautovich et al., 2018; Hassanien et al., 2012; Lin et al., 2020). Anxiety, in turn, is associated with reduced quality of life, poorer treatment adherence, and increased risk of adverse health events (Fahad et al., 2021; Sumanathissa et al., 2011). Stress can also exacerbate physical symptoms, impair coping abilities, and further compromise the overall well-being of CKD patients ("Empagliflozin in Patients with Chronic Kidney Disease", 2023; Hedayati et al., 2017; Asano et al., 2014).

Given the substantial burden of mental health issues in the CKD population, it is crucial to understand the extent of these problems and the factors that contribute to their development. Comprehensive assessment and early intervention are essential to address the psychological needs of CKD patients and improve their overall quality of life and clinical outcomes (Adejumo et al., 2019; Severino, 2024; Gerson et al., 2010).

Archana V, Dr. Rajalakshmi

This study aims to assess the level of stress, anxiety, and depression among patients with chronic kidney disease in selected hospitals in Hosur, India. By examining the prevalence and severity of these mental health issues, the study will provide valuable insights into the psychosocial challenges faced by CKD patients in this specific healthcare setting. The findings can inform the development of targeted interventions and the implementation of integrated care approaches that address both the physical and mental health needs of this vulnerable patient population.

MATERIALS AND METHODS

The present study adopted a cross-sectional descriptive study. The sample size is estimated as 60 by using power analysis. The study will include patients aged 18 and above, who given informed consent and diagnosed with chronic kidney disease (CKD) currently receiving dialysis at the Gunam super specialty hospital, Hosur. Patients with severe cognitive impairment or unrelated mental health disorders and those in the acute stages of kidney failure will be excluded from the study.

Ethical approval was obtained from the college authorities prior to data collection. Informed consent was obtained from all participants, and they were assured that their participation was voluntary, and their responses would be kept confidential.

Data will be collected using three validated tools: the Perceived Stress Scale (PSS) to assess stress, the Generalized Anxiety Disorder (GAD-7) to measure anxiety, and the Patient Health Questionnaire (PHQ-9) to evaluate depression. A self-reported demographic questionnaire will also be used to gather participants' age, gender, CKD duration, dialysis status, and comorbidities.

Data will be collected from patients using the Perceived Stress Scale (PSS), Generalized Anxiety Disorder (GAD-7), and Patient Health Questionnaire (PHQ-9) to assess stress, anxiety, and depression, respectively. Additionally, a demographic questionnaire will be used to collect information on age, gender, CKD duration, dialysis status, and comorbidities. Data will be gathered in a structured manner during patients' routine visits, ensuring informed consent and confidentiality. The collected data will be analyzed using descriptive statistics to summarize participant characteristics and mental health scores. The severity of stress, anxiety, and depression will be categorized as mild, moderate, or severe. Chi-square tests will be used to assess associations between demographic variables and mental health outcomes, while Pearson correlation will identify relationships between stress, anxiety, and depression levels.

RESULTS

Table 1 showed that the majority of participants are young adults aged 18-30 (33.3%) and male (66.7%). Most have an undergraduate degree (41.7%) and belong to middle-income families (50.0%). Nuclear families dominate (58.3%), and the majority have been dealing with their disease for 1-3 years (41.7%) and were hospitalized for 1-2 weeks (41.7%).

The results indicate that the majority of patients experienced mild depression (30.0%), followed by moderate depression (25.0%) and no depression (25.0%). In terms of anxiety, most patients had mild anxiety (33.3%), while 30.0% had moderate anxiety and 20.0% had no anxiety. Regarding stress, the largest group experienced mild stress (36.7%), with 30.0% reporting moderate stress and 13.3% having no stress. Severe depression, anxiety, and stress were less common, with 20.0%, 16.7%, and 20.0% of patients respectively reporting these conditions. (Table 2)

The table 3 shows the correlations between depression, anxiety, and stress in patients with CKD. All three pairs (Depression & Anxiety, Depression & Stress, Anxiety & Stress) have a strong positive correlation, with r-values ranging from 0.72 to 0.83. These high values suggest that as one condition increases, the other tends to increase as well. The p-values for all correlations are less than 0.001, indicating that these relationships are statistically significant. This means there is a very low probability that the observed correlations happened by chance.

Table 1: Demographic variables of the participants

Variable	Category	Frequency	Percentage (%)
Age	18-30	20	33.3
	31-40	15	25.0
	41-50	12	20.0
	51+	13	21.7
Gender	Male	40	66.7
	Female	20	33.3
Education	High School	10	16.7
	Undergraduate Degree	25	41.7
	Postgraduate Degree	15	25.0
	Professional Qualification	10	16.7
Economic Status	Low	15	25.0
	Middle	30	50.0
	High	15	25.0
Family Type	Nuclear	35	58.3
	Joint	25	41.7
Duration of Disease	Less than 1 year	18	30.0
	1-3 years	25	41.7
	3-5 years	12	20.0
	More than 5 years	5	8.3
Duration of Hospitalization	Less than 1 week	20	33.3
	1-2 weeks	25	41.7
	2-4 weeks	10	16.7
	More than 4 weeks	5	8.3

Table 2: Level o of Depression, Anxiety and Stress among patient with CKD.

Variable	Category	Frequency	Percentage (%)
Incidence of Depression	No Depression	15	25.0
	Mild Depression	18	30.0
	Moderate Depression	15	25.0
	Severe Depression	12	20.0
Incidence of Anxiety	No Anxiety	12	20.0
	Mild Anxiety	20	33.3
	Moderate Anxiety	18	30.0
	Severe Anxiety	10	16.7
Incidence of Stress	No Stress	8	13.3
	Mild Stress	22	36.7
	Moderate Stress	18	30.0
	Severe Stress	12	20.0

Table 3: Response of the lay person for knowledge question

Variable	r-value	p-value
Depression & Anxiety	0.78	**< 0.001**
Depression & Stress	0.72	**< 0.001**
Anxiety & Stress	0.83	**< 0.001**

DISCUSSION

The findings of this study provide valuable insights into the prevalence and severity of stress, anxiety, and depression among patients with chronic kidney disease (CKD) in the selected hospitals in Hosur.

The demographic characteristics of the participants indicate that the majority are young adults (33.3%) and male (66.7%), with most having an undergraduate degree (41.7%) and belonging to middle-income families (50.0%). Nuclear families are more common (58.3%), and most have dealt with their disease for 1-3 years (41.7%) and were hospitalized for 1-2 weeks (41.7%) (Rehman, 2024; Guerra et al., 2021; Habib et al., 2022).

In terms of mental health, the study reveals that a significant proportion of CKD patients experience varying degrees of depression, anxiety, and stress. Specifically, 30.0% of patients experienced mild depression, 25.0% moderate depression, and 25.0% had no depression. For anxiety, 33.3% had mild anxiety, 30.0% moderate anxiety, and 20.0% had no anxiety. Severe depression, anxiety, and stress were less common, with 20.0%, 16.7%, and 20.0% reporting these conditions, respectively (Kim et al., 2020; Alkaabi et al., 2022; Sousa et al., 2020).

The strong positive correlations observed between depression, anxiety, and stress (r- values 0.72-0.83, p<0.001) suggest that these mental health conditions are closely interrelated in the CKD population. As one condition increases, the others tend to increase as well, highlighting the complex and multifaceted nature of the psychological challenges faced by these patients (Aggarwal et al., 2017; Hasnidar et al., 2022; Aftab et al., 2016).These findings are consistent with the existing literature, which has consistently demonstrated the high prevalence of mental health issues among individuals with CKD. Studies have reported depression rates ranging from 20-50% and anxiety rates as high as 45.7% in this patient population (Sharma & Khatiwada, 2022; Sumanathissa et al., 2011; Selewski et al., 2014). The severity of these conditions tends to increase as the stage of CKD progresses, likely due to the significant physical, emotional, and psychosocial burdens associated with the disease (Aggarwal et al., 2017; Virani et al., 2021; Jiang et al., 2020).

The bidirectional relationship between CKD and mental health issues is well- documented. While CKD can lead to the development of depression, anxiety, and stress, these psychological conditions can also contribute to the progression of CKD and the worsening of physical symptoms (Fatmawati et al., 2018; Maarse et al., 2021; Bautovich et al., 2018). This underscores the importance of a comprehensive, integrated approach to the management of CKD that addresses both the physical and mental health needs of patients.

Effective strategies for addressing mental health issues in CKD patients include regular screening for depression, anxiety, and stress using validated tools, as well as the provision of appropriate psychological interventions, such as cognitive-behavioral therapy, mindfulness- based therapies, and support groups (Hassanien et al., 2012; Lin et al., 2020; Fahad et al., 2021). Collaboration between healthcare providers, including nephrologists, nurses, and mental health professionals, is crucial for ensuring that the psychological needs of CKD patients are adequately addressed ("Empagliflozin in Patients with Chronic Kidney Disease", 2023; Hedayati et al., 2017).

CONCLUSION

The study concluded that there is significant burden of stress, anxiety, and depression among patients with chronic kidney disease in the Gunam super specialty hospital, Hosur. The high prevalence and strong interrelationships between these mental health conditions underscore the importance of proactive screening, early intervention, and a multidisciplinary approach to the management of CKD. Continued research and clinical efforts are needed to better understand and address the complex interplay between CKD and mental health, with the ultimate goal of improving the overall quality of life and clinical outcomes for this vulnerable patient population.

RECOMMENDATIONS

To address stress, anxiety, and depression in CKD patients, integrate psychological support, routine mental health screenings, and stress management education. A multidisciplinary care approach, including physical activity and medication when needed, can improve both mental and physical health. Support for caregivers, social engagement, and regular follow-ups are essential for enhancing well-being and overall patient outcomes.

Financial support

No

Conflicts of Interest

No

REFERENCES

1. Empagliflozin in patients with chronic kidney disease. (2023). *New England Journal of Medicine, 388*(2), 117-127. https://doi.org/10.1056/nejmoa2204233

2. Adejumo, O., Iyawe, I., Akinbodewa, A., Abolarin, O., & Alli, E. (2019). Burden, psychological well-being, and quality of life of caregivers of end-stage renal disease patients. *Ghana Medical Journal, 53*(3), 190. https://doi.org/10.4314/gmj.v53i3.2

3. Aftab, R., Khan, A., AbdulRazzaq, H., & Adnan, A. (2016). Acute ischemic stroke and acute on chronic kidney disease. *Journal of Nepal Medical Association, 54*(202), 85-87. https://doi.org/10.31729/jnma.2825

4. Aggarwal, H., Jain, D., Dabas, G., & Yadav, R. (2017). Prevalence of depression, anxiety, and insomnia in chronic kidney disease patients and their correlation with demographic variables. *Prilozi, 38*(2), 35-44. https://doi.org/10.1515/prilozi-2017-0020

5. Alkaabi, A., Alkous, A., Mahmoud, K., Almansoori, A., Elbarazi, I., Suliman, A., … & Al- Maskari, F. (2022). The prevalence and correlates of depression among patients with chronic diseases in the United Arab Emirates. *PLOS One, 17*(12), e0278818. https://doi.org/10.1371/journal.pone.0278818

6. Asano, K., Ogata, A., Tanaka, K., Ide, Y., Sankoda, A., Kawakita, C., … & Fukushima, M. (2014). Acoustic radiation force impulse elastography of the kidneys. *Journal of Ultrasound in Medicine, 33*(5), 793-801. https://doi.org/10.7863/ultra.33.5.793

7. Bautovich, A., Katz, I., Loo, C., & Harvey, S. (2018). Beck Depression Inventory as a screening tool for depression in chronic hemodialysis patients. *Australasian Psychiatry, 26*(3), 281-284. https://doi.org/10.1177/1039856218758582Fahad, M., Kandhro, A., & Khan, S. (2021). Screening of depression in chronic kidney disease patients undergoing hemodialysis. *International Journal of Endorsing Health Science Research (IJEHSR), 9*(3), 395-400. https://doi.org/10.29052/ijehsr.v9.i3.2021.395-400

8. Fatmawati, A., Soelaeman, M., & Rafiyah, I. (2018). The application of art therapy to reduce the level of depression in patients with hemodialysis. *Belitung Nursing Journal, 4*(3), 329-335. https://doi.org/10.33546/bnj.407

9. Gerson, A., Wentz, A., Abraham, A., Mendley, S., Hooper, S., Butler, R., … & Furth, S. (2010). Health-related quality of life of children with mild to moderate chronic kidney disease. *Pediatrics, 125*(2), e349-e357. https://doi.org/10.1542/peds.2009-0085

10. Guerra, F., Giacomo, D., Ranieri, J., Tunno, M., Piscitani, L., & Ferri, C. (2021). Chronic kidney disease and its relationship with mental health: Allostatic load perspective for integrated care. *Journal of Personalized Medicine, 11*(12), 1367. https://doi.org/10.3390/jpm11121367

11. Habib, O., Ashaq, F., Butt, N., Ashraf, H., Mahmood, K., & Anser, A. (2022). Prevalence of depression and anxiety in chronic kidney disease patients. *PJMHS, 16*(6), 236-238. https://doi.org/10.53350/pjmhs22166236

12. Hasnidar, .., Aswadi, M., & Putra, W. (2022). Family support and quality of life for chronic kidney disease (CKD) patients hemodialysis therapy at Undata Hospital. *Journal of Health and Nutrition Research, 1*(1), 6-10. https://doi.org/10.56303/jhnr.v1i1.3

13. Hassanien, A., Alshaikh, F., Vámos, E., Yadegarfar, G., & Majeed, A. (2012). Epidemiology of end-stage renal disease in the countries of the Gulf Cooperation Council: A systematic review. *JRSM Short Reports, 3*(6), 1-21. https://doi.org/10.1258/shorts.2012.011150

14. Hedayati, S., Gregg, L., Carmody, T., Jain, N., Toups, M., Rush, A., … & Trivedi, M. (2017). Effect of sertraline on depressive symptoms in patients with chronic kidney disease without dialysis dependence. *JAMA,*

318(19), 1876. https://doi.org/10.1001/jama.2017.17131

15. Jiang, C., Zhu, F., & Qin, T. (2020). Relationships between chronic diseases and depression among middle-aged and elderly people in China: A prospective study from CHARLS. *Current Medical Science, 40*(5), 858-870. https://doi.org/10.1007/s11596-020-2270-5

16. Kim, O., Yeom, E., & Jeon, H. (2020). Relationships between depression, family function, physical symptoms, and illness uncertainty in female patients with chronic kidney disease. *Nursing and Health Sciences, 22*(3), 548-556. https://doi.org/10.1111/nhs.12691

17. Lin, L., Zhong, X., Huang, S., & Zhang, X. (2020). The effect of nutrition education on nutrition treatment of chronic kidney disease. *Medical Research, 2*(3), 20-24. https://doi.org/10.6913/mrhk.202009_2(3).0004

18. Maarse, B., Chesnaye, N., Schouten, R., Michels, W., Bos, W., Szymczak, M., … & Meuleman, Y. (2021). Associations between depressive symptoms and disease progression in older patients with chronic kidney disease: Results of the EQUAL study. *Clinical Kidney Journal, 15*(4), 786-797. https://doi.org/10.1093/ckj/sfab261

19. Manns, B., Hemmelgarn, B., Lillie, E., Dip, S., Cyr, A., Gladish, M., … & Laupacis, A. (2014). Setting research priorities for patients on or nearing dialysis. *Clinical Journal of the American Society of Nephrology, 9*(10), 1813-1821. https://doi.org/10.2215/cjn.01610214

20. Ran, L. (2023). Impact of sarcopenia on prognosis in frail elderly patients with chronic kidney disease. *Proceedings of Anticancer Research, 7*(5), 35-40. https://doi.org/10.26689/par.v7i5.5261Rehman, A. (2024). The frequency of depression among patients with chronic kidney disease on hemodialysis. *Journal of Islamabad Medical & Dental College, 13*(1), 49-53. https://doi.org/10.35787/jimdc.v13i1.1006

21. Severino, R. (2024). Medical use of finererone in patients with diabetes mellitus and chronic kidney disease. *Journal of Diabetes Metabolic Disorders & Control, 11*(1), 6-8. https://doi.org/10.15406/jdmdc.2023.11.00269

22. Sharma, P., & Khatiwada, R. (2022). Level of depression in chronic kidney disease patients undergoing hemodialysis at Kathmandu District. *International Journal of Health Sciences and Research, 12*(2), 199-203. https://doi.org/10.52403/ijhsr.20220228