ANH
ADVANCES IN NURSING AND HEALTH

ORIGINAL ARTICLE

Depression and anxiety in chronic renal patients undergoing hemodialysis during the Covid-19 pandemic

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ABSTRACT

Objective: To investigate the Mildls of depression and anxiety in patients with Chronic Kidney Disease undergoing hemodialysis during the COVID-19 pandemic. Mehtods: Patients with Chronic Kidney Disease undergoing hemodialysis treatment at a dialysis center located in Mato Grosso were included. Sociodemographic information and data on COVID-19 were collected, and the Beck Depression and Anxiety Inventories were administered. Descriptive statistical analysis was performed on each variable and the scores obtained from the inventories. Results: Out of the total of 62 patients, 63.49% (n=40) showed indications of some Mildl of depression, with 17.74% at a moderate Mildl and 19.35% at a severe Mildl. Additionally, 49.21% (n=31) exhibited some Mildl of anxiety, with 19.35% at a moderate Mildl and 09.68% at a severe Mildl. The most frequent factors among those with some Mildl of anxiety or depression were: age over 50 years, low educational attainment, lack of a partner, and residing in a location different from the dialysis center. Conclusion: The results indicated significant Mildls of depression and anxiety among patients with Chronic Kidney Disease undergoing hemodialysis during the COVID-19 pandemic, highlighting the importance of mental health care for this population.Descritores: Diálise, Insuficiência Renal Crônica, Saúde Mental.

Descriptors: Dialysis, Chronic Kidney Failure, Mental Health.

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INTRODUCTION

Chronic Kidney Disease is the progressive and irreversible loss of kidney function, considered a global public health issue. Diabetes and hypertension are recognized as its main causes, and socioeconomic, gender, and racial differences are also considered determining factors for the development of Chronic Kidney Disease. Therefore, identifying the disease early can reduce complications and mortality, as well as delay the need for renal replacement therapy [(1)].

In Brazil, in 2018. the number of patients on dialysis was 133.464. with an estimated 640 patients on hemodialysis per million population. In light of this, it is evident that Chronic Kidney Disease is a problem that affects a large number of people and represents a challenge for health planning, particularly concerning the prevention and treatment of the disease[(2)].

Hemodialysis is the predominant method of renal replacement therapy, adopted for over 90% of patients with advanced Chronic Kidney Disease. This treatment is based on the use of a machine and a dialyzer that mimics the kidney's filtration function. The patient is required to undergo a painful treatment daily and becomes literally dependent on a machine to survive. In addition to the physical limitations caused by Chronic Kidney Disease itself, hemodialysis imposes psychological, biological, and social limitations on the patient's life by disrupting their previous lifestyle, which can directly interfere with their quality of life[(3)].

Patients undergoing hemodialysis may experience difficulties in social interaction, as well as in performing their daily tasks, moving around, engaging in physical activities, and, furthermore, they may face changes in appearance and a potential loss of independence. All of these factors are considered stressors, leading to the need to adapt to a new lifestyle[(4)].

Chronic Kidney Disease and hemodialysis treatment impact patients in such a way that they often experience fear of the unknown, fear of the future, fear of life or death, and uncertainty about a cure, which can lead to the development of feelings of anxiety and depression. Additionally, depression is strongly associated with changes in quality of life and mortality rates among these patients [(6)].

The factors related to hemodialysis can manifest physically, such as sweating, tremors, tachycardia, high blood pressure, and nausea. Psychological factors like distress, insomnia, excessive worrying, alienation, and inability to concentrate are also noteworthy. In some cases, stress itself can worsen the existing clinical condition. Studies indicate that 33.3% of patients

on hemodialysis exhibit symptoms of depression and 33% exhibit symptoms of anxiety, affecting not only the patient but also their family members and those around them[7].

In addition to these challenges, there was a global emergency of COVID-19 from 2020 to 2022. which required the entire population to practice social distancing, wear masks, and reinforce personal hygiene, such as hand washing and using hand sanitizer. However, for patients on hemodialysis, adhering to social distancing became a challenge due to the need to attend hemodialysis sessions three times a week. As a result, these patients were exposed to the risk of COVID-19 infection during their commute to the sessions, as well as during their time at the healthcare facility where they undergo the procedure[8].

Another aggravating factor related to this group of patients is that in Brazil, in 2018. 34% of renal patients on dialysis had hypertension as the underlying disease, and 31% had diabetes mellitus, placing them in the high-risk groups for COVID-19 contamination and complications. This situation can generate even more fear, worry, and anxiety. During the pandemic period, feelings of sadness/depression affected 40% of Brazilian adults, and the frequent sensation of anxiety and nervousness was reported by more than 50% of them, in addition to reports of sleep problems[9].

It should be noted that in addition to the emotional damage caused by the pandemic situation, patients undergoing hemodialysis may be more likely to experience psychological distress related to their treatment. Thus, this research aimed to investigate the Mildls of depression and anxiety in patients with Chronic Kidney Disease undergoing hemodialysis during the COVID-19 pandemic.

METHOD

This is a descriptive cross-sectional study conducted with patients who have Chronic Kidney Disease and are undergoing hemodialysis treatment. The study was carried out at a specialized hemodialysis treatment clinic located in the municipality of Barra do Garças, Mato Grosso, in the Midwest region of Brazil. The clinic served 121 patients from approximately 18 cities in the Médio Araguaia region, operating in three shifts six days a week. Each patient underwent hemodialysis sessions three times a week, with each session lasting approximately four hours.

For this study, patients who agreed to participate in the research and signed the informed consent form were included. Additionally, they were 18 years of age or older, had been undergoing hemodialysis for at least 6 months (given that patients recently initiated in hemodialysis treatment may introduce some bias due to the treatment's imposed routine), and were not in transit (patients who are only temporarily undergoing hemodialysis at the clinic).

Data collection involved the use of two instruments known as the Beck Scales. The first one is the Beck Depression Inventory (BDI), which comprises 21 questions assessing whether the user is experiencing symptoms of depression and the severity Mildl. The second one is the Beck Anxiety Inventory (BAI), also consisting of 21 questions related to anxious symptoms, classifying the patient according to the Mildl of anxiety. A score of ≥ 21 points on the BAI indicates clinically significant anxiety. [10].

A self-constructed structured questionnaire was also used to collect sociodemographic data and information related to the COVID-19 pandemic. This questionnaire included information regarding the following variables: gender, age, education Mildl, marital status, city of residence, bereavement, and COVID-19 infection. All three instruments were administered online via a form on the Google Forms platform. For patients with difficulty in reading or using technology, the questionnaire was administered in person during hemodialysis sessions by the researchers involved in this study. All personnel involved were trained on the research protocol, the content of the questionnaires, approaches to patients, and administration of the instruments.

For data analysis, the information was entered into Microsoft Excel spreadsheets, and then specific scores for each scale were calculated for each patient. This phase involved assessing the data from each instrument according to the guidelines provided by Cunha (2001) [10].

In the Beck Depression Inventory (BDI-II), each of the 21 items is assessed on a scale from 0 to 3. reflecting the severity of symptoms. The total score is calculated by summing the scores of each item. The severity categories are defined as follows [10].

0-9: Minimal depression

10-18: Mild depression

19-29: Moderate depression

30-63: Severe depression

Each item of the BDI-II addresses a different aspect of depression, such as feelings of failure, dissatisfaction, guilt, feelings of punishment, self-loathing, and self-accusation. For example, an item may inquire about the intensity of the feeling of failure, with options ranging from "not feeling like a failure" (score 0) to "feeling like a complete failure" (score 3).

The Beck Anxiety Inventory (BAI) consists of 21 questions that assess common anxiety symptoms, such as sweating and feelings of distress, based on how the individual felt in the last week. Responses range across four Mildls, from "Not at all" to "Severely." The total score can reach a maximum of 63. and the anxiety categories are defined as [10]:

0-10: Minimal anxiety

11-19: Mild anxiety

20-30: Moderate anxiety

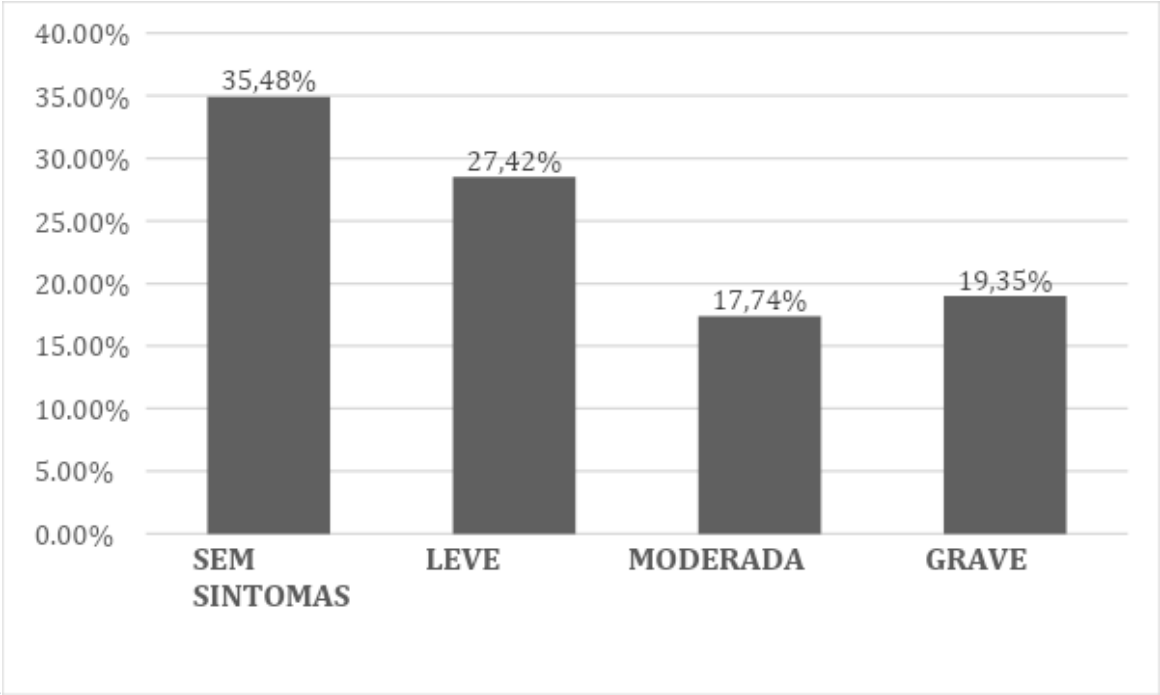
31-63: Severe anxiety

After computing the scores for anxiety and depression, descriptive statistics were used to present the results, which were indicated through relative frequencies (%) and absolute frequencies (n). To better understand the results, graphs and tables were created with the obtained outcomes.

This research complied with the requirements of Resolution No. 466/2012 of the National Health Council (CNS) [11]. Ethical principles, which underlie the existence of beings, as well as respect for human values, constitute one of the fundamental concerns of this study, which has been approved by the Research Ethics Committee under protocol number CAAE: 32128720.1.0000.5587. The manuscript was drafted following the recommendations of the STROBE (Strengthening the Reporting of Observational studies in Epidemiology) tool.

RESULTS

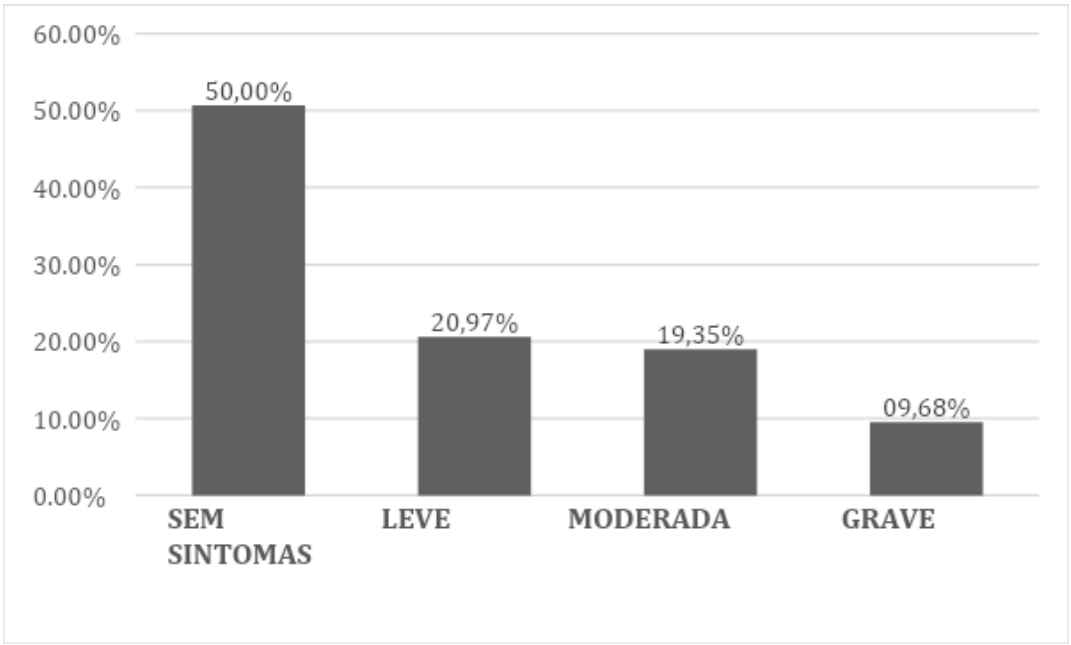
In total, 62 patients participated in this research. Figures 1 and 2 demonstrate, respectively, the Mildls of depression and anxiety found in the investigated patients. Upon observing Figure 1. it is noticeable that 64.52% (n=40) of the patients have some Mildl of depression, with 19.35% (n=12) exhibiting severe Mildls.



Source: author

Figure 1- Mildls of depression in patients with chronic kidney disease undergoing hemodialysis, Barra do Garças – MT, 2021.

In Figure 2. the Mildls of anxiety are represented, with 20.97% (n=13) identified as having mild anxiety, 19.35% (n=12) with moderate anxiety, and 09.68% (n=06) with severe anxiety.



Source: author

Figure 2 – Mildls of anxiety in patients with chronic kidney disease undergoing hemodialysis Barra do Garças – MT, 2021

Furthermore, the results related to the sociodemographic characteristics of these patients were also organized considering the Mildls of depression and anxiety identified and are presented in tables 1 and 2.

It was observed that among the total number of patients showing signs of depression (64.52%, n=40), 37.10% (n=23) were male, 29.03% (n=18) had only completed elementary education or had no formal education. It is also noteworthy that among the patients with some Mildl of depression, the majority (48.39%, n=30) were single, divorced, or widowed, and 33.87% (n=21) resided in other municipalities and needed to travel to reach the treatment facility. Additionally, among those experiencing some Mildl of depression, 22.58% (n=14) had undergone a mourning process, and 24.19% (n=15) had contracted COVID-19 at the time of data collection.

It is noteworthy that "residing in other cities" was a relevant factor present in 33.87% (n=21) of the responses from patients showing signs of depression and in 29.03% (n=18) of those showing signs of anxiety.

Table 1- Characteristics of patients according to the depression levels in patients with chronic kidney disease undergoing hemodialysis, Barra do Garças – MT, 2021.

Data	Depression Levels				
	Absence of depressive symptoms n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Total n (%)
Gender					
Female	08 (12.90%)	06 (09.68%)	03 (04.84%)	08 (12.90%)	25 (40.32%)
Male	14 (22.58%)	11 (17.74%)	08 (12.90%)	04 (06.45%)	37 (59.68%)
Age					
25 – 40	03 (04.84%)	04 (06.45%)	02 (03.23%)	03 (04.84%)	12 (19.35%)
41 – 59	13 (20.97%)	07 (11.29%)	06 (09.68%)	07 (11.29%)	33 (53.23%)
> 60	06 (09.68%)	06 (09.68%)	03 (04.84%)	02 (03.23%)	17 (27.42%)
Education					
No Education	01 (01.61%)	02 (03.23%)	02 (03.23%)	03 (04.84%)	08 (12.90%)

Up to Elementary School.	07(11.11%)	07 (11.29%)	02 (03.23%)	04 (06.45%)	20 (32.26%)
Up to High School	06 (09.68%)	03 (04.84%)	03 (04.84%)	02 (03.23%)	14 (22.58%)
Up to College	04 (06.45%)	00 (00.00%)	00 (00.00%)	01 (01.61%)	05 (08.06%)
No data	04 (06.45%)	06 (09.68%)	04 (06.45%)	01 (01.61%)	15 (24.19%)
Marital Status					
Married/Common-Law Partner	13 (20.97%)	06 (09.68%)	02 (03.23%)	04 (06.45%)	25 (40.32%)
Single/Divorced	02 (03.23%)	08 (12.90%)	06 (09.68%)	07 (11.29%)	23 (37.10%)
Widowed	02 (03.23%)	01 (01.61%)	00 (00.00%)	01 (01.62%)	04 (06.45%)
No data	03 (04.84%)	03 (04.84%)	03 (04.84%)	01 (01.61%)	10 (16.13%)
Residence					
B. do Garças	12 (19.35%)	09 (14.52%)	05 (08.06%)	06 (09.68%)	32 (51.61%)
Other cities	09 (14.52%)	09 (14.52%)	06 (09.68%)	06 (09.68%)	30 (48.39%)
Grief					
No	16 (25.81%)	11 (17.74%)	08 (12.90%)	07 (11.29%)	42 (67.74%)
Yes	06 (09.68%)	07 (11.29%)	03 (04.84%)	04 (06.45%)	20 (32.26%)
COVID-19					
No		15 (23.19%)	05 (08.06%)	07 (11.29%)	40 (64.52%)
Yes	07 (11.29%)	05 (08.06%)	05 (08.06%)	05 (08.06%)	22 (35.48%)

Source: author

Regarding anxiety (Table 2), patients who presented some level, whether it be Mild, Moderate, or Severe, totaled 50.00% (n=31). Out of this total, 25.81% (n=16) were female, 25.81% (n=16) had completed up to elementary school or had no education, 29.03% (n=18) were single/divorced, 29.03% (n=18) lived in other municipalities, 16.13% (n=10) experienced Grief, and 22.58% (n=14) contracted COVID-19.

Table 2- Characteristics of patients according to anxiety levels in patients with chronic kidney disease undergoing hemodialysis treatment, Barra do Garças – MT, 2021.

Data	Anxiety Levels				
	Absence of depressive symptoms n (%)	Mild n (%)	Moderate n (%)	Severe n (%)	Total n (%)
Gender					
Female	09 (14.52%)	05 (08.06%)	06 (09.68%)	05 (08.06%)	25 (40.32%)
Male	23 (37.10%)	08 (12.90%)	05 (08.06%)	01 (01.61%)	37 (59.68%)
Age					
25 – 40	05 (08.06%)	04 (06.45%)	02 (03.23%)	01 (01.61%)	12 (19.35%)
41 – 59	17 (27.42%)	04 (06.45%)	08 (12.90%)	05 (08.06%)	34 (54.84)
> 60	10 (16.13%)	05 (08.06%)	02 (03.23%)	00 (00.00%)	17 (27.42%)
Education					
No Education	03 (04.84%)	02 (03.23%)	03 (04.84%)	00 (00.00%)	08 (12.90%)
Up to Elementary School	09 (14.52%)	05 (08.06%)	03 (04.84%)	03 (04.84%)	20 (36.26%)
Up to High School	09 (14.52%)	02 (03.23%)	03 (04.84%)	02 (03.23%)	16 (25.81%)
Up to College	04 (06.45%)	02 (03.23%)	00 (00.00%)	00 (00.00%)	06 (09.98%)
No data	08 (12.90%)	03 (04.84%)	03 (04.84%)	01 (01.61%)	15 (23.19%)
Marital Status					
Married/Common-Law Partner	15 (23.19%)	05 (08.06%)	05 (08.06%)	01 (01.61%)	26 (41.94%)
Single/Divorced	09 (14.52%)	06 (09.68%)	03 (04.84%)	04 (06.45%)	22 (35.48 %)
Widowed	02 (03.23%)	00 (00.00%)	01 (01.61%)	00 (00.00%)	03 (04.84%)

No data	06 (09.68%)	02 (03.23%)	02 (03.23%)	01 (01.61%)	11 (17.74%)
Residence					
B. do Garças	19 (30.65%)	08 (12.90%)	02 (03.23%)	02 (03.23%)	31 (50.00%)
Other cities	13 (20.97%)	05 (08.06%)	09 (14.52%)	04 (06.45%)	31 (50.00%)
Grief					
No	21 (37.10 %)	09 (14.52%)	08 (12.70%)	04 (06.45%)	42 (67.74%)
Yes	11 (17.74%)	04 (06.45%)	04 (06.45%)	02 (03.23%)	21 (33.87%)
COVID-19					
No	23 (37.10%)	09 (14.52%)	05 (08.06%)	03 (04.84%)	40 (64.52%)
Yes	09 (14.52%)	04 (06.45%)	07 (11.29%)	03 (04.84%)	23 (37.10%)

Source: author

DISCUSSION

This study aimed to investigate the levels of depression and anxiety in patients with Chronic Kidney Disease undergoing hemodialysis during the COVID-19 pandemic in the Médio Araguaia region. The results showed that the majority of patients experienced some level of depression or anxiety. Among the sociodemographic factors, age over 50, having at most a primary education, being unmarried or without a partner, and residing in cities different from where they undergo hemodialysis sessions stood out.

Studies with pre-pandemic data have shown a prevalence of depression ranging from 27% (n=22) to 52% (n=12) and anxiety among patients undergoing hemodialysis, indicating that symptoms of depression and anxiety were already prevalent in this population before the pandemic (12-13-14-15). This suggests that the results found in the present study may not be directly related to the COVID-19 pandemic, as patients with Chronic Kidney Disease undergoing hemodialysis commonly already experience symptoms of anxiety and depression.

The fact that COVID-19 may not be a crucial motivator for depression and anxiety in hemodialysis patients may be associated with the fact that treatment continued mostly

unchanged and ensured during the pandemic. Dialysis services sought to prioritize patient safety through various approaches, including shortening treatment times, screening patients before each treatment, wearing masks at all times, and reducing hemodialysis frequency to twice a week[15-16-17].

On the other hand, it's important to consider that even though the participants in the present study already had some level of depression or anxiety before the pandemic, COVID-19 may constitute a stressor that contributed to concerns about their lives. A study conducted with dialysis patients indicated that they were worried about receiving their treatments due to the risk of infection through close contact in the dialysis unit or during transportation. They also experienced activity restrictions, fear and panic, restricted access to the hospital, and social isolation[13-18].

Among other factors that may contribute to the worsening of symptoms of anxiety and depression, there is the possibility of the patients themselves or a family member becoming infected with COVID-19, as they need to commute between their residence and the hemodialysis clinic regularly. Additionally, they must remain in a complex medical and social environment with healthcare professionals and among other patients in a shared space for at least 8-12 hours weekly, which may result in increased concern about COVID-19 transmission[19].

The concern regarding the COVID-19 pandemic may become even more relevant in the population of the present study, as many patients were diagnosed with COVID-19 and/or experienced grief due to the loss of someone close. Going through the process of illness, as well as witnessing the mortality of people from their circle of acquaintance or other patients, can increase stress levels[20].

When analyzing the characteristics of patients who exhibited some level of depression or anxiety, it is noticeable that the majority had low or no education. The study conducted by González-Flores *et al*. (2021) demonstrated that low education was associated with the presence of depressive symptoms compared to patients who completed high school or higher education, suggesting that higher education allows for better understanding of the factors involved in the disease, which can consequently optimize adherence to hemodialysis treatment [21].

Regarding marital status, this study revealed that, when combined, individuals who were single, divorced, or widowed had a higher frequency of depression and anxiety symptoms. A study with renal patients showed that living alone, being single, or divorced are independent risk factors for depression[22]. In this sense, patients with good family relationships, including a spouse, may have better well-being conditions and reduced stress caused by Chronic Kidney

Disease , as this emotional support contributes to greater resilience to the treatment difficulties and psychological aspects[23].

Regarding the place of residence, not living in the city where the dialysis service is located can be a factor related to the mental health of these patients, given that the majority of patients with identified symptoms of depression or anxiety in this study reside in other cities located in the Médio Araguaia region. It is noteworthy that this population includes patients who reside in cities or indigenous villages that are more than 300 kilometers away from the dialysis center. In addition to this, patients are exposed to fatigue and the dangers of long trips made at least three times a week. Another study shows a low quality of life index among patients who need to travel for hemodialysis, and this factor is considered the most relevant for anxiety and depression levels[24].

Finally, it is important to highlight the need for special attention to the mental health of patients undergoing hemodialysis, not only during the pandemic but throughout the entire process from diagnosis to recommended treatment, as Chronic Kidney Disease itself can cause various mental changes in these patients. The disease compromises the patient's life and causes distress in the face of the unknown, especially due to dependence on hemodialysis, which leads to the loss of leisure, physical, and mental well-being, especially among those who need to travel to other municipalities to undergo treatment[23. 24].

The identification of symptoms of depression and anxiety among the patients in this study constitutes relevant evidence for action with these individuals, regardless of the COVID-19 pandemic. The data collected here are concerning and require systemic and appropriate approaches aimed at effectively addressing depression and anxiety, as well as other mental health issues.

Among the limitations of this study, we can mention the inclusion of only one dialysis center, although it is the only reference for hemodialysis in the region. Another limitation is the lack of data on anxiety and depression among patients before the COVID-19 pandemic, which prevented a comparative analysis. However, it is worth noting that this was the first study conducted with the purpose of investigating the mental health of these patients who suffer greatly from the emotional impact of Chronic Kidney Disease and hemodialysis treatment.

CONCLUSION

The results of this study indicated significant levels of depression and anxiety among patients with Chronic Kidney Disease undergoing hemodialysis during the COVID-19 pandemic. Regarding depression, 34.48% had no symptoms, 27.42% showed mild symptoms, 17.74% moderate symptoms, and 19.35% severe symptoms. Regarding anxiety, 50.0% had no symptoms, 20.9% showed mild symptoms, 19.35% moderate symptoms, and 9.68% severe symptoms. The evidence provided here shows that being over 50 years old, having at most a primary education, not having a partner, and residing in different cities from where hemodialysis sessions are conducted were the most frequent factors among those who had some level of anxiety or depression.

Understanding the profile of these patients serves as a warning for healthcare professionals and highlights the importance of focusing on the mental health care of the Chronic Kidney Disease population, especially those undergoing hemodialysis. actions targeted toward the investigated theme can be useful in alleviating the suffering of these patients and improving their quality of life, as well as enhancing their ability to cope with their chronic health condition.

ACKNOWLEDGMENTS

To the National Council for Scientific and Technological Development - CNPQ for funding the research. To the dialysis center that collaborated in the completion of this work.

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Received: June/2023

Accepted: April/2024

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