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ANXIETY AND DEPRESSION SCREENING IN ADULTS WITH SICKLE CELL DISEASE RECEIVING CARE IN THE BRAZILIAN PUBLIC HEALTH SYSTEM

RASTREIO DA ANSIEDADE E DA DEPRESSÃO EM ADULTOS COM DOENÇA FALCIFORME ACOMPANHADOS NO SISTEMA PÚBLICO DE SAÚDE DO BRASIL

CRIBADO DE ANSIEDAD Y DEPRESIÓN EN ADULTOS CON ENFERMEDAD DE CÉLULAS FALCIFORMES ATENDIDOS EN EL SISTEMA PÚBLICO DE SALUD BRASILEÑO

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ABSTRACT

Sickle Cell Disease (SCD) is a genetic disorder with higher prevalence among black and mixed-race populations. The presence of pain and physical-functional, emotional, social, and occupational losses justifies studies investigating its biopsychosocial repercussions. Objective – To assess the frequency of symptoms related to anxiety and depression among adults with SCD treated at a public referral hospital in Savior, Bahia, Brazil. Materials and methods – 38 adults with SCD participated in this quantitative, descriptive, cross-sectional study conducted between May 2024 and January 2025. The clinical profile was established through anamnesis, including sociodemographic characterization and application of the Hospital Anxiety and Depression Scale (HADS). Descriptive statistical analyses were performed using the R software. Results – Gender distribution was balanced, with a mean age of 33.5 years. Most participants were single (65.8%), black (55.3%) or mixed-race (42.1%), had completed secondary education (50%), and reported a monthly household income of up to one minimum wage (71.1%). Clinically, the predominant SCD genotypes were HbSS (71.1%) and HbSC (28.9%). All participants reported chronic pain (Visual Analog Scale). Anxiety: 60.5% (unlikely), 26.3% (possibly), 2.6% (probable), 10.5% (Not informed). Depression: 42.1% (unlikely), 34.2% (possibly), 13.2% (probable), 10.5% (Not informed). 31.6% received psychological follow-up. Additionally, 73.7% were physically inactive and 60.5% engaged in weekly leisure activities. Conclusion – Borderline scores for anxiety and depression suggest a high likelihood of these disorders in the studied population. These findings highlight the importance of mental health screening in SCD diagnosis and follow-up, contributing to scientific knowledge, improved clinical practice, and more effective public health policies.

KEYWORDS: Anxiety. Depression. Sickle Cell Disease.

RESUMO

A doença falciforme (DF) é uma patologia genética com maior prevalência em indivíduos pretos e pardos. A presença de dor, perdas físico-funcionais, problemas emocionais, sociais e laborais justifica a realização de estudos que investiguem as repercussões biopsicossociais. O objetivo deste estudo foi rastrear a frequência de sintomas relacionados à ansiedade e à depressão em adultos com DF atendidos em um hospital público de referência na cidade de Salvador, Bahia, Brasil. Participaram 38 adultos com DF, em um estudo quantitativo, descritivo e transversal, avaliados entre maio de 2024 e janeiro de 2025. O perfil clínico dos pacientes foi traçado mediante anamnese detalhada, com descrição dos aspectos sociodemográficos e aplicação da Hospital

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Anxiety and Depression Scale (HADS). As análises estatísticas descritivas foram realizadas por meio do software R. Quanto aos participantes, a distribuição de gênero foi equitativa, com idade média de 33,5 anos. A maioria era composta por indivíduos solteiros (65,8%), pretos (55,3%) e pardos (42,1%), com ensino médio completo (50%) e renda familiar mensal de até um salário-mínimo (71,1%). Em relação à classificação da DF, observou-se predominância do tipo HbSS (71,1%), seguida de HbSC (28,9%), com presença de dores crônicas em 100% dos casos. Quanto à ansiedade, 60,5% foram classificados como improvável, 26,3% como possível, 2,6% como provável e 10,5% como não informado. Em relação à depressão, 42,1% foram classificados como improvável, 34,2% como possível, 13,2% como provável e 10,5% como não informado. Verificou-se que 31,6% dos participantes eram acompanhados por psicólogos, 73,7% eram sedentários e 60,5% praticavam atividades de lazer uma vez por semana. Os escores na faixa limítrofe para ansiedade e depressão sugerem elevada frequência dessas condições. Os achados reforçam a importância do rastreio em saúde mental no diagnóstico e acompanhamento da DF, podendo contribuir para o aprimoramento da literatura científica, a qualificação das práticas clínicas e o desenvolvimento de políticas públicas mais efetivas.

PALAVRAS-CHAVE: Ansiedade. Depressão. Doença Falciforme.

RESUMEN
La enfermedad falciforme (EF) es un trastorno hereditario prevalente en poblaciones negras y mestizas y se asocia con dolor crónico, complicaciones clínicas y limitaciones físicas, emocionales y sociales que afectan la calidad de vida. Objetivo: Rastrear la frecuencia de síntomas relacionados con la ansiedad y la depresión en adultos con EF atendidos en un hospital público de referencia en Salvador, Bahía, Brasil. Métodos: estudio cuantitativo, descriptivo y transversal realizado entre mayo de 2024 y enero de 2025 con 38 adultos diagnosticados con EF. El perfil clínico y sociodemográfico se obtuvo mediante anamnesis estructurada y la aplicación de la escala Hospital Anxiety and Depression Scale (HADS). Los datos fueron analizados mediante estadística descriptiva utilizando el software R. Resultados: la muestra presentó distribución equilibrada por sexo y edad media de 33,5 años. Predominaron participantes solteros, de raza negra o mestiza, con educación secundaria completa y renta familiar mensual de hasta un salario mínimo. En relación con el perfil clínico, la mayoría presentó genotipo HbSS, seguido de HbSC, y todos reportaron dolor crónico. Ansiedad: 60,5% (improbable), 26,3% (posible), 2,6% (probable) y 10,5% (no informado). Depresión: 42,1% (improbable), 34,2% (posible), 13,2% (probable) y 10,5% (no informado). 31,6 % recibía acompañamiento psicológico, alta frecuencia de sedentarismo y baja participación en ocio. Conclusión: los hallazgos indican presencia relevante de síntomas ansiosos y depresivos, destacando la necesidad de rastreo sistemático de salud mental en el diagnóstico y seguimiento de la EF para promover atención integral y mejorar estrategias clínicas multidisciplinarias dirigidas al bienestar biopsicosocial de estos.

PALABRAS CLAVE: Ansiedad. Depresión. Enfermedad de células falciformes.

1. INTRODUCTION

Sickle cell disease (SCD) is a hereditary hemoglobin disorder, with a higher prevalence in Black and mixed-race individuals. It is a group of hemoglobinopathies resulting from a mutation in the gene responsible for the production of haemoglobin A (HbA), which gives rise to a structural variant called haemoglobin S (HbS), with autosomal recessive inheritance. The homozygous form (HbSS), known as sickle cell anaemia, is a significant public health problem in Brazil.[1-4]

According to data from the Ministry of Health, it is estimated that approximately 300,000 children are born with SCD worldwide each year. In Brazil, more than 60,000 people live with this

hemoglobinopathy. Among the federative units, the state of Bahia has the highest incidence of live births with SCD, with an estimated one case for every 650 births. [3–4]

From a pathophysiological point of view, in situations of severe hypoxia, HbS promotes the deformation of red blood cells, which assume a sickle-like shape. This morphological alteration favours the occlusion of small blood vessels, resulting in vaso-occlusive episodes and acute and chronic tissue lesions, due to compromised perfusion and inadequate tissue oxygenation. Among the main clinical complications are recurrent painful crises, musculoskeletal and vital organ impairment — such as liver, spleen, kidneys, and brain — recurrent infections, chronic hemolytic anaemia, stroke, osteoarticular disorders, heightened anxiety, episodes of sadness, and significant emotional distress. [3–4]

In this context, the chronic nature of SCD, associated with intense pain crises and continuous suffering, increases the likelihood of anxiety and depression disorders, with significant biopsychosocial repercussions. Among these, the risk of social isolation, difficulties in remaining in work and/or school activities, early retirement, and socioeconomic vulnerability stand out. [5–7]

Epidemiological studies indicate a high frequency of anxiety and depressive symptoms in the Brazilian population with SCD, highlighting the need to integrate psychological care into the clinical management of this chronic condition.[8–9] In a cross-sectional study conducted in the state of São Paulo, involving 110 adults with SCD, it was observed that 30% of the participants presented depressive symptoms and 12.7% reported anxiety symptoms, indicating a significant impact on the quality of life of these individuals.[10]

Given this scenario, the care of people with SCD demands systematic attention to mental health. The higher frequency of depressive symptoms is related to the chronic, progressive, and limiting nature of SCD, which fosters persistent feelings of hopelessness, loss of functionality, and changes in life plans. Continuous coexistence with recurrent pain, frequent hospitalisations, social stigmatisation, and occupational and leisure restrictions constitutes an important risk factor for psychological distress.[11-15]

In this context, the Hospital Anxiety and Depression Scale (HADS) stands out as a validated instrument for screening for anxiety and depressive symptoms, and can support the diagnosis and clinical monitoring of these patients.[11] The HADS is one of the most widely used tools for screening symptoms of anxiety and depression in hospital settings and the instrument was originally designed to assess emotional symptoms in patients with various clinical conditions.[12-15]

Furthermore, the assessment of clinical, sociodemographic profile and lifestyle habits becomes relevant for a broader understanding of the emotional, social and work-related repercussions associated with the disease. It is important to emphasize that the combination of clinical instruments, validated psychometric scales, and appropriate statistical analyses enables a consistent methodological approach to investigating the psychosocial impacts of SCD.

The integrated use of these techniques contributes to expanding the understanding of mental health conditions in this population and provides support for the development of more comprehensive, evidence-based care strategies.

Given the above, the present study aimed to assess the frequency of symptoms related to anxiety and depression in adults with SCD treated at a public university referral hospital in the city of Savior, Bahia, Brazil.

2. METHODOLOGY

2.1. Ethical aspects

This research was approved by the Research Ethics Committee of the Institute of Health Sciences, under opinion number 7.257.925 and Certificate of Submission for Ethical Review number 84118924.0.0000.5662. All participants were duly informed about the objectives and procedures of the study and signed the Informed Consent Form before the interviews were conducted, in accordance with current ethical standards for research involving human beings.

2.2. Study design

This is a quantitative, cross-sectional, and descriptive study. Data were obtained through semi-structured interviews and supplemented with information extracted from the medical records of patients with SCD, selected by convenience sampling at the Humanitarian Health Outpatient Clinic of the Orthopedics and Traumatology Service of the Professor Edgard Santos University Hospital Complex/Federal University of Bahia.

It is noteworthy that the variables obtained through self-report were related to the research instruments (sociodemographic and clinical data, as well as screening for anxiety and depression). Data associated with sociodemographic and clinical variables were supplemented by medical records when necessary. The interviews were conducted after clinical follow-up appointments, lasting an average of 30 minutes. Subsequently, the electronic medical records were consulted on-site using the University Hospital Management Application, the institutional system adopted by Professor Edgard Santos University Hospital Complex/Federal University of Bahia, to complement and validate the information collected.

2.3. Research and data collection instruments

To assess sociodemographic, clinical, emotional, and lifestyle aspects, two instruments were used: a structured anamnesis form and the HADS. Data collection took place between May 2024 and January 2025.

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2.4. Measuring anxiety and depression

The assessment of anxiety and depression symptoms was performed using the HADS[11], validated for the Portuguese language[8], for the Brazilian population[12] and for individuals with chronic pain[13]. It is a brief instrument, easy to apply and interpret, with an average completion time between 10 and 15 minutes, which favours its use in outpatient and hospital settings.[14-15]

The HADS consists of 14 multiple-choice questions, subdivided into two independent subscales, with seven items each: odd-numbered items assess anxiety symptoms and even-numbered items assess depression symptoms. Each subscale ranges from 0 to 21 points, with interpretation performed separately for anxiety and depression, according to the following cut-off points: (1) 0 to 7 points — unlikely diagnosis, indicating a low probability of anxiety or depression; (2) 8 to 11 points — possible diagnosis, corresponding to the borderline range, suggesting the potential presence of symptoms, recommending complementary clinical evaluation, longitudinal follow-up, and periodic reassessment; and (3) 12 to 21 points — probable diagnosis, indicating a high probability of a clinically significant disorder.

Following the analysis of the results, a referral pathway was established to direct participants with scores suggestive of clinically significant psychological distress to the outpatient physicians in charge. There were no losses or refusals to participate in the present study. In two cases, difficulties in understanding the HADS instrument were observed; however, these were clarified by the researcher.

2.5. Statistical analysis

Descriptive statistical analyses were performed using R[16] software. Quantitative variables were described using means, standard deviations (SD), medians, and minimum and maximum values. Categorical variables were presented as absolute and relative frequencies (percentages).

3. RESULTS

The final sample consisted of 38 adult patients with SCD, followed at a public referral hospital in the city of Savior, Bahia. The mean age was 33.5 years (range: 18 to 59 years), with an equal distribution between the sexes (50% women and 50% men).

The main sociodemographic characteristics of the studied population are presented in Table 1.

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Table 1. Descriptive analysis of sociodemographic variables of people with sickle cell disease followed up at a public hospital in Savior, Bahia (n = 38)

Variables	Statistic
Sex, n (%)	
Female	19 (50.0%)
Male	19 (50.0%)
Age, years	
Mean (standard deviation)	33.5 (13.0)
Median (minimum and maximum)	32.0 (18.0; 59.0)
Race/color, n (%)	
White	1 (2.6%)
Brown	16 (42.1%)
Black	21 (55.3%)
Marital status, n (%)	
Married/common-law relationship/cohabiting	12 (31.6%)
Single	25 (65.8%)
Widower	1 (2.6%)
Origin, n (%)	
Savior	18 (47.37%)
Cities in the interior of the state of Bahia	19 (50%)
Other states of Brazil	1 (2.63%)
Religion, n (%)	
Roman Catholic	17 (44.7%)
Evangelical	12 (31.6%)
Spiritist	1 (2.6%)
Spiritual	1 (2.6%)
African matrix	1 (2.6%)
No religion	6 (15.8%)
Level of education, n (%)	
Incomplete primary education	3 (7.9%)
Completed primary education	0 (0.0%)
Incomplete secondary education	10 (26.3%)
Completed secondary education	19 (50.0%)
Incomplete higher education	5 (13.2%)
Bachelor's degree	1 (2.6%)
Works, n (%)	
Yes	11 (28.9%)
No	26 (68.4%)
Graduation internship	1 (2.6%)
Why don't you work, n (%)	
Student	11 (28.9%)
Unable to work due to the illness	5 (13.2%)
Receiving permanent disability benefits	8 (21.1%)
Receiving temporary disability benefits	1 (2.6%)
Unemployed	2 (5.3%)
Not applicable (currently employed)	11 (28.9%)

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Variables	Statistic
Monthly family income bracket, n (%)	
None	2 (5.3%)
Up to 1 minimum wage	24 (63.2%)
From 1 to 3 minimum wages	8 (21.1%)
Between 3 and 6 minimum wages	4 (10.5%)
Do you have children, n (%)	
No	27 (71.1%)
Yes, 1 child	5 (13.2%)
Yes, 2 children	4 (10.5%)
Yes, 3 children	2 (5.3%)
Performs physical activities periodically, n (%)	
No	28 (73.7%)
Yes, twice a week	4 (10.5%)
Yes, 3 times a week	2 (5.3%)
Yes, more than 3 times a week	4 (10.5%)
Do you usually practice leisure activities/hobbies, n (%)	
No	11 (28.9%)
Yes, once a week	23 (60.5%)
Yes, twice a week	2 (5.3%)
Yes, 3 times a week	2 (5.3%)

Source: Authors owns work.

The anxiety scores obtained using the HADS questionnaire showed that 60.5% of participants were classified as unlikely to have anxiety, 26.3% as possibly having anxiety, 2.6% as likely to have anxiety, and 10.5% did not provide a response. About depression, 42.1% of respondents were classified as unlikely to have depression, 34.2% as possibly having depression, 13.2% as likely to have depression, and 10.5% did not report. Figures 1 and 2 present descriptive analyses of variables related to symptoms of anxiety and depression, as assessed by HADS.

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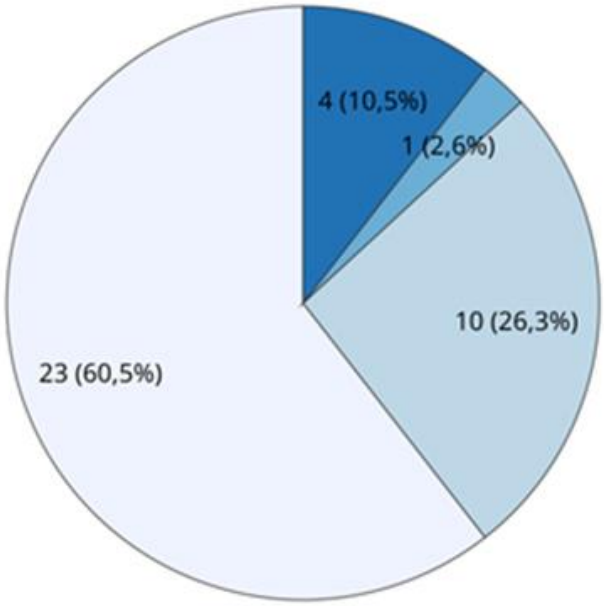
Figure 1. Distribution of people with sickle cell disease followed up at a public hospital in Savior, Bahia, according to the classification of anxiety screening using the Hospital Anxiety and Depression Scale (n = 38)



Unlikely: Low probability of anxiety; **Possible:** Possible diagnosis of anxiety; **Probable:** High probability of anxiety diagnosis; **Not informed**.[8-11]
Source: Authors owns work.

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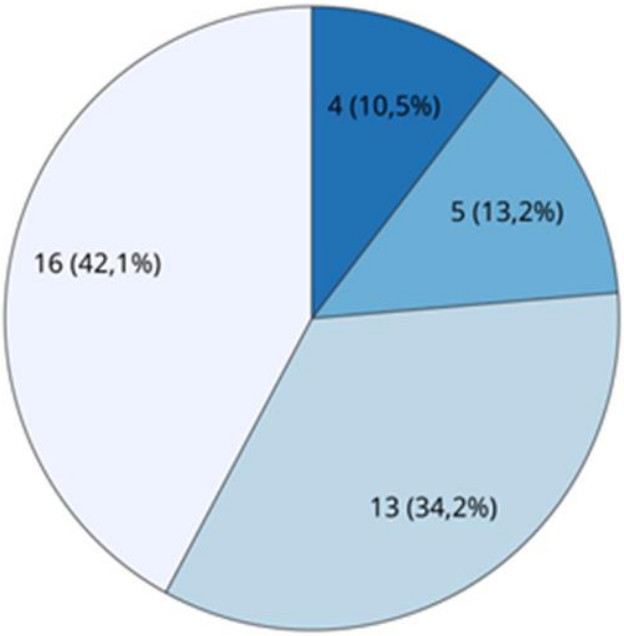
Figure 2. Distribution of people with sickle cell disease followed up at a public hospital in Savior, Bahia, according to the classification of depression screening using the Hospital Anxiety and Depression Scale (n = 38)



Unlikely: low probability of depression; **Possible:** Possible diagnosis of depression; **Probable:** High probability of diagnosis of depression; **Not informed**. [8-11]
Source: Authors' owns work.

Regarding multidisciplinary follow-up, it was observed that 55.3% of patients were followed by a nutritionist, 39.5% by a physiotherapist, and 31.6% by a psychologist, demonstrating partial adherence to the integrated approaches recommended for the management of SCD.

4. DISCUSSION

To answer the proposed questions, the results concerning the sociodemographic aspects associated with symptoms of anxiety and depression were emphasised. It was observed that 65.8% of the participants were single and 71.1% did not have children, corroborating the findings of Kazak and Ozkaraman[17] (2021) and Silva et al.[12] (2022). It is plausible to assume that this profile is related to the difficulties in socialisation imposed by the stigma of the disease.

It was also found that 68.4% of individuals were outside the labour market, 50.0% had completed high school, and 63.2% had a family income of up to one minimum wage, results consistent with Brazilian studies[18]. According to Silva et al.[12] (2022), low levels of education and income can compromise self-care strategies, limit access to health information, and hinder understanding of the disease and adherence to treatment. Furthermore, these factors are frequently associated with unfavourable socioeconomic conditions and restricted access to health

services, increasing psychosocial vulnerability.

Regarding lifestyle habits, it was found that 73.7% of participants did not engage in regular physical activity, a result similar to that described by Silva et al.[12] (2022) and Osunkwo, Manwani and Kanter[14] (2021). These authors point to a tendency towards avoidance of musculoskeletal activities in people with SCD as a strategy to prevent vaso-occlusive crises and exacerbation of fatigue. However, physical inactivity is associated with a higher frequency of anxiety and depressive symptoms, by reducing the release of neurotransmitters related to well-being, in addition to favouring social isolation and worsening functional limitations.

It was also observed that 28.9% of participants did not engage in leisure activities. Added to this is the financial impact resulting from expenses with medications and specialised care, factors that restrict opportunities for relaxation, pleasure, and social interaction, contributing to continuous stress and greater psychological vulnerability.[19]

Regarding psychological support, only 31.6% of patients received specialised assistance. The literature highlights the importance of emotional support from psychology and psychiatry professionals[14]. The discrepancy between the low proportion of psychological follow-up and the frequency of screened symptoms of anxiety and depression suggests underutilization of mental health services. This scenario may reflect barriers to access, social stigma, and a low perceived need for specialized care. Consequently, there is an increased risk of worsening psychological distress and negative impacts on functioning and quality of life.

Al-Marzouki *et al.*[20] (2021) highlight a correlation between sociodemographic aspects and a higher frequency of anxiety and depression, especially in individuals aged 30 to 34, male, single, and unemployed. These authors identified a significant association between depression and employment status, reinforcing the influence of social determinants on the mental health of this population.

In the present study, the mean HADS anxiety score was 7.6 points, with 60.5% of participants classified as unlikely, 26.3% as possible, and 2.6% as likely anxiety. Regarding depression, the mean was 5.9 points, with 41.1% classified as unlikely, 34.2% as possible, and 13.2% as likely depression.

Compared to the international scenario, the average scores observed were below the cut-off points originally proposed by Zigmond and Snaith[11] and the values described by Osunkwo, Manwani and Kanter[14], Olowoselu et al.[21] and in the systematic review by Leite et al.[7] These data may suggest lower symptom intensity in the studied sample; however, such an interpretation should be made with caution, considering methodological and contextual differences between the studies.

The combined analysis of the HADS categories indicates that, although most participants were classified as unlikely to have anxiety, the sum of the possible and probable categories reveals

a significant proportion of individuals with borderline symptomatology. Regarding depression, a higher proportion of cases was observed in the possible and probable categories when compared to anxiety, suggesting a greater functional impact in this domain and a greater need for specialised follow-up.

A study conducted in Bahia identified a high frequency of anxiety (53.33%) and depression (33.33%), as well as an association with suicidal ideation (20%) in people with SCD[9], reinforcing the importance of systematic mental health screening and interdisciplinary action to prevent adverse outcomes. Botega et al.[8], when applying the HADS to 78 patients hospitalised in a general ward, observed a frequency of 20.5% for mild anxiety and 33% for suspected depression, values close to those found in the present study, even though in a population with a higher average age (43.2 years).

Chronic pain is identified as an important predictor for the development of anxiety and depression[21]. The longitudinal Pain in Sickle Cell Epidemiology Study[22], conducted in the United States, demonstrated that individuals with anxiety symptoms presented a higher frequency and intensity of pain, as well as greater opioid consumption. In a prospective cohort study involving 232 individuals with SCD, it was found that participants with anxiety and depression had worse scores on all subscales of the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36), evidencing a significant impact on quality of life. [22]

The results presented highlight the need for multidisciplinary approaches that consider the biopsychosocial dimension of SCD, with an emphasis on prevention, mental health promotion, and the implementation of integrated care strategies. The adverse sociodemographic context, coupled with the limitations imposed by the disease and inadequate pain coping strategies, can increase the occurrence of anxiety and depression, making the systematic inclusion of psychological assessment in the clinical follow-up of this population essential.

The limitations of this study include non-probabilistic sampling, single-center design, absence of a comparator group, use of a screening instrument, and inability to establish causal inference. However, the results may aid in understanding, decision-making and multidisciplinary care. By assessing the clinical, physical-functional and emotional aspects of adults with SCD in the public healthcare system, we were able to contribute to a better understanding of their sociodemographic profile and the screening for anxiety and depression.

5. FINAL CONSIDERATIONS

Patients with sickle cell disease (SCD) evaluated presented scores predominantly in the borderline range for anxiety, while depressive symptoms showed greater clinical expressiveness, indicating the need for specialised follow-up. These findings suggest that, in addition to the physical complications and painful crises characteristic of SCD, anxiety and depression constitute frequent

comorbidities, with significant repercussions in the biopsychosocial dimension.

The lifestyle habits and sociodemographic aspects observed are related to financial insecurity, difficulty in accessing continuous health services, fragile support networks, and limitations in adherence to treatment. Therefore, multidisciplinary interventions that incorporate early and systematic screening of mental health are fundamental for the comprehensive care of this population. Furthermore, the results highlight the importance of adapting public health policies to the specific needs of people with SCD, considering their clinical, social, and emotional vulnerabilities.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

Leila Valverde Ramos: study conception, data collection, and manuscript writing.

Roberto Paulo Correia de Araújo: research supervision, critical revision of the intellectual content, and approval of the final version of the manuscript.

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