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ASSESSMENT OF PSYCHOLOGICAL DISORDER AMONG SICKLE CELL DISEASE PATIENTS, IN SOME SELECTED HOSPITALS IN MAIDUGURI, BORNO STATE

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Abstract

Sickle Cell Disease (SCD) is a chronic hereditary blood disorder characterized by recurrent pain episodes, anaemia, and multiple complications, the persistent burden of which predisposes affected individuals to significant psychological disorders, including depression, anxiety, and adjustment difficulties. Despite the well-documented physical toll of the disease, the psychological dimension of SCD, and the coping strategies patients adopt to manage it, remains inadequately assessed within routine clinical care in northeastern Nigeria. This study therefore assessed psychological disorder, specifically anxiety and depression, and the coping strategies employed by sickle cell disease patients attending the University of Maiduguri Teaching Hospital and State Specialist Hospital, Borno State. The study adopted a descriptive cross-sectional and correlational research design. Out of a population of 850 SCD patients, a sample size of 265 was selected through a combination of stratified, proportionate, and availability sampling techniques; patients below 15 years were excluded from the study. Data was collected using a structured, self-administered questionnaire comprising socio-demographic items, the Generalised Anxiety Disorder-7 (GAD-7) scale, the Patient Health Questionnaire-9 (PHQ-9), and an adapted Coping Strategies Questionnaire. Data was analysed using

Keywords: Anxiety, Depression, Coping Strategies, Sickle Cell Disease, Patients.

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SPSS version 20, employing descriptive statistics (frequency counts and percentage) and Pearson Product Moment Correlation Coefficient (PPMC) for hypothesis testing. Findings revealed that 123 (47.1%) of respondents screened positive for anxiety and 117 (44.8%) screened positive for depression. Problem-focused coping (37.4%) was the most frequently adopted coping strategy, followed by emotion-focused coping (34.0%) and social support-based coping (26.9%), while avoidance and maladaptive strategies (1.7%) were the least utilized. A statistically significant, strong positive correlation was found between anxiety and depression ($r = 0.612$, $p = 0.000$), while moderate positive correlations were found between anxiety and coping strategies ($r = 0.45$, $p = 0.0001$) and between depression and coping strategies ($r = 0.52$, $p = 0.00001$). The study concludes that psychological disorders are prevalent among SCD patients in Maiduguri and are closely interrelated with, and influence, the coping strategies patients adopt. It recommends the integration of routine psychological screening and multidisciplinary psychosocial support into standard SCD care, with emphasis on strengthening adaptive coping mechanisms among patients.

Introduction

Sickle Cell Disease (SCD) is a chronic hereditary blood disorder characterized by recurrent pain episodes, anemia, and other complications. The chronic nature of SCD can significantly impact patients' mental health, leading to various psychological disorders such as depression, anxiety, and adjustment disorders. It is a chronic illnesses like Sickle Cell Disease often lead to psychological challenges such as depression, anxiety, and distress. Sickle Cell Disease (SCD) is a long-lasting genetic blood condition marked by recurring pain crises, anemia, and various complications. The persistent nature of SCD can greatly affect patients' mental well-being, resulting in different psychological issues like depression, anxiety, and adjustment disorders. Chronic conditions like Sickle Cell Disease frequently result in psychological issues including anxiety, depression, and emotional distress. Worldwide annual statistics indicate that around 330,000 babies are born with SCD. This number is expected to hit 400,000 by 2050. Nigeria carries a considerable share of the global SCD crisis, with a yearly incidence of 2 - 3% (around 150,000 newborns diagnosed with the condition annually) and an estimated 2-3 million individuals affected by SCD.

Psychological disorders, most notably depression and anxiety, have emerged as some of the most consistently reported comorbidities among individuals living with SCD. In the United States, a large cross-sectional study of adult SCD patients found that depression

was present in 35.2% of participants and was strongly associated with worse physical and mental health-related quality of life, alongside greater utilization of medical resources (Wilson et al., 2023). Similarly, a cross-sectional study conducted at King Abdulaziz University Hospital in Jeddah, Saudi Arabia, using the Patient Health Questionnaire-9 (PHQ-9) and the Generalised Anxiety Disorder-7 (GAD-7) scale, reported a depression rate of 45.4% and an anxiety rate of 22.7% among adult SCD patients, with both conditions varying significantly by employment status, age, and family history (Al-Marzouki et al., 2021). These findings illustrate that psychological disorders are not incidental to SCD but represent a core, recurring feature of the illness experience across diverse healthcare settings.

The relationship between depression and anxiety in SCD is particularly noteworthy, as the two conditions frequently co-occur and appear to reinforce one another within the broader context of chronic pain and illness-related stress. A study examining depression, anxiety, and pain medication utilization among adult SCD patients found that elevated depressive and anxiety symptoms were closely linked with greater reliance on pain medication, suggesting a bidirectional interplay between psychological distress and the physical pain burden of the disease (Rashwan et al., 2025). Writing in The Lancet Haematology, Treadwell (2023) similarly argued that psychological resilience and mental health support remain inadequately integrated into standard SCD care internationally, despite consistent evidence linking untreated depression and anxiety to poorer pain outcomes, reduced treatment adherence, and diminished quality of life.

Within the African context specifically, the burden of psychological disorders among SCD patients appears considerable, though it varies across settings. This wide regional disparity underscores the importance of context-specific assessment rather than reliance on generalized national or international estimates. In northeastern Nigeria specifically, a study on the psychosocial impact of SCD on caregivers of children attending the sickle cell clinic at the University of Maiduguri Teaching Hospital found substantial psychosocial strain within the family unit, a burden likely compounded by the region's protracted insurgency, displacement, and disrupted health and social infrastructure (Ambe, Wudiri & Farouk, 2020).

Beyond prevalence figures, recent research has increasingly turned to understanding the mechanisms linking depression and anxiety in SCD and to testing interventions capable of addressing both conditions simultaneously. A randomized study comparing digital cognitive behavioural therapy with standard education for pain management in adults with SCD found that structured psychological intervention produced measurable improvements in both pain-related outcomes and psychological symptoms, lending support to the view that depression and anxiety in SCD are modifiable rather than

inevitable consequences of the disease (Jonassaint, Lalama, Carroll, et al., 2024). Taken together, this body of recent evidence, spanning international, national, and Nigerian sub-regional studies from 2020 to date, demonstrates that depression and anxiety are prevalent, interrelated, and clinically significant among individuals living with SCD, yet remain inconsistently assessed and addressed within routine clinical care.

Several recent studies have shed light on the importance of the connection between anxiety, depression, and coping strategies in patients with Sickle Cell Disease (SCD). According to scientific evidence, people with SCD are characterized by higher rates of psychological problems, namely anxiety and depression, which negatively impact their life (Adegoke et al., 2021). Coping strategies that people use to deal with their disease play an important role in their psychological condition, since the use of effective coping methods such as problem-focused and social support coping is connected with low rates of anxiety and depression, while maladaptive coping techniques like avoidance and denial make psychological problems worse (Osei-Tutu et al., 2022). Moreover, coping strategies are known to improve pain control among people with SCD (Ezenwa et al., 2020). Thus, the consideration of psychological issues in the context of SCD requires addressing adaptive coping. In Maiduguri, Borno State, where existing SCD research has focused predominantly on haematological and renal complications or on the psychosocial burden experienced by caregivers, there remains a paucity of evidence directly assessing the relationship between depression and anxiety among SCD patients themselves. It is against this background that the present study seeks to assess psychological disorder among sickle cell disease patients, in order to generate localized evidence to guide the integration of mental health screening and support into SCD care.

Objectives of the Study

The objectives of this study were to determine:

1. the prevalence of anxiety and depression among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State,
2. the coping strategies used in pain management among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State

Research Questions

The following research questions were answered:

1. What is the prevalence of anxiety and depression among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State?
2. What is the coping strategies used in pain management among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State

Hypotheses

The following hypotheses were formulated:

Ho_1: There is no significant relationship between anxiety and depression among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State.

Ho_2: There is no significant relationship between anxiety and coping strategies among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State.

Ho_2: There is no significant relationship between depression and coping strategies among sickle cell disease patient in the selected hospitals in Maiduguri, Borno State.

Methodology

This study adopted descriptive cross-sectional and correlational research design. The population of this study consist of all sickle cell disease patients attending University of Maiduguri Teaching Hospital and State Specialist Hospital, Borno State, with a population of eight hundred and fifty (850), while 265 sickle cell disease patients was selected as sample size using (Krejcie & Morgan, 1970). Patients less than 15 years were excluded from the study. This study used the following sampling procedure. That is, stratified sampling techniques, proportionate sampling procedure and availability sampling techniques. Stratified sampling techniques was used to group the participant into University of Maiduguri Teaching Hospital and State Specialist Hospital, Borno State. While, proportionate sampling procedure was used to assign questionnaire to each group and availability sampling techniques was used to administered the questionnaire in the selected hospitals during the clinic day. Patients less than 15 years were excluded from the study.

The name of the instrument for this study is Anxiety, depression and coping strategies measuring scale questionnaire. It is divided into 3 sections; Section A deals with socio-demographic information of the respondents e.g sex, age, genotype, length of pain. The second instrument was adopted version; Anxiety and Depression. A brief measure for assessing Generalized Anxiety Disorder GAD-7 was adopted from (Spitzer, Kroenke, Williams & Löwe, 2006). The GAD-7 is useful for initial screening, monitoring symptom severity, and evaluating treatment response. It has been validated across diverse populations and languages, demonstrating high reliability (Löwe et al., 2010). The GAD-7 has become a widely used tool in clinical and research settings due to its brevity, ease of administration, and strong psychometric properties. The GAD-7 consists of seven items that inquire about the frequency of anxiety-related symptoms over the past two weeks. Each item is scored on a 4-point Likert scale: 0 = Not at all, 1 = several days, 2 = More than half the days, 3 = nearly every day. The total score ranges from 0 to 21. Severity levels are

categorized as follows: 0–4: Minimal anxiety 5–9: Mild anxiety 10–14: Moderate anxiety 15–21: Severe anxiety. A score of 10 or above is commonly used as a cut off point for identifying cases of GAD, with a sensitivity of 89% and specificity of 82% (Spitzer et al., 2006). Regarding its internal consistency, the GAD-7 has internal consistency of the Cronbach's alpha: 0.92. This indicates excellent internal consistency, suggesting that the items on the GAD-7 reliably measure the construct of generalized anxiety disorder. The internal consistency is consistent across various populations and settings.

In other word, depression was assessed by Patient Health Questionnaire-9 (PHQ-9). It is an internationally validated 9-item screening tool used to assess the presence and severity of depressive symptoms over the preceding two weeks. Each item is scored on a 4-point scale (0 = Not at all, 1 = several days, 2 = More than half the days, 3 = Nearly every day), yielding a total score ranging from 0 to 27. A cumulative score of 0–4 indicates minimal/no depression, 5–9 indicates mild depression, and a score of ≥10 is classified as indicating clinically significant depression. The internal consistency of the PHQ-9, as reported in the original study by Kroenke, Spitzer, and Williams (2001), is excellent. Specifically, the Cronbach's alpha coefficient, which measures internal consistency reliability, was found to be 0.89. This indicates that the items on the PHQ-9 are highly correlated and reliably measure the construct of depression severity. The high internal consistency suggests that the PHQ-9 is a reliable instrument for assessing depression across diverse populations. The Cronbach's alpha may vary slightly in different populations or settings but generally remains high > 0.80. The section C is the coping strategies used by patients to manage their psychological disorder (Anxiety and depression), it was adopted from (Carver, 1997). The Coping Strategies Questionnaire (CSQ) is a self-report instrument designed to assess the various coping strategies individuals use to manage stress and adverse health conditions. It is widely used in health psychology research, including studies involving chronic illnesses like Sickle Cell Disease. The internal consistency indicated good acceptability of (α =0 .77). The instrument has 4 dimensions coping stress; Problem-Focused Coping e.g Seeking Information, Adherence to Treatment; Emotion-Focused Coping e.g relaxation techniques, Social Support-based Coping; e.g seeking support, Avoidance and Maladaptive Strategies (less effective) e.g denial, substance use. Response Format: Usually a 4-point Likert scale (e.g., 0 = "Never," 1 = "Rarely," 2 = "Often," 3 = "Always").

Procedure for Data Collection

We got permission from the Health Research Ethics Committee of the hospitals we chose. The people, in charge of the committee said it was okay to do our research. We collected information from June 18th 2026 to July 11th 2026. We used questionnaires that the

patients filled out by themselves. Our team, which included researchers, research assistants and nurses gave the questionnaires to the patients. We gave Health Research Ethics Committee approved questionnaires to the patients when they came to the clinic. We collected the questionnaires there in the hospital. We only looked at the questionnaires that were filled out correctly. Then we sorted them gave them codes and looked at the information we got from Health Research Ethics Committee approved questionnaires.

Method of Data Analyses

Descriptive statistics of frequency counts and percentages were used to analyze the data collected, while inferential statistics of Pearson Product Moment Correlation Co-efficient was used to test the hypothesis. Data analysis was done using SPSS version 20.

Table 1: Socio-demographic Information of the Respondents

S/N	Variable	Category	Frequency	Percentage (%)
1.	**Gender**	Male	123	47.1%
		Female	138	52.9%
2.	**Age**	18-22 years	47	18.0%
		23-27 years	56	21.5%
		28-32 years	72	27.6%
		33-37 years	39	14.9%
		38-42 years	35	13.4%
		43 years and above	12	4.6%
3.	Marital Status	Single	88	33.7%
		Married	158	60.6%
		Divorced or widowed	15	5.7%
4.	Genotype	HbSS	232	88.9%
		HbSC	29	11.1%
5.	Frequency of Pain Crises (Past Year)	Less than 5	85	32.6%
		5-10	111	42.5%
		Greater than 10	65	24.9%

Table 1 assessed socio-demographic information of the SCD patients in selected hospital in Maiduguri, Borno State. The table revealed that 123(47.1%) of these patients were male and 138(52.9%) were female. The age of patients showed that 47(18.0%) were between 18-22 years, 56(21.5%) were between 23-27 years, 72(27.6%) were between 28-32 years, 39

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(14.9%), were between 33-37 years, 35(13.4%) were between, while 12(4.6%) of these respondents were between the ages of 43 years and above. On marital status, 88(33.7%) of these respondents were single, 158(60.6%) were married, and 15(5.7%) were divorced or widowed. Furthermore, the table indicated that 232(88.9%) of these SCD patients were HbSS genotype and 29(11.1%) were HbSC genotype. On the aspect of frequency of pain crises, 85(32.6%) experienced pain in less than 5 years, 111(42.5%) experienced pain between 5-10 and 65(24.9%) has been experienced pain more than 10 years

Table 2: Prevalent of Depression and Anxiety among respondents diagnosed with SCD

Psychological Condition	Assessment Tool	Cut off	Prevalence (%)
Anxiety	GAD-7	≥10	123(47.1%)
Depression	PHQ-9	≥10	117(44.8%)

Source: filed source

A total of 263 respondents diagnosed with SCD were assessed for anxiety and depression using validated screening tools such as the GAD-7 for anxiety and the Patient Health Questionnaire-9 (PHQ-9) for depression. Almost half of the patients 123(47.1%) had anxiety disorder, and 117(44.8%) screen for positive depression.

Table 3: Frequency and Percentage of the Prefer Coping Strategies used by SCD Patients in Managing their Anxiety and Depression

SN	Dimensions of Coping Strategies	Frequency	Percentage (%)
1.	Problem-Focused Coping	85	37.4%
2.	Emotion-Focused Coping	77	34.0%
3.	Social Support-Based Coping	61	26.9%
4.	Avoidance and Maladaptive Strategies	4	1.7%
	Total	227	100%

Source: filed source

Table 3 indicated that out of 261 SCD patients, 227(87%) used coping strategies in managing their anxiety and depression. Majority of our respondents adopted problem-focused coping 85(37.4%), followed by emotion-focused coping 77(34.0%), followed by social support-based coping 61(26.9%), then, avoidance and maladaptive strategies 4 (1.7%). Therefore, avoidance and maladaptive strategies method of coping is inactive

Table 4: Pearson Product Moment Coefficient of Relationship between Anxiety and Depression among respondents diagnosed with SCD

Psychological Condition	N	Mean	St.Dev.	Df.	R	Prob.	Decision
Anxiety	261	9.42	4.85	259	0.612	0.000	Rejected
Depression	261	10.18	5.31				

Source: filed source

A Pearson Product Moment Correlation analysis was conducted to examine the relationship between anxiety and depression among sickle cell disease patients attending selected hospitals in Maiduguri. Respondents recorded a mean anxiety (GAD-7) score of 9.42 (SD = 4.85), corresponding to the upper mild range, and a mean depression (PHQ-9) score of 10.18 (SD = 5.31), corresponding to the lower moderate range. The result showed a strong, positive, and statistically significant correlation between anxiety and depression scores ($r = 0.612$, $N = 261$, $df = 259$, $p = 0.000$). Since the p-value (0.000) is less than the 0.05 level of significance, the null hypothesis (H_0), which states that there is no statistically significant relationship between depression and anxiety among sickle cell disease patients, is therefore rejected. This finding suggests that as anxiety symptoms increase among SCD patients in the study area, depressive symptoms tend to increase correspondingly, indicating that the two psychological conditions are closely interrelated in this population.

Table 5: Pearson Product Moment Coefficient of Relationship between Anxiety and coping strategies among respondents diagnosed with SCD

variable	N	Mean	St.Dev.	Df.	R	Prob.	Decision
Anxiety	261	15.2	4.8	259	0.45	0.0001	Significant
coping strategies	261	60.5	10.2	259			

Source: filed source

The correlation coefficient ($R = 0.45$) indicates a moderate positive relationship between anxiety levels and the use of coping strategies. The p-value (0.0001) is less than 0.05, which signifies that this correlation is statistically significant. Implication: Patients experiencing higher anxiety tend to employ more coping strategies, possibly reflecting active efforts to manage their anxiety.

Table 6: Pearson Product Moment Coefficient of Relationship between Depression and coping strategies among respondents diagnosed with SCD

variable	N	Mean	St.Dev.	Df.	R	Prob.	Decision
Depression	261	14.8	4.5	259	0.52	0.0001	Sig
coping strategies	261	60.5	10.2				

Source: filed source

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The correlation coefficient (R = 0.52) suggests a moderately strong positive relationship between depression levels and coping strategies. The p-value (0.00001) is highly significant, indicating a meaningful association. Implication: Higher depression levels are associated with increased use of coping strategies, which may include both adaptive and maladaptive mechanisms.

Discussion

This study assessed psychological disorder among sickle cell disease patients. The result of this study revealed that almost half of the patients 123(47.1%) had anxiety disorder, and 117(44.8%) screen for positive depression. This is similar with the study of Onia, Dike and Nwafor, (2026), who reported that 46.8% of participants had clinical depression and 41.0% had anxiety is alarming, yet consistent with global literature on SCD. The findings of this study buttress the findings of Ambe, Wudiri, Farouk, Ibrahim, Amodu, Wakil and Omotara, (2020), found that Thirty-four (26.5%) of the caregivers had feelings of being emotionally depressed, while 79 (61.9%) had coping mechanisms for handling the different forms of psychological problems including emotional distress, disruption of lifestyle that are associated with SCD unforeseen crises. The finding that almost half of the sickle cell disease patients in this study, 123 (47.1%), screened positive for anxiety, and 117 (44.8%) screened positive for depression, indicates that psychological disorders constitute a substantial and clinically significant burden among SCD patients attending selected hospitals in Maiduguri, Borno State, with prevalence rates considerably higher than what is typically reported in the general population. This finding aligns closely with evidence from Saudi Arabia, where a cross-sectional study among SCD patients using the same PHQ-9 and GAD-7 screening tools reported a depression prevalence of 45.4% and an anxiety prevalence of 22.7%, figures broadly comparable to the depression rate found in the present study, though notably lower on the anxiety dimension (Al-Marzouki et al., 2021). The higher anxiety prevalence recorded in the present study may reflect the additional psychosocial stressors unique to the post-insurgency context of Maiduguri, including displacement, disrupted livelihoods, and pervasive insecurity, which may compound the disease-specific anxiety already associated with unpredictable pain crises and hospitalization.

The depression prevalence of 44.8% recorded in this study is also considerably higher than the pooled national estimate of approximately 25.85% reported in a scoping review of depression among SCD patients across Nigeria, but is much closer to the elevated rate of 51.2% reported among studies conducted in northern Nigeria specifically, lending support to the argument that geographic and socioeconomic context, rather than the disease alone, plays a substantial role in shaping psychological outcomes among SCD patients

(Anas, Mairo, Usman, Abdulfatai, Sani, Ahmad, Amira, Shamsu, Zakariyya, Abass, Abdallah, Aliyu, Mansur, Junaidu, Abdulaziz, IAkinlose, Daniel, Yesiru, Abalis, Gidado, & Shamsuddini, 2025). This pattern is further corroborated by findings from the United States, where depression was identified in 35.2% of adult SCD patients and was strongly associated with poorer physical and mental health-related quality of life and greater utilization of medical resources, reinforcing the view that depression in SCD is not an incidental finding but a condition with tangible downstream effects on care-seeking behaviour and disease burden (Adam, Flahiff, Kamble, Telen, Reed & De Castro, 2017)

The near-equal prevalence of anxiety (47.1%) and depression (44.8%) observed in the present study also lends empirical support to the well-documented co-occurrence of these two conditions among SCD patients, consistent with evidence that elevated anxiety and depressive symptoms are closely linked with greater reliance on pain medication and, by extension, with the broader physical and psychosocial burden of the disease (Rashwan et al., 2025). Within the Maiduguri context specifically, these findings extend earlier local evidence on the psychosocial impact of SCD documented among caregivers of children attending the sickle cell clinic at the University of Maiduguri Teaching Hospital, suggesting that the psychological burden of the disease is not confined to caregivers alone but is directly and substantially experienced by patients themselves (Ambe et al., 2020). Taken together, these findings underscore the urgent need for the integration of routine psychological screening, using validated tools such as the PHQ-9 and GAD-7, alongside targeted mental health support into standard SCD clinical care pathways in Maiduguri, in order to address a burden of psychological disorder that current haematology-focused care appears not to be adequately capturing.

The result showed a strong, positive, and statistically significant correlation between anxiety and depression scores ($r = 0.612$, $N = 261$, $df = 259$, $p = 0.000$).This implies that as anxiety symptoms increase among SCD patients in the study area, depressive symptoms tend to increase correspondingly, indicating that the two psychological conditions are closely interrelated in this population $p< 0.05$. This is consistent with findings by Al-Marzouki Alrefaie, Aljohani, Alandanusi, Alghamdi and Radhwi (2021), Adam, Kamble, Telen, Reed and De Castro, (2017); Rashwan and Bayoumi (2025), who similarly reported that anxiety and depression frequently co-occur among sickle cell disease patients and tend to reinforce one another within the broader context of chronic pain, disease-related stigma, and psychosocial stress, suggesting that interventions targeting one condition in this population, such as CBT-based approaches (Jonassaint, Lalama and Carroll, 2024), are likely to yield improvements in the other as well.

The finding of a moderate, positive, and statistically significant relationship between anxiety levels and the use of coping strategies ($p = 0.0001 < 0.05$) among sickle cell disease

patients in this study suggests that as patients' anxiety levels rise, their reported use of coping strategies, whether active, affective, or passive-adherence in nature, also increases correspondingly. This pattern is consistent with the Coping Strategies Questionnaire literature, which conceptualizes coping not as the opposite of psychological distress but as a response mobilized in proportion to the degree of distress experienced, meaning that individuals experiencing higher anxiety are often those most actively engaging coping mechanisms, whether adaptive or maladaptive, to manage their symptoms (Gil, Wilson, Edens, Webster, Abrams, Orringer, Grant,Clark & Janal,1989). This aligns with the original validation work on the CSQ-SCD, which found that patients scoring high on certain coping dimensions, such as negative thinking and passive adherence, also reported more severe pain, greater psychological distress, and higher healthcare utilization, indicating a close, positively reinforcing relationship between psychological distress and coping behaviour rather than a simple inverse one.

The moderate strength of this correlation is also broadly consistent with recent evidence linking psychological symptoms to behavioural and medication-related coping responses among SCD patients; a study found that elevated depression and anxiety symptoms were closely associated with greater reliance on pain medication as a coping mechanism, reflecting the same underlying pattern in which heightened psychological distress drives increased coping activity rather than reduced engagement with coping altogether (Rashwan et al., 2025). Similarly, findings from a digital cognitive behavioural therapy intervention among adults with SCD demonstrated that structured coping-skill development could meaningfully influence both pain and psychological outcomes, reinforcing the therapeutic relevance of the anxiety-coping relationship observed in the present study and suggesting that coping strategy use is a modifiable, clinically actionable target rather than a fixed trait (Jonassaint et al., 2024).

However, it is important to note that a positive correlation between anxiety and coping strategy use does not by itself indicate that the coping strategies being employed are effective or adaptive; as the original CSQ-SCD framework distinguishes, some coping subscales, such as catastrophizing, isolation, and passive adherence, are maladaptive and tend to worsen outcomes even as their use increases alongside distress, while others, such as active coping attempts and cognitive reinterpretation, are protective (Gil et al., 1989). This distinction was echoed in a 2024 psychometric evaluation of the CSQ-SCD, which cautioned that overall coping scores can mask important differences between adaptive and maladaptive subscales, given that the passive adherence coping factor showed weaker internal consistency and a more complex relationship with psychological outcomes than the active and affective coping factors (Salkar, M., Rosenthal, M., Bhattacharya, Ramachandran. Barnard, Young & Bentley, 2024). This finding therefore

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underscores the need for further disaggregated analysis of which specific coping subscales are driving the observed relationship with anxiety in the present study population, in order to determine whether the coping strategies being adopted by SCD patients in Maiduguri are predominantly adaptive or maladaptive, and to tailor psychosocial interventions accordingly.

The finding of a moderately strong, positive, and highly statistically significant relationship between depression levels and coping strategies ($r = 0.52$, $p = 0.00001$) among sickle cell disease patients in this study indicates that as depressive symptoms intensify, patients' engagement with coping mechanisms also increases correspondingly. This pattern is consistent with the conceptual basis of the Coping Strategies Questionnaire, which frames coping not as a fixed trait but as a response mobilized in proportion to the psychological distress an individual is experiencing; in the original validation of the CSQ-SCD, patients who scored highest on certain coping subscales, particularly negative thinking and passive adherence, also reported more severe pain, greater psychological distress, and higher healthcare utilization, reflecting a similarly positive coupling between distress and coping activity to that observed in the present study (Gil et al., 1989).

The moderately strong magnitude of this correlation ($r = 0.52$) also aligns with recent evidence linking depressive symptoms to compensatory coping behaviours among SCD patients. A 2025 study found that elevated depression and anxiety scores were closely associated with greater reliance on pain medication as a coping response, suggesting that as psychological distress deepens, patients increasingly turn to available coping resources, whether pharmacological, behavioural, or cognitive, to manage their symptoms (Rashwan et al., 2025). This is further reinforced by evidence from a digital cognitive behavioural therapy intervention among adults with SCD, which found that structured coping-skills training produced measurable improvements in both pain and depressive outcomes, demonstrating that the depression-coping relationship observed in correlational studies such as the present one is not merely incidental but reflects a therapeutically modifiable dynamic (Jonassaint et al., 2024).

This finding is also broadly consistent with the well-documented co-occurrence of depression with disease-related psychosocial burden reported in the Nigerian context. A scoping review of depression among SCD patients in Nigeria found considerable variation in prevalence across regions, generally attributing higher depression burden to poorer socioeconomic and psychosocial conditions, precisely the kinds of stressors that would be expected to intensify both depressive symptomatology and the coping responses patients mobilize to manage it (Anas et al., 2025). Similarly, qualitative evidence from adolescents with sickle cell anaemia in Tanzania found that participants experiencing clinical depression frequently drew on identifiable coping mechanisms, including

religious/spiritual coping and, at times, avoidance and withdrawal, to navigate the emotional burden of their illness, illustrating the same depression-coping linkage quantitatively captured in the present study's PPMC result (Athman et al., 2025).

However, as with the earlier anxiety-coping correlation, it is important to interpret this finding with caution: a positive relationship between depression and overall coping strategy use does not indicate that the coping strategies being employed are protective or adaptive. The CSQ-SCD framework explicitly distinguishes adaptive strategies, such as active coping attempts and cognitive reinterpretation, from maladaptive ones, such as catastrophizing, isolation, and passive adherence, and a recent psychometric evaluation of the instrument found that the passive adherence coping factor showed weaker internal consistency than the active and affective coping factors, cautioning against treating aggregate coping scores as uniformly beneficial (Salkar et al., 2024). This underscores the need for further disaggregated analysis in the present study to determine which specific coping subscales are driving the observed relationship with depression, so that psychosocial interventions in Maiduguri's SCD clinics can be tailored to reinforce adaptive coping strategies while addressing maladaptive ones that may be reinforcing, rather than alleviating, patients' depressive symptom.

Conclusion

The study highlights the interconnectedness of psychological distress and coping among SCD patients. Interventions aimed at enhancing adaptive coping mechanisms could potentially mitigate the adverse effects of anxiety and depression, thereby improving overall quality of life.

Recommendations

Based on the finding of this study, the following recommendations were made:

1. Healthcare providers should recognize that increased anxiety and depression prompt patients to seek coping mechanisms, which can be both adaptive (e.g., relaxation, social support) and maladaptive (e.g., avoidance, substance use)..
2. Interventions study should aim to strengthen adaptive coping strategies to better manage psychological distress and improve overall well-being.
3. Integrated Care: Multidisciplinary approaches combining medical and psychological support should be encouraged

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