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PSYCHOSOCIAL CORRELATES AND PATTERNS OF PSYCHOLOGICAL COPING AMONG PEOPLE LIVING WITH SICKLE CELL DISEASES IN THE SOUTH-WESTERN NIGERIA.

***Taiwo Abigail O, **Mercer Tom +Akiboh Martina, ++Ekpeyong Mandu S.**
And
Lloyd Joanne

** School of Health, Medicine & Life Sciences, University of Hertfordshire, Hatfield, UK*
***Institute of Human Sciences, Department of Psychology, University of Wolverhampton, UK.*
+ Health Service Executive. Department of Child, Adolescent and Family Psychology, Blackpool Cork, Republic of Ireland.
++Faculty of Health, Psychology and Social care, Manchester Metropolitan University

Corresponding Author
Abigail O Taiwo, Doctorate in Clinical Psychology, School of health, Medicine and Life Sciences
University of Hertfordshire, United Kingdom.

ABSTRACT

***Background**: Effective coping strategies are essential for crises and mortality prevention among people living with Sickle Cell Disease (PLWSCD) in a malaria infested and economically challenging environment. Nigeria has the highest global burden of sickle cell disease (SCD) with approximately 150,000 affected infants born annually, but the PLWSCD face compounded challenges due to malaria endemicity and severe economic hardship. These conditions heighten the need for effective coping strategies, yet there remains limited empirical understanding of how individuals in such settings are adapting psychologically to their illness. However, as the global migration continues to rise and there is an increasing relevance of SCD to diverse populations worldwide, research exploring coping strategies within high-burden environments such as Nigeria is essential.*
***Method**: Guided by cognitive relational and self-regulation theory, this descriptive-cross-sectional-survey examined the coping patterns and its relationship with some psychological factors among 100 PLWSCD aged 15-54 years recruited from two SCD support centres in Nigeria. The participants completed the 28-item Brief COPE scale along with validated measures of illness perception, hardiness, and socio-communication orientation. Data were analysed using descriptive statistics and bivariate correlations with significance set at p = 0.05.*
***Findings:** The participants reported using a wide range of coping strategies, with disengagement-oriented strategies including denial, self-distraction, behavioural disengagement, and substance use—emerging most prominently. Hardiness, illness perception, and socio-communication orientation showed significant associations with several coping styles, indicating that these psychosocial factors shape how PLWSCD manage their condition.*
Conclusion and implication: The findings underscore the complex interplay between coping behaviours and psychosocial characteristics among PLWSCD in resource-limited, malaria-endemic settings. These insights highlight the importance of designing psychological interventions that strengthen adaptive coping and address individual psychosocial needs to improve health outcomes and quality of life of PLWSCD.

***Keywords**: Sickle-cell-disease; Malaria-endemicity; Psychological-coping; Socio-communication orientation; Hardiness; LMIC*

INTRODUCTION

Sickle Cell Disease (SCD) has become increasingly recognised as a global health concern due to population mobility and migration patterns that have spread the condition beyond its traditional geographic boundaries (Colombatti, 2022; Druye, et al., 2018; Chakravorty and Williams, 2015;;;). Although SCD is most prevalent among people of African, Mediterranean, Middle Eastern and Asian descent (Kumar et al., 2024; Anie, et al., 2010), the highest burden remains concentrated in low- and middle-income regions of sub-Saharan Africa, where environmental and socioeconomic challenges intensify its impact (Kumar, et al., 2024; Essien et al 2023; Piel, et al., 2013; Crosse, et al, 2011). Nigeria, in particular, bears the greatest global burden of SCD, with 4-6 million living with the condition and an estimated 150,000 infants born annually with the disease (Nwabuko et al., 2022; Oluwole, et al., 2020; Sawe, 2017; Udoh, et al., 2013; WHO, 2005). Nigeria is regarded as the home to the highest number of people living with SCD (WHO, 2012) where about 20-30% of the country's population are carriers of the trait (WHO, 2006a, b; Nnodu, et al, 2020).

SCD is a genetically acquired haemoglobinopathy, which occurs when both parents carry the SCD trait (WHO, 2010; Chakravorty, 2015 & Druye et al, 2018). The disease is characterised by severe pain, low red cell blood count, and infection (WHO, 2010; National

Institute of Health, 2012; Forrester, et al, 2015 & Druye, 2018).The persistence of the sickle cell gene in this region is partly attributed to the survival advantage it confers against *Plasmodium falciparum* malaria in carriers of the trait (Bunn, 2013; William and Obaro, 2011), although this protection is absent among individuals with two abnormal haemoglobin genes (Kumar, et al., 2024; Olley, et al., 1994; Akenzua, 1990; Olatawura, 1976; Bamisaiye, et al., 1974,)

Within Nigeria's malaria-endemic and economically strained environment, people living with SCD (PLWSCD) face heightened health vulnerabilities, including recurrent painful crises, increased risk of severe infections and reduced access to adequate health and social support services (WHO, 2018; 2010; Piel, et al., 2013; Anie, et al., 2010; Akinyanju, 1989). In a malaria endemic area, infection with the malaria parasite is the most common trigger for sickle cell crises which could lead to morbidity and fatality (Orolu, et al. 2024). Moreso, many are born into under-resourced households and communities, where poverty, limited healthcare access and systemic constraints compound the physical and psychological challenges of the disease (Orolu, et al., 2024; Brown et al, 2010; Akinyanju, 1989). WHO (2006a) recognise the need to improve the prospects of people living with SCD in developing countries, especially Nigeria. But most studies have focused more on the physical symptoms and biologically based complaints about the illness, with only limited studies examining the psychological factors of people living with SCD. Yet, the combined pressures of chronic illness, environmental stressors and socioeconomic adversity create a complex set of demands requiring effective psychological coping strategies for long-term adjustment and improved quality of life. Effective coping resources could provide a buffer for people living with SCD against the debilitating impact and fatality of their morbid conditions. Moreso, the likelihood that human migration will continue to increase with further globalisation has been projected (Colombatti, et al., 2022; Massey, et al., 1993). Thus, studies that focus on improving the lives of people living with SCD in low- and middle-income countries will be of direct relevance for high-income countries.

Emerging research demonstrates that psychological and social factors play a significant role in shaping how individuals adapt to chronic illnesses such as SCD (Essien et al., 2023; Druye, et al., 2018; Olley, et al., 1997; Hockling, et al., 2005). Application of the transactional stress and coping model positions coping as a dynamic process influenced by individuals' appraisal of their illness and their available psychosocial resources (Hocking et al, 2005; Folkman et al., 2000).

Individuals vary widely in their preferred coping styles, whether problem-focused or emotion-focused, and these variations influence their psychological wellbeing and health behaviour. Emotional-focused-coping is aimed at minimising distress triggered by stressors and includes self-soothing (e.g., relaxation, seeking emotional support). Problem-focused-coping are the coping styles directed at the stressor itself, taking steps to remove or to evade it, or to diminish its impact if it cannot be eliminated (Cloninger, 1996). Engagement or disengagement-oriented coping is another way some other stress and coping researchers categorised psychological coping (Carver, et al., 2010; Dijkstra, et al.,2016; Waugh et al., 2021; Algorani, et.al., 2023). Engagement coping reflects someone who takes "charge in tone" and face the stressor while the disengagement coping styles reflect someone who aims at diverting from the stressor (Dijkstra, et al., 2016; Waugh, et.al., 2021). Studies showed that people who often use disengagement coping generally are not able to deal with the stressor and as a result are more likely to experience the negative consequences of the stressor in comparison to those engaging in more active or adaptive coping strategies (Waugh et al., 2021; Algorani, et.al., 2023; Zhou et al., 2023). The complexity of wide variation of the coping styles is evident in literature, with some disengagement coping (e.g. religious coping) found useful and adaptive in some circumstances (Aflakseir, et al., 2016; Pankowski et al., 2023; Graça et al, 2024; Vornlocher, et al., 2025). For example, religious coping strategies have been found to predict depression among some women with fertility problems (Aflakseir, et al., 2016) and associate with lower life satisfaction and diminished psychological wellbeing among students (Graca et al, 2024), whereas, evidence from a systematic literature review demonstrate a positive relationship between religious coping and satisfaction with life, and posttraumatic growth (Pankowski et al., 2023).

Growing evidence also suggest that some innate psychological factors could relate with effective coping (Bamisaiye, et al., 1974; Olatawura, 1976; Akenzua, 1990; Olley et al., 1994; Ohaeri, et al., 1995; Brooks, 2003; Hocking et al, 2005; Elwy et al., 2011; Willemse, et al., 2019; Zhu et al., 2023). We hypothesise that socio-communicative characteristics, including assertiveness and responsiveness, as well as innate personality traits such as hardiness and illness perception, may shape how PLWSCD manage stress and navigate the challenges of their condition.

Socio-communication orientation refers to an individual's perception of how assertive and responsive he/she communicates. The construct comprises of communication assertiveness and responsiveness dimensions. Communication assertiveness is a psychological factor that considers the extent to which an individual can express positive and negative ideas, and feelings in a way that reduces anxiety and increases self-esteem (Weinhardt, Carey, Carey, and Verdecias, 1998; Nield-Anderson, Dixon and Lee, 1999). Responsiveness involves being other oriented, such that the responsive individual considers other's feelings, listens to what others have to say, and recognises the needs of others (McCroskey and Richmond, 1996). Responsive Communication supports a person to function at their best both cognitively and socially (Matin, 1998), and this alone can make the difference between isolation and inclusion. A scale which measures this construct was adopted in this study and described later at the instrument section. PLWSCD will need to communicate their needs in confident, clear and controlled manner so they could receive needed supports from formal and informal carers. The components of social communication orientation are believed to be the essential cognitive components of general communication competence (McCroskey & Richmond,1990a, b; 1996). In relation to communication though, literature evidence suggests that illness-induced stress is often reduced by having information regarding the chronic illness and having the opportunity to speak to other people living with a similar condition (Hartman et al., 1992). This form of helpful action depends on the coping strategy mostly adopted by the individuals involved. While access to information has been significantly improved by the development of the internet, non-proactive coping strategies could undermine such action as it occurred in the COVID-19 situation (Van Bavel, 2020). The same innate process of coping could also foster the need to negotiate the good, the bad and the ugly that increasingly exists on the internet.

Illness perception is a construct that emerged from the common-sense model of self-regulation (CSMSR). CSMSR posits that individuals create cognitive and emotional representations of a health threat to manage it (Elwy, et al., 2011; Willemse, et al., 2019; Zhang, 2024). The model assumes that when patients are faced with health threats, they assess their illness situation and try to make meaning out of it. A bibliometric study noted how illness perception has been so significant and often play roles in mental health conditions, coping mechanisms, quality of life and chronic illnesses in several studies explored (Singh et al., 2024).

Evidence from literature suggests that personal factors such as hardiness could explain why some people cope better with chronic illness than others. Hardiness is a personality trait associated with a person's ability to manage and respond to stressful life events with courage and the tendency to turn difficult circumstances into opportunities (Pollock, Christian and Sand, 1990; Brooks, 2003; Maddi, 2004) and locus of control (LoC) (Ellertsen, 1992; Pollock, 1993). Many studies demonstrate that hardiness could confer a protective shield against development of mental health symptoms (Predko, et al., 2023; Park, et al., 2023; Kulak, et al., 2021). The study of Thomassen, et al., (2022) however showed how avoidance coping intersected by gender could moderate or mediate the relationship between hardiness and mental distress symptoms (Thomassen, et al., 2022; Kulak, et al., 2021).

Theoretically, cognitive relational theory and Self-Regulation Theory, which assumes that the SCD condition should be treated as a stressor requiring the mobilisation of coping resources (Lazarus et al., 1984); and the self-regulation theory which emphasises that people have a role to play in directing the course of their illnesses and adapting information to benefit their health, growth and life satisfaction (Aspinwall et al., 1977; Leventhal, et al., 206; Newman et al., 2020) inform this study. The cognitive relational theory stressed that the way a person relates with the environment through the appraisal of their circumstances will significantly affect their wellbeing. Patients who are passive in response to threat show greater distress and disability as they engage in things like rest or avoidance than patients who attempt to solve problems or engage in activity managements (Cosio and Lin, 2018. Little, 2018; Snow-Turek, et al.,1996).

Aim of the Study.

This study set out to gain insight into the patterns of psychological coping and its relationship with hardiness traits, illness perception and socio-communication orientation among people living with SCD in Nigeria, where there is malaria endemicity and financial constraints. Understanding these psychosocial dynamics offers valuable insight for designing effective, context-appropriate psychological interventions aimed at improving wellbeing and long-term outcomes for people living with SCD.

METHODS

Design: This survey employed a cross-sectional descriptive design.

Setting: Study was carried out over a period of seven months from January-July 2018 at two sickle cell support group centres, including the University College Hospital [UCH) Ibadan and Lagos University Teaching Hospital [LUTH), both in Nigeria.

Ethics and approvals

The protocol for this study received the University of Ibadan senate approval and funding (approval no SRG/FSS/2006/8A). This was presented to receive to conduct the study from the two institutions before the commencement of the study. Additionally, researchers followed the ethical guidelines of the BPS (2014) for conducting human research, ensuring that participants were fully informed of the study and their right to confidentiality, withdrawal of their participation and where to seek support if needed. An informed consent was obtained from all the participants who completed the survey.

Instruments: The main instrument is a questionnaire booklet consisting of 5 sections

Sections:

A: Socio-demographic questions including age, gender, level of education, occupation and religious affiliation.

B: The 28-items brief COPE scale designed by Carver (1997) was adopted for this study due to its shortness and time saving nature. It has 14 subscales with the response format rated 1-4, where 1= I usually don't do this at all, 2= I usually do this a little bit. 3= I usually do this a medium amount and 4= I usually do this a lot. The scale assesses several responses known to be relevant to psychological coping, and it is a modified version of the original COPE scale designed by Carver, Scheier & Weintraub (1989). Researchers have reported a Cronbach alpha ranging from .50 to .90 for the scale (Yusoff, Low and Yip, 2010). The scale has been widely used to examine the relationship between various coping strategies and psychological outcomes in people living with chronic conditions (Garcia, Barraza-Pena, Wlodarczyk, Alvear-Carrasco and Reyes-Reyes, 2018; Yusoff, Low and Yip, 2010). For this study, we observed a Cronbach alpha reliability coefficient of .83 for the whole scale with split half reliabilities of .69 for part A and .73 for part B, thus showing good internal consistency.

C: A 20-items Socio-communicative orientation scale which measures an individual's perception of how assertive and responsive they are using a 5-point scale (Richmond &

McCroskey,1990a and McCroskey & Richmond 1996). The instrument consists of two subscales, socio-communicative assertiveness and socio-communicative responsiveness. The authors reported alpha reliability estimates for the measures of assertiveness and responsiveness as generally above .80. The predictive validity of this instrument has been demonstrated in numerous studies (e.g. Martin, et al., 1996; Waldherr & Muck, 2011). These factors are believed to be the essential cognitive components of general communication competence (Martin, et al., 1996).

D: This 9-items Brief illness perception Questionnaire was developed by Broadbend et al., (2006). It consists of nine items rated on a scale from 0-10, where higher scores indicate a higher perceived threat with regards to illness (Kuiper, et al. 2022). It has been widely recognised for influencing health, engagement with work and sickness absences for a range of illnesses. The first five items of the questionnaire assess cognitive perception such as the effect on life, duration of illness, control over illness, beliefs about the effectiveness of treatment and experiences of symptoms. Items six and eight assess emotional aspects including concern about illness and multifaceted questions about mood. Item 7 assesses the degree of understanding of the illness and final item is open-ended, asking the respondents to rank the three most important factors causing their illness. Robust psychometric properties have been reported on the scale. Pearson’s correlations for test-retest reliability were generally acceptable, ranging from 0.5-0.7).

E: the 12-items Hardiness Personality scale developed by Kobasa, et al., (1982) is a self-report instrument designed to measure a person’s resilience to stress through three interrelated core dimensions of commitment, control, and challenge. It is scored in a 0–5-point Likert scale (0 = not at all true, 5 = Very true). High scores indicate strong hardiness, interpreted as someone possessing a strong sense of purpose, believe that they are in control of their lives and view challenges as opportunities to grow. Low scores indicate low hardiness, interpreted as someone less resilient and may struggle with stress, experiencing low control and view change as threat. Good internal consistency of 0.91 has been reported for the total scores which was used in the current study.

Overall, robust psychometric properties have been reported for all the measures adopted in this study.

Questionnaires were distributed to 123 volunteered SCD patients registered with UCH and LUTH at this time. Criteria for inclusion for this study include being 18 years and above, receiving medical diagnoses of, and living with SCD, able to read and understand the questionnaire, and has willingness to participate by providing informed consent and completing the questionnaire. However, one individual who was 15 years old was included in the study as they were present within this adult gathering and was willing to participate in the study. Of the 123 questionnaires received back, only one hundred were deemed appropriate (that is, 81% response rate) and these were included in the final analysis. Participants’ ages ranged from 15-54 years. Forty-eight percent were males, 52%) were females Majority (90%) of the participants were between the age of 15 and 34 (n=90) while only 10% were between the age of 35 and 55 (n=10). 83% were single, 16% were married and only one reported marital status as separated. 52% of the participants have secondary education, 43% reported that they have post-secondary, 3% reported having only primary education while 2% chose “do not want to say”.

Statistical Package for Social Sciences (SPSS) version 26.0 was used to analyse the data collected. Descriptive statistics and Pearson correlation tests were used for the analysis, with the P-value set at 0.05.

RESULTS AND DISCUSSION

Coping Dimensions

Results for the coping dimension were generated by computing 14 variables (as can be seen in Table 1 below). The results indicate that patients use varied strategies for coping, with medium amount being the most reported response. Forty (42.1%) self-distraction, 37 (39.8%) active coping, 39 (41.1%) denial, 42 (42.9%) substance use, 41 (42.3%) emotional support, 43 (43.9%) instrumental support, 42 (43.8%) venting, and 38 (39.6%) positive reframing were used a medium amount by the patients. Additionally, 41 (42.7%) reported that they undertook behavioural disengagement "a lot". It is interesting to note that planning and self-blame were reported to "have not been used at all" by 60 (61.2%) and 47 (49.0%) patients respectively. Humour and religion were reported to be used a little bit by 56 (58.3%), and 44 (44.4%) patients, respectively. Almost an equal number of patients claimed that they have not used acceptance coping "at all" (n= 51; 52.0%)" or have used it "a little bit" (n=.47; 48.0%)

Table 1: *Percentages of Patients' engagement with Coping strategies as reported by SCD Patients*

		Frequency/Percentage of participants' responses to each COPE subscale				
SN	COPE dimensions	I haven't been doing this at all (%) N	I've been doing this a little bit (%) N	I've been doing this a medium amount (%) N	I've been doing this a lot (%) N	No response
1	Self-distraction	5 (5.3)	36 (37.9)	40 (42.1)	14 (14.7)	5
2	Active coping	2 (2.1)	27 (28.4	37 (38.9)	29 (30.5)	5
3	Denial	7 (7.4)	16(16.8)	39 (41.1)	33 (34.7)	5
4	Substance use	11 (11.2)	23 (23.5)	42 (42.9)	22 (22.4)	2
5	Use of emotional support	13(13.4)	29 (29.9	41 (42.3)	14 (14.4)	3
6	Use of instrumental support	7(7.1)	34 (34.7)	43 (43.9)	14 (14.3)	2
7	Behavioural disengagement	10 (10.4)	9 (9.4)	36 (37.5)	41 (42.7)	4
8	Venting	12(12.5)	18 (18.8)	42 (43.8)	24 (25.0)	4
9	Positive reframing	17 (17.7)	32 (33.3)	38 (39.6)	9 (9.4)	4
10	Planning	60 (61.2)	38 (38.8)	0 (0)	0(0)	2
11	Humour	40 (41.7)	56 (58.3)	0 (0)	0(0)	4
12	Acceptance	51 (52.0)	47 (48.0)	0 (0)	0 (0)	2
13	Religious coping	4 (4.0)	44 (44.4)	37 (37.4)	14 (14.1)	1
14	Self-blame	47 (49.0)	22 (22.9)	21 (21.9)	6 (6.3)	4

Note: *Number of participants (n) is in Parentheses; the last column contains the number of participants with no complete response to these subscales*

The results on table 1 showed that self-distraction, denial, substance use, behavioural disengagement and religious coping were actively adopted by these patients. Previous researchers have categorised these strategies as disengagement, coping which is often regarded as maladaptive (Dijkstra and Homan, 2016; Waugh, et al, 2021; Leslie-Miller et.al., 2023). But coping strategies such as positive reframing, planning, humour and acceptance are regarded as engagement, active or adaptive coping (Algorani, et al., 2023), most of which were reported as either not used or used a little bit by the participants.

While all coping strategies can prove useful, researchers have found disengagement coping types to be maladaptive (generally ineffective) and sometimes detrimental (Carver, 2004, Carver and Harmon-Jones, 2009). What this means is that disengagement coping is generally ineffective in reducing distress over the long term, as it does nothing about the threat's existence and its eventual impact. Another problem is that avoidance and denial can promote a paradoxical increase in intrusive thoughts about the stressor and an increase in negative mood and anxiety (Najmi and Wegner, 2008). Finally, some kinds of disengagement create problems of their own. For example, excessive use of alcohol or drugs can create social and health problems, and shopping or gambling as an escape can create financial problems in an already economically challenging environment like Nigeria.

In the same manner, Barlow and Durand (1995) posit that coping strategies could both hamper and promote health-related behaviours, and that adjustment to, and recovery from health problems are related to coping. As a coping strategy in the context of chronic disease, denial can have numerous negative effects, such as not observing the changes in symptoms that could be helpful if reported to the health care professionals.

Nevertheless, denial has also been reported to be adaptive when one is first diagnosed with a chronic disease. Denial of the consequences of chronic disease and avoidance of the inevitable emotional reaction following the diagnosis of the disease could serve as a means for the patients to get through this phase a bit more easily, and then later develop more effective responses. Self-blame and self-criticism have been established as psychological dimensions of depression, implying lack of inner warmth and reassurance for the self. Self-blame is seeing as central to well-being (Davidson and Harrington, 2002). For such individuals, self-warmth and self-acceptance may be difficult and or frightening.

On the other hand, active coping, planning, positive reframing/restructuring, and acceptance are categorised as engagement coping but were not massively adopted by the participants. These sets of coping strategy have been reported to be beneficial and more effective in coping with stressful circumstances. Literature shows that cognitive restructuring has been associated with better self-rated health and involves positive reframing/restructuring of a situation to give it a more positive meaning. Evidence in literature shows that there has been a shift towards greater use of cognitive restructuring among older adult (Arbuckle et al., 1999). Some studies have reported that health is positively predicted by active coping and by cognitive restructuring of the stressful condition and negatively predicted by strategies involving avoidance of the stressor (Arbuckle et al., 1999; Lindsay and Powell, 1995).

The Psychosocial factors

Participants responded to the questionnaire assessing Hardiness traits, socio-communication orientation including the assertiveness and responsiveness subscales apart from the coping strategies discussed above. Table 2 below presents the mean and standard deviation of how they fair on these measures.

Table 2 - *Descriptive statistics of the PLWSCD scores on the assessed psychosocial variables*

Variables	N	Minimum	Maximum	Mean	SD
Illness perception	98	4	70	35.3	13.1
Socio-communication orientation - assertiveness	94	17	50	34.5	6.1
Socio-communication orientation - responsiveness	94	28	50	38.2	5.0
Hardiness traits	94	6	60	45.2	8.9
Brief Coping total Scores	97	4	103	14.3	14.3

Note: M = Mean, SD= Standard deviation, N=Sample size. Only those with full data in each of the factors were included in the analysis as shown above.

The intercorrelations of the coping strategies

Table 2 below shows the result of inter-correlations of the coping strategies with other psychosocial factors. A review of these correlations showed that some of the disengagement coping strategies significantly correlate with each other. For example, self-distraction correlated significantly with denial, substance use and behavioural disengagement, suggesting a cluster of ineffective strategies (Table 3 below).

Table 3: *Bivariate relationships between the psychosocial factors and the psychological coping strategies*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Perception	-	.038	.166	.106	.217*	.334*	.201	.042	.191	.366**	.112	.066	.196	.191	.107	.051	.080	-.063	-.200
2. Assertiveness			.489**	.501**	-103	-.239*	.042	-.177	-.064	-.162	-.040	-.105	.042	.014	-.022	-.085	.130	-.089	-.021
3. Responsiveness				.453**	-.017	.128	.034	.004	.126	-.002	-.015	-.034	.003	-.163	-.166	-.074	.083	-.302**	-.144
4. Hardiness					-.186	-.336**	-.189	-.183	.254*	-.134	-.061	-.062	-.029	-.240*	-.189	-.153	.004	-.182	-.177
5. Total (coping)						.564**	.479**	.551**	.289**	.510**	.523**	.475**	.632**	.501**	.353**	.368**	.448**	.508**	.427**
6. Self- distraction							.433**	.378**	.247*	.475**	.250*	.274*	.186	.211*	.073	.171	.167	.051	.101
7. Active coping								.440**	.023	.254*	.066	.120	.349**	.193	.249*	-.008	.128	.288**	.035
8. Denial									.121	.340**	.313**	.327**	.427**	.219*	-.009	.219*	.031	.223*	-.079
9. Substance										.220*	.092	.209	.194	.076	.102	-.068	.114	-.065	.018
10. Emotional support											.146	.281**	.218*	.404**	-.046	.282**	.013	.066	-.162
11. Instrumental support												.072	.502**	.241*	.240*	.208*	.133	.188	.190
12. Behavioural disengagement													.380**	.133	-.071	.234*	.394**	.110	-.074

13. Venting	.312**	.318**	.232*	.341**	.319**	.147
14. Positive reframing		.187	.277**	.126	.303**	.311**
15. Planning			-.018	.228*	.433**	.364**
16. Humour				.247*	.119	.157
17. Acceptance					.222*	.368**
18. Religion coping						.484**

*Key: * = Correlation is significant at the 0.05 level (2 tailed) ** = Correlation is significant at the 0.01 level (2 tailed)*
***1** = Illness perception 2 = Communicative Assertiveness 3 = Communicative Responsiveness 4 = Hardiness 5 = Total coping 6 = Self distraction 7 = Active coping 8 = Denial 9 = Substance Use 10 = Emotional support 11 = Instrumental support 12 = Behavioural disengagement; 13 = Venting 14 = Positive Reframing 15 = Planning 16= Humour; 17=Acceptance 18=Religious coping 19= Self blame*

The above table shows some significant correlations between the coping strategies categorised as disengagement and engagement. For example, denial was significantly positively related to emotional support, instrumental support, behavioural disengagement, venting, positive reframing, religious coping and Humour (see table 3 above). Self-distraction correlate positively with active coping, denial, substance use, emotional support coping, behavioural disengagement and positive reframing, making interpretation complex. While this is complicating the sense making from the result, it is not surprising. For example, findings from Waugh, et al. (2021) & Leslie-Miller et al. (2023) demonstrate that all disengagement coping strategies are not equal. One of the studies showed that during COVID, engaging in distraction was associated with better concentration, emotional wellbeing and less thinking about COVID among participants (Leslie-Miller et.al. 2023). These authors concluded that disengagement can be an effective positive emotional strategy and an adaptive coping behaviour when faced with chronic stressors. It has also been noted that some active coping strategies could be positively or negatively used, depending on how this is used. For example, a systematic review revealed that religious coping was found relating to life satisfaction and post-traumatic growth in some studies (Pankowski, et al., 2023), whereas some other studies showed how religious coping is predicting depression in a sample of women with fertility problems (Aflakseir et al., 2016).

Hardiness and coping strategies

A significant negative relationship was observed between hardiness and self-distraction, as well as with positive reframing coping strategies. This implies that the hardier a person living with SCD is, the less likely they will adopt self-distraction and positive reframing as their coping strategies (table 2 above). The positive relationship may not be too surprising for hardiness and self-distraction coping strategy as it aligns with findings from previous literature (Jannati, et al., 2020). But it was surprising that a significant negative relationship was observed between the reported hardiness traits and positive reframing. Previous studies have demonstrated positive relationship between hardiness and positive reframing (e.g. Park, et al. 2023 & Jamal et al., 2025). But there are also some studies which showed that individuals with high hardiness may be less inclined to adopt passive forms of positive reframing and less likely to utilise self-distraction which could make one disengage from the stressor (Predko et al., 2023; Thomassen, et al., 2022). Folkman & Lazarus (1988) defined avoidance coping as a passive coping strategy in which an individual disengages from a stressor or as an active coping strategy in which individual turns away from or seeks to escape from a stressor. High hardy individuals might view stressors as challenges to be overcome rather than threats to be avoided and has they possess hardy cognitive styles, this may alter how they process stress, making certain types of reframing unnecessary (Flanigan, et al. 2021). This may explain the observed result where high hardiness significantly relates with low positive reframing. The positive relationship observed with hardiness and substance use is contrary to previous studies which demonstrate inverse relationship between hardiness traits and problematic alcohol use (Kulak et al., 2020; Khadse et.al., 2024) or alcohol abuse (Bartone et al., 2012). These studies indicated that high hardy personality trait convers some protection against risk of substance use. While this result has not followed typical trend explained above, it may be that for this sample, the hardy PLWSCD view substance uses as an active, controlled choice rather than an avoidant one within a very high economic pressure and malaria infested environment where this study was conducted.

Illness perception and coping strategies

Illness perception was significantly related to self-distraction and emotional support. This implies that the more threatening and severe view the PLWSCD perceives their illness condition, the more likely they will adopt self-distraction and emotional support. This aligns with previous findings that indicate that negative illness perception relates with resignation and avoidant coping styles (Kuiper et al. 2022; Zhang, et al., 2024). Willemse et al (2019) found that the joint contribution of illness perception and avoidant coping such as self-distraction impairs quality of life of people living with alopecia areata. But has quality of life was not assessed in this study, this might be a point for future research among PLWSCD.

Socio-communicative orientation

While a significant positive relationship observed in table 2 is expected for perceived communicative assertiveness and responsiveness which were both socio-communication factors, result also showed that the relationship between communicative assertiveness (and equally for responsiveness) and hardiness was positive, but negative for self-distraction. This implies that the more the PLWSCD perceive their communication as assertive, the more hardiness traits they reported, and the less likelihood of using self-distraction coping strategy. Also, we observed that the more they perceive their communication as responsive, the more likelihood of reporting higher hardiness traits and less likelihood of adopting religious coping strategy.

Conclusion

This study highlights the complexity embedded in understanding how the various coping mechanisms are engaged to mitigate the impact of living with SCD within an environment that is financially challenging and malaria infested. The findings demonstrate that participants may have sampled a variety of coping styles, but strategies designated as disengagement were likely to be used more. Results further showed that socio-communication orientation, illness perception and psychological traits such as hardiness could play vital roles in whether an engagement or disengagement coping strategies are used by the PLWSCD. Since there seems to be significant relationship between these variables and coping strategies, giving a consideration to these factors while designing an effective psychological intervention for the PLWSCD becomes essential. Given these results, we suggest that a social and psychological cognitive restructuring that could empower the SCD patients to mobilise their inner resources in a more adaptive and effective ways might be of great benefit.

Limitations of the study

Although this study provided some insights to how people living with sickle cell disease cope with their condition and other innate factors that could relate with this, the study has a number of limitations. The first of them is that the data from this study relied solely on self-reports from the people living with sickle cell disease. While this is usual in a survey, it is possible that there is the risk of recall bias and systematic response distortion. Future research may adopt a mixed method design to mitigate this risk. The non-probability sampling technique used did not afford the participants equal opportunity to be selected into the study thus limiting the methodological soundness of the study. As such, the views of patients diagnosed with SCD who did not attend the two facilities for their care were not represented in this study because they could not be accessed and therefore did not participate in the study. This has implication for further large-scale study that will be more representative of the entire population of patients diagnosed with SCD. A study which seeks the views and assesses the coping strategies of patients with SCD attending the hospitals and those outside health facilities would be good as the views of this group of patients could be different. Again, the use of questionnaire where patients were asked to tick the boxes may have limited the study findings. Some of the patients did not complete some parts of the questionnaire, hence their data could not be used in analysis. As a solution to this, qualitative studies will be needed for further exploration and understanding of why these participants are adopting the coping strategies reported. This will support a person-centred approach to care for people living with SCD.

Implication

Results from this study has implications for interventions that will incorporate aspects of psychological and social cognitions, as well as social interactions to the management of extenuating stress and coping behaviour of people living with SCD. The findings shows that patients might benefit from cognitive restructuring and mindfulness-based programmes. A CBT that emphasises critical examination of the patient's coping styles and promotes more proactive coping that will empower PLWSCD to do the following: actively protecting themselves from malaria; rationally understand the operation of their disease condition; ensure their adherence to medications; as well as seriously engage with clinic attendance. The patients might benefit from mindfulness programmes which focus on the understanding of their limitations and strength and being compassionate with the self as against their use of self-blame as a coping strategy. Self-compassion involves being reassuring rather than critical towards oneself when things go wrong (Gilbert, Clark, Kemple, Miles and Isons, 2002; Allen and Leary, 2010). Proper use of religious coping might also be beneficial for posttraumatic growth and enhancement of life satisfaction (Pankowski, et al, 2023) rather than dismissing broadly as disengagement or passive coping. Exploring this with the PLWSCD who report using religious coping strategies could provide an opportunity to guided positive use in relation to their living with SCD.

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