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Association between Pain Coping Strategies and Sociodemographic Characteristics of Patients with Chronic Low Back Pain

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Abstract **Review Article**

Background: Chronic low back pain is a leading cause of disability worldwide, affecting people of all ages and socioeconomic background. Pain coping is shaped by a complex interaction of psychological, cultural, and sociodemographic factors such as age, income, gender, religion, education, occupation, and social support. These factors could influence the type of coping strategies used as well as their perceived effectiveness. Hence, this study aimed to examine the association between pain coping strategies and sociodemographic characteristics among patients with chronic low back pain.

Methods: A descriptive cross-sectional study was conducted with 105 patients experiencing chronic low back pain. Participants completed two self-administered questionnaires: one collecting socio-demographic data and the other assessing coping strategies using the 14-item coping strategies questionnaire.

Findings: Participants were aged between 21 and 75 years, with a mean age of 47.17 years (SD = 12.8). 95.2% of the respondents were Christians, 70.5% had tertiary education, and 61.0% were female. Overall, 51.4% had a fair pain coping strategy. The most used coping strategies used by the respondents are praying and hoping (M=73.41, SD= 22.25), coping self-statements (M= 63.18, SD= 23.36, and increasing activity level (M=57.78, SD= 22.1). A statistically significant difference was found between religion and reinterpreting pain sensation (p= 0.04) and Ignoring pain sensations (0.03). Furthermore, a statistically significant difference was found between occupation and increasing activity (p= 0.03), education and catastrophizing (p= 0.01), education and ignoring pain sensations (p= 0.03).

Conclusions: The findings suggest that effective pain management should be tailored to cultural context and individual patient histories, including their coping mechanisms. Strengthening positive coping strategies through education and supportive programs may improve pain outcomes and general quality of life.

Keywords: Pain management, Pain coping strategies, Chronic low back pain, Coping behavior

INTRODUCTION

Chronic low back pain is a major global cause of disability, affecting people of all ages and socioeconomic backgrounds (Wu et al., 2020). It is associated with pain that lasts for 12 weeks or longer, frequently even after the underlying cause has been treated or resolved (Nicol et al., 2023). In sub-Saharan Africa, the prevalence of chronic low back pain (CLBP) varied from 18% to 28% in the general population, 30% to 56% among workers, and 22% to 59% among low back pain patients (Kahere et al., 2022). Globally, chronic low back pain has become a serious public health issue due to its frequency and effects on physical, mental, and social well-being. There is evidence that CLBP is linked with decreased productivity, increased use of healthcare, and a significant decline in health-related quality of life, both in low- and high-resource settings (Hartvigsen et al., 2018).

Although the majority of CLBP research has concentrated on biological causes and available treatments, the psychosocial and behavioral aspects of chronic pain are becoming more widely acknowledged (Petrucci et al., 2021). The study of pain coping strategies has remained a key focus in recent years, examining how individuals cope with chronic pain cognitively and behaviorally (Scheidegger et al., 2023). As a cognitive and behavioral process, coping involves managing, tolerating, or reducing external and internal demands and conflicts (Ali et al., 2020). Algorani and Gupta (2021) define coping as the cognitive and behavioral efforts employed to manage stressful situations arising from both internal and external sources. Similarly, coping strategies refer to the psychological and behavioral methods individuals use to manage, tolerate, reduce, or control stressful circumstances (Yu et al., 2020).

Several aspects of coping have been studied, including Avoidance (Stanisławski, 2022), Adaptive and Maladaptive (Mahmoud et al., 2022), emotion-based (Perez, 2017), and active and Passive (Perez-Tejada et al., 2019). Notably, coping strategies play an important role in the psychosocial adjustment of individuals with disabilities and influence their health-related quality of life (Umucu and Lee, 2020). In general, adaptive strategies promote or improve function while assisting patients in reducing discomfort and stress (Mahmoud et al., 2022). An adaptive coping approach may include emotion control by concentrating on the emotional reaction triggered by the stressor or problem-solving, which includes gathering information and focusing on the issue. According to Jensen et al. (2011), maladaptive coping strategies try to control stress but ultimately impair function even while they provide momentary relief from some symptoms.

An Emotion-based coping technique is one that uses emotion to manage stress, usually by avoiding the problem. Instead of trying to alter the stressful circumstance itself, the person actively controls the emotional response that the issue causes when they use emotion-based coping (Perez, 2017). Some examples are emotional repression, distraction, avoidance, thinking reassuring thoughts, and expressing emotions. Emotion-based coping is not the same as employing emotional control to manage stress. Rather, it refers to the use of coping mechanisms that deal with emotional responses and are less cognitive in character, such as dozing off, worrying, wishing, and ignoring the issue.

Avoidance coping strategies are known as active attempts to ignore or distance oneself from the upsetting circumstance and the feelings that go along with it. Procrastination, apathy, or inaction, and reliance are examples of avoidance behaviors. A person who scores highly on these kinds of activities "tries to shift responsibility to others, waits for problems to resolve themselves, and puts off solving problems as long as possible" (Stanisławski, 2022). Evidence suggests that how individuals cope with chronic pain significantly influences pain intensity, emotional distress, and treatment outcomes (Meints and Edwards, 2018; Yetwin et al., 2018).

Importantly, coping is not a uniform process. It is shaped by a complex interplay of psychological, cultural, and sociodemographic factors, including

age, gender, education, income, occupation, religion, and social support. These factors may determine not only the type of coping strategies used but also their perceived effectiveness. For instance, older adults may rely more on spiritual coping and passive acceptance (Fennell et al., 2021), while younger individuals might prefer active strategies like exercise or goal setting (De Lucia et al., 2024). Similarly, educational attainment and income levels have been found to affect access to health information and resources, thereby shaping coping behavior (Atkins and Mukhida, 2022; Whitley et al., 2021; Alford et al., 2020). Igwesi-Chidobe et al. (2024) reported that individuals with lower levels of socioeconomic status and educational attainment often experience reduced control over pain and diminished coping capacity.

In resource-limited settings, especially in Sub-Saharan Africa, the sociocultural context plays an even more pronounced role in pain management. For example, in Nigeria and Zambia, spirituality and communal support are often integral parts of pain coping (Igwesi-Chidobe et al., 2024). Evidence from a qualitative study showed that people in these situations usually use herbal medication, family support, and prayer in addition to or instead of official medical treatments (Igwesi-Chidobe et al., 2021). These results highlight the importance of taking local beliefs and practices into account when assessing pain management strategies and the fact that sociodemographic traits are active determinants of health behavior rather than just background variables.

Chronic low back pain is a multifaceted condition influenced not only by biological and mechanical factors but also by psychological and social dimensions. Coping strategies play a central role in how individuals experience and manage chronic pain, and these strategies are in turn shaped by the individual's sociodemographic profile. Several studies have explored the association between sociodemographic variables and pain coping, particularly in populations with chronic musculoskeletal pain. For example, Ojoawo et al. (2020) reported that religious coping was more common among older and female CLBP patients in a Nigerian setting. In Western contexts, women have been shown to report higher use of coping strategies overall, including both adaptive and maladaptive forms (El-Shormilisy et al., 2015).

Despite the growing body of literature, there remains a significant gap in understanding how sociodemographic characteristics specifically influence the choice and effectiveness of pain coping strategies among CLBP patients in diverse cultural settings. Much of the existing research has been carried out in high-income settings, which restricts the applicability of their findings to developing countries. Moreover, many studies tend to treat sociodemographic variables as confounders rather than as variables of interest. There is a need for studies that prioritize these characteristics as primary explanatory variables, especially in culturally diverse and underserved populations.

The purpose of this study was to investigate the relationship between pain coping strategies and sociodemographic characteristics among patients with chronic low back pain. Understanding this association is key to designing targeted, patient-centered programs for CLBP management. By identifying patterns in how different groups cope with pain, clinicians and public health professionals can design culturally appropriate education programs and psychological interventions. Furthermore, exploring this association can help explain variations in treatment outcomes and patient satisfaction. If certain demographic groups systematically use less effective coping strategies, they may experience prolonged pain, greater disability, and higher levels of emotional distress. Identifying and addressing these disparities could improve both clinical outcomes and equity in pain management services.

METHODOLOGY

This study adopted a quantitative, cross-sectional descriptive design. A total of 105 patients diagnosed with chronic low back pain were recruited. Data were obtained using two self-administered instruments: a socio-demographic questionnaire and the 14-item

Coping Strategies Questionnaire (CSQ), which was used to evaluate participants' pain coping strategies.

Ethical approval for the study was obtained from the University of Ibadan/University College Hospital Research Ethics Committee (UI/EC/22/0086), the University of Port Harcourt Teaching Hospital Ethics Committee (UPTH/ADM/1362), and the Rivers State University Teaching Hospital Ethics Committee (RSUTH/REC/2022181). Participants provided written informed consent and were informed of their right to withdraw from the study at any time without facing any consequences. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 22. Descriptive statistics were applied to summarize the demographic characteristics, which were presented in frequency tables and reported as percentages, means, and standard deviations. Bivariate analysis was used to explore the relationships between pain coping strategies and participants' sociodemographic characteristics. Specifically, one-way ANOVA was employed to examine the relationship between pain coping strategies and age, marital status, and occupation, while independent t-tests were used to assess associations with gender and religion. Spearman's rank correlation was applied to examine the relationship between pain coping strategies and educational level. For all analyses, a p-value of less than 0.05 was considered statistically significant.

Measurement of Coping Strategies

Pain coping strategy was assessed using the 14-Item Coping Strategies Questionnaire. This was developed by Jensen et al. (2003) as a more user-friendly and refined version of the original Coping Strategies Questionnaire with 50 items and 8 subscales. The instrument includes six cognitive coping strategies: Diverting Attention, Reinterpreting Pain Sensations, Catastrophizing, Ignoring Pain Sensations, Praying or Hoping, and Coping Self-Statements, with a maximum score of 72 points, and one behavioral coping strategy, Increasing Activity Level, with a maximum score of 12 points. Each of the seven coping strategies (subscales) for chronic musculoskeletal pain is evaluated using two items in the questionnaire.

Coping strategies were scored and classified into four levels according to the total scores obtained. A score between 0 and 25 indicates poor coping strategies**.** Scores ranging from 26 to 50 indicate a fair level of coping strategies. Those who score between 51 and 75 demonstrate a good coping strategy, while scores from 76 to 100 indicate excellent coping strategies.

RESULTS

Sociodemographic Variable

Table 1 presents the socio-demographic characteristics of the 105 respondents who took part in this study. Participants were aged between 21 and 75 years, with a mean age of 47.17 years (SD = 12.8). Most (70.5%) of the respondents had a tertiary education, 61.0% were female, 61.0% were married, 95.2% were Christians, and 41.0% were civil servants.

Table 1: Socio-Demographic Variable

	Frequency
	n= 105
Age (years)	
20-40	37(35.2)
41-60	53(50.5)
61-80	15(14.3)

Mean/SD	47.47±12.8
Gender	
Male	41(39.0)
Female	64(61.0)
Marital status	
Single	27(25.7)
Married	64(61.0)
Divorced	2(1.9)
Widowed	9(8.6)
Separated	3(2.9)
Religion	
Christianity	100(95.2)
Islamic	5(4.8)
Education	
Primary	5(4.8)
Secondary	25(23.8)
Tertiary	74(70.5)
No formal	1(4.5)
Occupation	
Civil servants	43(41.0)
Self-employed	43(41.0)
Unemployed	3(2.9)
Others	16(15.2)

Pain Coping Strategies

Among the respondents, the coping strategies most frequently employed were praying and hoping, coping with self-statements, and increased activity (Table 2). The least frequently used coping strategies were Reinterpreting Pain Sensations, Ignoring Pain Sensations, and Pain Catastrophizing. The overall findings showed that 51.4% of the respondents had a fair pain coping strategy (Figure 1).

The present study observed no significant difference between age, marital status, and pain coping strategy ($p>0.05$). However, Occupation was significantly associated with the "Increasing Activity Level" domain of pain coping strategies. Individuals in the "others" group reported significantly higher Increasing activity level scores compared to civil servants (Mean Difference = 17.79, $p = 0.03$, 95% CI [1.38, 34.21]) (Table 3).

The analysis revealed no statistically significant association between pain coping strategies and gender. In contrast, religion was significantly associated with two domains of pain coping strategies: Participants in the Islamic group had significantly higher Reinterpreting Pain Sensation scores than those in the Christian group, t (4.70) = -2.814, $p < 0.05$, mean difference = -23.56 (95% CI [-45.50, -1.62]). Christian participants had significantly higher scores for Ignoring Pain Sensations than Muslim participants, t (5.25) = 3.053, $p < 0.05$, mean difference = 19.98 (95% CI [3.40, 36.56]) (Table 4).

A significant negative correlation was observed between education and catastrophizing ($\rho = -0.245$, $p < 0.05$), suggesting that higher education was associated with reduced use of catastrophizing as a coping strategy. Education was positively correlated with Ignoring Pain Sensations ($\rho = 0.208$, $p < 0.05$), suggesting that participants with higher education were more likely to use this coping strategy. No other coping domains showed statistically significant relationships with education ($p > .05$) (Table 5).

Table 2: Pain Coping Strategies

Variable	M ±SD
Diverting attention	45.46 ± 25.37
Reinterpreting pain sensations	37.63 ± 23.57
Pain catastrophizing	37.61 ± 26.45
Ignoring Pain sensations	37.23 ±23.38
Praying and hoping	73.41 ±22.25
Coping self-statements	63.18 ±23.36
Increasing Activity level	57.78 ±22.1

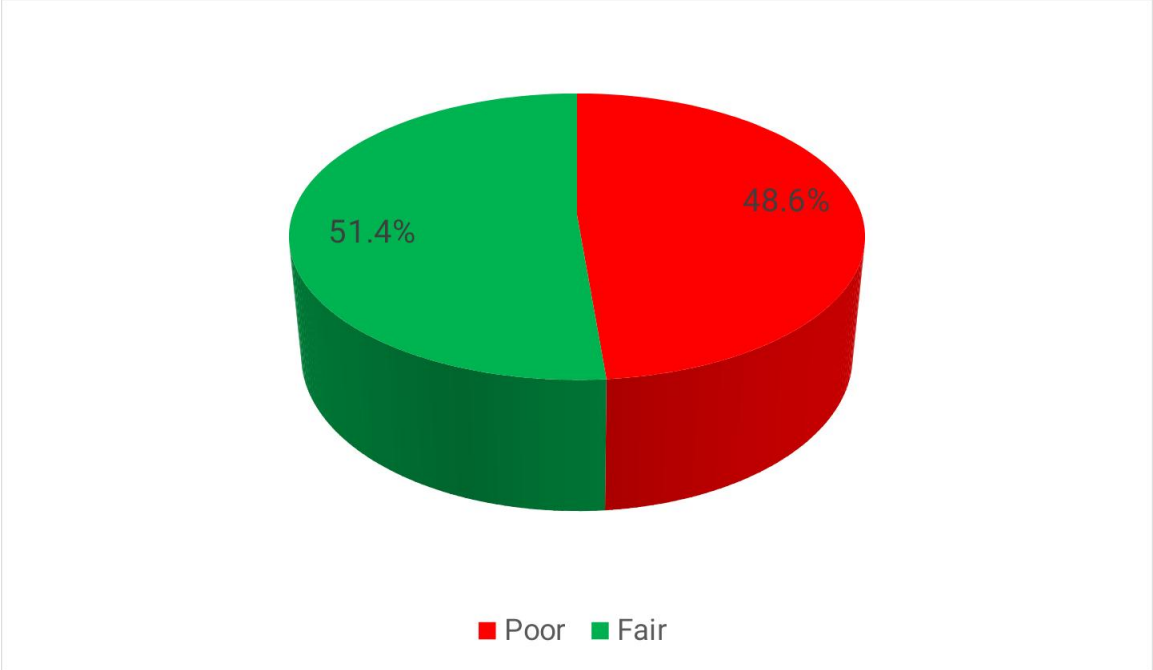

Figure 1: Overall respondents' Pain Coping Strategy Behavior

Table 3: One Way-Analysis of Variance of Pain Coping Strategies and Age, Marital Status, Occupation

Variable	Age	Marital status	Occupation
Diverting attention	F = 0.115, p=0.89	F =1.159, p= 0.33	F= 0.164, p= 0.92
Reinterpreting pain sensations	F =1.208, p= 0.30	F= 0.469, p= 0.76	F= 1.269, p= 0.29
Pain catastrophizing	F = 0.225, p= 0.80	F= 1.509, p= 0.21	F= 1.278, p= 0.29
Ignoring Pain sensations	F = 1.152, p= 0.32	F=0.249, p= 0.91	F= 1.327, p= 0.27
Praying and hoping	F = 0.123, p= 0.89	F= 0.548, p= 0.70	F= 1.139, p= 0.34
Coping self-statements	F= 0.644, p= 0.53	F= 0.302, p= 0.88	F= 0.237, p= 0.87
Increasing Activity level	F = 0.058, p= 0.94	F= 0.356, p= 0.84	F= 3.092, p= 0.03*

***Significant**

Table 4: Independent Samples T-test Analysis of Pain Coping Strategies and Gender, Religion

Variable	Gender	Religion
Diverting attention	t = -1.300, p = 0.49	t = -0.252, p = 0.80
Reinterpreting pain sensations	t = -0.562, p = 0.86	t = -2.814, p = 0.04*
Pain catastrophizing	t = -1.196, p= 0.44	t = -1.085, p = 0.28
Ignoring Pain sensations	t = -0.352, p = 0.75	t = 3.053, p = 0.03*
Praying and hoping	t = -0.158, p = 0.88	t = -1.197, p = 0.23
Coping self-statements	t = -0.269, p = 0.19	t = 0.801, p = 0.43
Increasing Activity level	t = -1.142, p = 0.28	t = -0.064, p = 0.95

***Significant**

Table 5: Spearman's Rank Correlation of Pain Coping Strategies and Educational Level

	Educational level	
Variable	**rho**	**P-value**
Diverting attention	-0.047	0.63
Reinterpreting pain sensations	-0.179	0.07
Pain catastrophizing	-0.245	0.01*
Ignoring Pain sensations	0.208	0.03*
Praying and hoping	0.033	0.74
Coping self-statements	0.107	0.28
Increasing Activity level	-0.130	0.19

***Significant**

DISCUSSION

This study examined the association between pain coping strategies and sociodemographic characteristics among patients with chronic low back pain. The most used coping strategies among respondents were praying and hoping, coping with self-statements, and increasing activity levels.

These strategies reflect a blend of emotional, cognitive, and behavioral approaches to managing chronic pain. These findings are consistent with previous studies in African and religiously devout populations, where spiritual and cognitive strategies are often prioritized over biomedical or psychological interventions (Ojoawo et al., 2020; Cabak et al., 2015; Prell et al., 2021). The preference for praying and hoping reflects the role of religious belief in interpreting and managing pain experiences, particularly in settings where access to specialized care may be limited. Coping self-statements, which involve self-encouragement and cognitive reframing, were also prevalent and may indicate a tendency

among patients to adopt internal strategies to manage discomfort and maintain functionality. Despite being universally accepted to improve mood and self-esteem, opinions on its efficacy vary (Wood et al., 2009).

On the contrary, reinterpreting pain sensations, catastrophizing, and ignoring pain sensations were the least used strategies. The low use of catastrophizing suggests that respondents may not typically perceive their pain as uncontrollable or overwhelming, a positive indicator, as catastrophizing is often linked with poorer health outcomes, increased disability, and lower treatment adherence (Quartana et al., 2009). Similarly, the low adoption of ignoring pain sensations could reflect a realistic appraisal of pain among the participants, possibly influenced by cultural, educational, or clinical awareness about the importance of acknowledging pain for timely intervention. According to a Juczyński (2001) study, patients with LBP and sciatica were more likely to use a distraction technique, while those with LBP brought on by degenerative changes were more likely to choose to ignore their discomfort. However, Misterska et al. (2013) found that the most often used methods in patients with LBP treated surgically were praying/hoping and catastrophizing.

The current study showed that just over half of the respondents had a fair level of pain coping. While this finding is not optimal, it indicates that many patients use at least some adaptive strategies. Nevertheless, the fact that nearly half may not be coping effectively raises concerns about their long-term functional outcomes and quality of life, as inadequate coping has been linked to chronic pain persistence and emotional distress (Jensen et al., 1991).

With respect to sociodemographic factors, occupation was found to be significantly associated with increasing activity levels. Specifically, individuals categorized under “others” (a group likely including informal workers, retirees, or less structured occupations) reported significantly higher levels of activity compared to civil servants. This may be explained by differences in job flexibility and autonomy. For example, civil servants often operate within structured work environments with limited physical demands, while individuals in informal sectors may require higher physical activity for livelihood, inadvertently encouraging activity-based coping. According to MIleS et al. (2005), individuals in physically demanding roles tend to stay active despite chronic pain, often as a means of economic survival rather than a deliberate coping choice.

Age and marital status showed no statistically significant relationship with pain coping strategies. This is in line with an earlier study that found no consistent pattern linking these variables to coping (Prell et al., 2021). However, previous studies have shown a significant relationship between age and pain coping strategies (Cabak et al., 2015; Mogil and Bailey, 2010; Moussa et al., 2015). In a study by Yubonpunt et al. (2022), their findings showed a significant difference in the use of coping strategies and marital status among their participants. Although age and marital support may influence pain perception or emotional resilience, they may not directly determine the coping strategy employed, especially when other factors like education, occupation, and personal beliefs come into play.

The study found no significant gender difference in coping strategies. This contradicts some earlier research suggesting that men and women cope differently with pain, men being more likely to ignore pain or minimize its impact, while women reportedly use more emotion-focused coping (Cabak et al., 2015; Mogil and Bailey, 2010). The absence of gender differences in the present study could be due to shared cultural or religious norms in the sampled population, which may override gender-specific tendencies.

Interestingly, religion was significantly associated with two coping domains: reinterpreting pain sensations and ignoring pain sensations. Respondents of the Islamic faith reported higher reinterpreting scores than Christians, while Christians had higher scores for ignoring pain. The higher reinterpretation scores among Muslims may

reflect a religious inclination toward perceiving pain as a divine test or spiritual purification, leading to a reframing of the experience rather than avoidance or suppression. Similar patterns have been reported in Middle Eastern populations (Padela and Curlin, 2013), where spiritual meanings are often attributed to illness and suffering. On the other hand, the tendency to ignore pain among Christians in the sample may be influenced by cultural attitudes that associate endurance with strength or faithfulness, as seen in several Christian traditions.

This present study also found that educational qualification was significantly associated with two coping domains. The first finding was that education and catastrophizing were negatively correlated; respondents with higher education levels catastrophized their pain less. This is in line with research that indicates education improves pain literacy and promotes a more proactive and knowledgeable approach to chronic disease management (Prell et al., 2021). Additionally, educated people might be more exposed to evidence-based pain management information, which deters catastrophizing and other negative thought processes.

Second, a positive correlation was found between education and ignoring pain sensations, suggesting that individuals with higher education levels were more likely to use this strategy. It might seem counterintuitive, but it may reflect a disciplined approach to task engagement in which discomfort is minimized to maintain productivity. Alternatively, it could indicate greater confidence in self-regulation or belief that pain will resolve without intervention (McCracken and Eccleston, 2003). However, this should be interpreted with caution, as ignoring pain can be maladaptive in cases where underlying pathology requires attention.

Overall, the study shows that social, vocational, and educational factors interact in a complicated way to shape coping mechanisms for pain. While some strategies, such as increasing activity and using self-statements, can be adaptive and promote recovery, others, like catastrophizing or unexamined pain suppression, may undermine patient well-being. Accordingly, patients need individualized pain management interventions that consider not only their clinical symptoms, but also their social and cultural contexts. From a public health and clinical perspective, the findings suggest that health education programs should be tailored to target low-literacy populations to reduce maladaptive coping like catastrophizing. Additionally, integrating faith-based messaging in pain self-management education could enhance engagement in religious communities, making interventions more acceptable and sustainable.

LIMITATIONS

This study helps us understand how people cope with pain in a culturally particular setting, but it has limits. Due to its single-point data collection, the cross-sectional design limits the capacity to make causal conclusions between sociodemographic factors and coping mechanisms. Additionally, self-reported statistics could be biased, particularly when it comes to religiously sensitive subjects like prayer or disregarding suffering. Future research should use qualitative methods to examine the lived experiences that influence strategy selection and longitudinal methodologies to monitor coping changes over time.

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