Prevalence and Pattern of Chronic Musculoskeletal Pain Among Older Adults and its Sociodemographic and Pain Intervention Correlates in a Tertiary Hospital in North Central Nigeria.

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ABSTRACT

Background: Chronic musculoskeletal pain (CMP) is a prevalent condition among older adults globally, contributing significantly to reduced quality of life, functional limitations, and healthcare burden. In low- and middle-income countries like Nigeria, the complexity of managing chronic pain is exacerbated by sociocultural factors, underreporting, and limited access to healthcare services. However, there is a paucity of local data on the prevalence and pattern of CMP in the elderly. The purpose of this study is to determine the prevalence, pattern, and sociodemographic correlates of chronic musculoskeletal pain among older adults attending a tertiary hospital in North Central Nigeria.

Methods: This was a hospital-based cross-sectional study conducted at the General Outpatient Clinic of the Federal Medical Centre, Bida, between September and November 2022. A total of 244 elderly participants aged ≥ 60 years were recruited using systematic random sampling. Data were collected via interviewer-administered questionnaires, including sociodemographic characteristics and pain-related variables. Analysis was performed using SPSS version 24, with statistical significance set at $p \leq 0.05$.

Results: The prevalence of CMP was 44.7%. Low back (36.7%) and knee pain (29.4%) were the most common locations, and most respondents reported mild pain intensity. There were no significant associations between CMP and any sociodemographic factors. However, significant associations were found between CMP and the use of analgesics ($p < 0.001$), herbal remedies ($p < 0.001$), and other alternative treatments ($p < 0.001$).

Conclusion: CMP is highly prevalent among elderly patients in this setting. While sociodemographic factors showed no significant associations, analgesic and alternative therapy use was widespread. Targeted, culturally sensitive interventions are essential to improve pain management outcomes in this population.

Keywords: Musculoskeletal pain, sociodemographics, pain intervention,

Introduction

Pain, defined by the International Association for the Study of Pain (IASP), is an unpleasant sensory or emotional experience linked to tissue harm.[1] Chronic pain is a widespread health problem that has a major negative influence on people's quality of life everywhere, especially for the elderly. According to Treede et al., chronic pain is characterized as pain that lasts longer than the anticipated recovery period, usually more than three months.[2] It is not only a symptom; rather, it is a complicated clinical illness with numerous ramifications. Because it interacts with aging-related physiological changes, comorbidities, and psychosocial variables, it presents particular difficulties for older persons. Understanding the frequency and pattern of chronic pain is essential for creating focused interventions and enhancing health outcomes in Nigeria, where the number of elderly people is increasing.

About 20% of people worldwide suffer from chronic pain, and the prevalence rates rise with age.[3,4] It is frequently linked to neuropathies, musculoskeletal diseases, and other age-related degenerative conditions in the elderly. Research has repeatedly demonstrated that chronic pain increases the burden on those who experience it by decreasing functional ability and causing psychological discomfort, including anxiety and despair.[5] According to Domenichiello et al., despite its importance, chronic pain in older persons is still underdiagnosed and undertreated, especially in low- and middle-income nations,[6] like Nigeria, where healthcare resources are limited and cultural perceptions of pain make management even more difficult.

career history, there are discrepancies between populations. Conditions like persistent low back pain and joint degeneration are anticipated to be common in Nigeria, where a large number of older people have worked in physically demanding jobs throughout their lives.[18]

In addition to having an impact on the individual, chronic pain places a heavy financial and social strain on families and communities.[19] Providing care for senior people with chronic pain frequently requires a significant time and financial commitment, which increases the burden on households, especially in environments with limited resources.[20] Furthermore, the psychological effects on caregivers and the productivity loss linked to chronic pain highlight the wider societal ramifications of this condition.[21] These issues are especially noticeable in Nigeria, where unofficial caregiving is still the major way that older people are supported, making it necessary to incorporate chronic pain management into larger public health programs.

There are still many gaps in knowledge and practice because of the paucity of research in Nigeria, despite the growing awareness of chronic pain as a public health issue. The prevalence, distribution, and drivers of chronic pain in the elderly have not been thoroughly examined in many studies, which makes it difficult for healthcare professionals to effectively address the problem.[22] Furthermore, the management of chronic pain is made more difficult by differences in healthcare access, especially between urban and rural locations, as older people in rural communities frequently encounter major obstacles to receiving the proper care.

The objective of this research is to enhance comprehension of the effects of chronic pain on this susceptible group by combining the available literature and offering fresh perspectives on the clinical, sociodemographic, and cultural elements affecting chronic pain. Additionally, we also determine its association with sociodemographic variables and pain-related characteristics.

Methods:

Study area

This study was conducted at the General Outpatient Clinic of Federal Medical Centre Bida, located in the ancient town of Bida, the headquarters of Bida Local Government Area. Bida is the second-largest city in Niger State and has a population density of 3,764 per square kilometre. The indigenous Nupe-speaking ethnic group primarily engages in brass works, trading, and farming, with Islam as the predominant religion.

Study site

The Federal Medical Centre, Bida (FMCB), established in 1997, is the highest health facility in Niger State, offering a wide range of services in various medical and surgical specialties. The centre provides clinical experience training for nursing students, internships for pre-registration house officers, and accredited postgraduate training in Family Medicine, Obstetrics and Gynaecology, Surgery, Internal Medicine, Paediatrics, and diagnostic Radiology. The Family Medicine department has eight consultant Family Physicians who supervise its activities, including the outpost. The department has subunit clinics, including the General Outpatient Clinic, National Health Insurance Authority (NHIA), Directly Observed Treatment Short Course (DOTS), Antiretroviral Therapy Clinic, Skin Clinic, Non-Communicable Disease (NCD), and National Youth Service Corps clinic. The General Outpatient Clinic serves as the initial point of contact for most patients, conducting vital sign checks and referring them for appropriate treatments when needed. The Family Medicine Practice Centre, a 47-bed hospital, is managed by the Department of Family Medicine in collaboration with the Niger State Government.

Study design and period:

The study was a hospital-based cross-sectional analysis conducted from September 2022 to November 2022.

Study Population

The study population comprised patients 60 years of age and above who attended the GOPC of FMC Bida

Sample size calculation:

The study used a formula to calculate the sample size for a study involving elderly patients aged 60 and above. The sample size was calculated using the formula $n = Z^2pq/d^2$ [23], where n is the desired sample size when the population is greater than 10,000 and z is the standard normal deviate. The average number of elderly patients 60 years and above seen in the General Out-Patient Clinic of FMC Bida was 310, giving a total of 930 in three months. Using this population frame of 930, the minimum sample size was 244. A systematic random sampling method was used to avoid bias, with every 4th eligible patient recruited until the desired sample size was reached. Participants were screened, and those who met the inclusion criteria were recruited for the study after giving written consent.

The study's inclusion criteria include individuals aged 60+ who can respond verbally to interviews, while exclusion criteria include those who are too ill or do not give consent.

Study procedure

The study involved administering a semi-structured

questionnaire to eligible respondents to obtain socio-demographic data, including age, gender, marital status, occupation, education level, religion, source of healthcare financing, source of household financing, and average monthly income. Pain characteristics were obtained from patients with pain in the past three months. The questionnaire assessed chronic pain intensity using a numerical rating scale, with higher scores indicating greater pain intensity.

Statistical analysis:

The study used SPSS version 24 to analyse data from questionnaires[25], determining the prevalence of chronic pain, pattern of pain, and quality of life in those with chronic pain. Cross-tabulation and chi-square tests were used for association tests, with a p-value of ≤0.05 considered statistically significant.

Ethical consideration:

The Health Research Ethics Committee of the Federal Medical Centre, Bida, approved the study, ensuring no harm to patients and no inducement. Respondents were informed about the study's purpose, process, and benefits, and had the right to withdraw or opt out at any time. Data confidentiality was maintained using codes and de-identifying items.

Results:

Nine hundred and thirty elderly patients ≥ 60 years were seen in the GOPC of Federal Medical Centre, Bida, from 1st September 2022 to 30th November 2022, out of which 244 respondents were recruited, having satisfied the selection criteria and consented to participate. None of the respondents declined in the study.

Socio-Demographic Characteristics of the Respondents:

TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Variables	Frequency	Percentage
Age group (years)		
60-69	168	68.9
70-79	62	25.4
≥ 80	14	5.7
Sex		
Male	77	31.6
Female	167	68.4
Marital status		
Single	2	0.8
Married	148	60.7
Divorced/separated	4	1.6
Widowed	90	36.9
Tribe		
Nupe	182	74.6
Hausa	13	5.3
Yoruba	26	10.7
Igbo	10	4.1
Others	13	5.3
Highest education		
None	111	45.5
Primary	37	15.2
Secondary	30	12.2
Tertiary	40	16.4
Quranic	26	10.7
Religion		
Islam	211	86.5
Christianity	33	13.5
Occupation		
Housewife	76	31.1
Farmer	31	12.7
Retired civil servant	16	6.6
Trader	72	29.5
Civil servant	23	9.4
Artisan	9	3.7
Others	17	7.7
Source of healthcare financing		
Out of pocket	238	97.5
Health insurance	6	2.5
Source of household financing		
Self	125	5.1
Children	107	43.9
Pension	6	2.5
Salary	6	2.5
Average monthly income		
Below minimum wage	178	73.0
Above minimum wage	66	27.0

The socio-demographic characteristics of the respondents are summarised in Table 1. The age group with the largest proportion was 60-69 years, which comprised 168 respondents (68.9%), the average age of the respondents was 68 years (68 ± 6.9 years). The results show that 167 (68.4%) were females while 77 (31.6%) were males. The majority of the participants, 148were married (60.7%), 2 were unmarried (0.8%), 4 (1.6 %) were divorced/ separated, and 90 (36.9 %) were either widows or widowers. The Nupe tribe constitutes 74.6% of the participants, Hausas 5.3%, Yoruba tribe 10.7%, Igbo 4.1%, and others 5.3%. The respondents with no formal education were 45.5%, 15.2% had primary education, secondary education was 12.2%, tertiary education was 16.4%, and Qur'anic education was 10.7%. The religion of most participants was Islam, 86.5%, and 13.5% were Christians.

Most of the respondents were housewives, 31.1%, 29.5% were traders, farmers, civil servants, retired civil servants, and others were 12.7%, 9.4%, 6.6%, and 7.0%, respectively.

The source of healthcare finance was out of pocket for 97.5% of the respondents, while 2.5% were under the National Health Insurance Authority. Also, 125 respondents (51.1%) were responsible for their household finances themselves, 107(43.9%) had their finances from their children, and 6 (2.5%) had their

source of finances from pension and salary, respectively.

About 73% had their average monthly income below the National minimum wage of ₦30,000, and 27% of the participants had greater than or equal to the minimum wage.

Fig. 1: Prevalence of Chronic Pain by Age-group

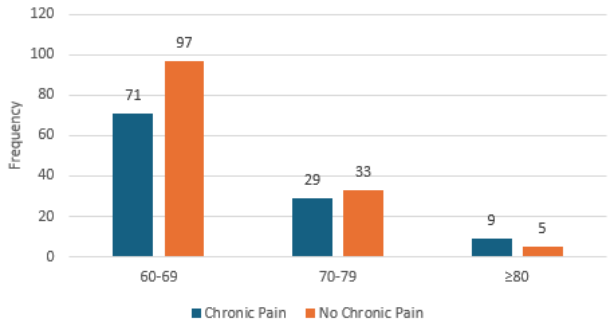
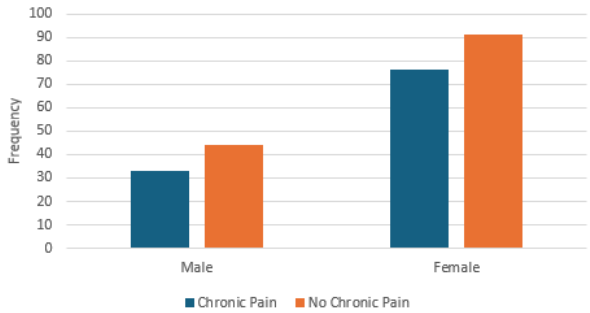


Fig. 2: Prevalence of Chronic Pain by Sex



Prevalence of Chronic Pain:

The prevalence of chronic pain was 44.7% (n=109), and those without chronic pain were 55.3%. This study showed an increasing trend of chronic pain among the respondents from the age 60-69 category to the age 80-89 category, excluding the 90-99 group, which had the lowest prevalence (Figure 1). The prevalence of chronic pain was highest among age group 80-89(77.8%), followed by the age category of 70-79 (46.8%) and age 60-69 (42.3%) There is a higher percentage (57.7%) among age group 60-69 who did not have chronic pain even though they had the highest population in this study. The age group 90-99, which had only 5 participants, also had 60.0% of them without chronic pain. Figure 2 shows more females (45.5%) had chronic pain than males, who were 42.9%.

TABLE 2: PATTERN OF MUSCULOSKELETAL DISORDER PRESENTATION AND PAIN CHARACTERISTICS

Variables	Frequency	Percentage
Intensity of pain		
Mild	57	52.3
Moderate	35	32.1
Severe	17	15.6
Location of pain (multiple responses)		
Low back	40	36.7
Knee pain	32	29.4
Neck pain	8	7.3
Chest pain	2	1.8
Others	35	32.1
Duration of pain (months)		
3-11	54	49.5
12-60	47	43.1
≥61	8	7.3
Interventions (multiple responses)		
Analgesics	93	(38.1)
Warm compress	3	(1.2)
Herbs	21	(8.6)
Others	14	(5.7)

NB: Other sites are abdominal, headache, and generalized body pain.

Pattern of Chronic Pain among the Respondents:

The intensity of pain, location of the pain, and duration of pain are represented in Table III

The intensity of the pain was mild in the majority, which was 52.3%, 32.1% had moderate pain, and 15.6% of the respondents had severe pain. The chronic pain location of most respondents was the low back, 36.7%, followed by knee pain, which was 29.4%. The commonest duration of pain was found among the group of 3 to 11 months, which was 22.1 %(n=54).

Association of chronic musculoskeletal pain with sociodemographic variables and pain interventions

Table 3: Association Between Chronic Musculoskeletal Pain and Pain Patterns and Interventions

Variables	Chronic pain Yes (%)	Chronic pain No (%)	Chi-square	P - value
Age group (years)				
60-69	71(42.3)	97(57.7)	2.685	0.261
70-79	29(46.8)	33(53.2)		
≥ 80	9(64.3)	5(35.7)		
Sex				
Male	33(42.9)	44(57.1)	0.150	0.699
Female	76(45.5)	91(54.5)		
Marital status				
Single	2(100.0)	0(0.0)	2.674	0.445
Married	64(43.2)	84(56.8)		
Divorced/separated	2(50.0)	2(50.0)		
Widowed	41(45.6)	49(54.4)		
Tribe				
Nupe	79(43.4)	103(56.6)	6.717	0.152
Hausa	10(76.9)	3(23.1)		
Yoruba	12(46.2)	14(53.8)		
Igbo	4(40.0)	6(60.0)		
Others	4(30.8)	9(69.2)		
Highest education				
None	51(45.9)	60(54.1)	7.685	0.104
Primary	17(45.9)	20(54.1)		
Secondary	10(33.3)	20(66.7)		
Tertiary	14(35.0)	26(65.0)		
Quranic	17(65.4)	9(34.6)		
Religion				
Islam	97(46.0)	114(54.0)	1.066	0.302
Christianity	12(36.4)	21(63.6)	13.5	
Occupation				
Housewife	42(55.3)	34(44.7)	8.475	0.205
Farmer	14(45.2)	17(54.8)		
Retired civil servant	7(43.8)	9(56.3)		
Trader	27(37.5)	45(62.5)		
Civil servant	10(43.5	13(56.5)		
Artisan	5(55.6)	4(44.4)		
Others	4(23.5)	13(76.5)		

Source of healthcare financing				
Out of pocket	106(44.5)	132(55.5)	0.071	0.790
Health insurance	3(50.0)	3(50.0)		
Source of household financing				
Self	50(40.0)	75(60.0)	2.939	0.401
Children	54(50.5)	53(49.5)		
Pension	3(50.0)	3(50.0)		
Salary	2(33.3)	4(66.7)		
Average monthly income				
Below minimum wage	79(44.4)	99(55.6)	0.022	0.881
Above minimum wage	30(45.5)	36(54.5)		

Table 4: Association Between Chronic Musculoskeletal Pain and Pain Patterns and Interventions

Variables	Frequency		Chi-square	P - value
	Yes (%)	No (%)		
Intensity of pain				
Mild	57 (52.3)			
Moderate	35 (32.1)			
Severe	17 (15.6)			
Location of pain (multiple responses)				
Low back	40 (36.7)			
Knee pain	32 (29.4)			
Neck pain	8 (7.3)			
Chest pain	2 (1.8)			
Others	35 (32.1)			
Duration of pain (months)				
3-11	54 (49.5)			
12-60	47 (43.1)			
≥61	8 (7.3)			
Interventions (multiple responses)				
Analgesics (Yes)	93(100.0)	0)(0.0)	186.124	0.000
Analgesics (No)	16(10.6)	135(89.4)		
Warm compress (Yes)	3(100.0)	0(0.0)	3.762	0.052
Warm compress (No)	106(44.0)	135(56.0)		
Herbs (Yes)	21(100.0)	0(0.0)	28.458	0.000
Herbs (No)	88(39.5)	135(60.5)		
Others (Yes)	14(100.0)	0(0.0)	18.395	0.000
Others (No)	95(41.3)	135(58.7)		

Tables 3 and 4 show that none of the socio-demographic characteristics examined demonstrated a statistically significant association with chronic musculoskeletal pain. Regarding pain management strategies, a statistically significant association was observed between chronic pain and the use of analgesics ($\chi^2 = 186.124$, $p < 0.001$), herbs ($\chi^2 = 28.458$, $p < 0.001$), and other interventions ($\chi^2 = 18.395$, $p < 0.001$). Use of warm compress showed a borderline association with chronic pain ($\chi^2 = 3.762$, $p = 0.052$).

Discussion:

The study found that the majority of respondents were aged 60-69, with a mean age of 68.9%. This is similar to previous studies in South-South Nigeria and China, where the 60-69 age group constituted 45.1% of the elderly population.[26,27] The study suggests that young old patients have more access to healthcare compared to the old-old, who are more vulnerable, suggesting the need for more support for the elderly to access health facilities when needed.

The study found that 68.4% of respondents were female, indicating a higher utilization of healthcare services in this gender. This may be due to societal masculinity beliefs that men are stronger and not expected to be sick.[28] In contrast, similar studies in Ghana and Brazil found a higher percentage of male respondents due to reduced self-care practices.[29,30]

The majority of respondents were married, with the predominant tribe being Nupe, and Islam the predominant religion. Most had no education and were not gainfully employed.

The majority of healthcare finance for the elderly (97.5%) was out of pocket, indicating a need for wider coverage by the National Health Insurance Authority. Fifty-one (51%) of respondents self-provided household finances, while 73% lived below the minimum wage, affecting their perception of a good living.

Prevalence of chronic pain:

Chronic pain among the elderly in Nigeria is a significant issue, with a prevalence of 44.7%. However, studies have reported slightly higher rates (53.4%) in community-based studies, which is quite expected as rates in the community are expected to be higher than in hospital-based studies.[31] In developing countries, the prevalence of chronic pain is also limited. In South Africa, Kamerman et al reported a prevalence of 18.3% in the general population and 34.4% for patients over 65 years.[32] Satghare et al reported a 19.5% prevalence of pain among the elderly, which is lower than the findings in this study.[33] In Malaysia, Zaki et al reported a 15.2% prevalence of chronic pain among the elderly, which is lower than the findings in this study.[34] Saxena et al's population-based study found a 19.3% prevalence of chronic pain among adults in India, but a 23.5% prevalence in the age group 60-80 years.[35]

A study by Ferreti et al in Brazil found a prevalence rate of 58.2% in the elderly with chronic pain, higher than the rate reported in this study.[36] Stompor et al in Poland reported a 78% prevalence, possibly due to assisted living community residents reporting more chronic pain.[37] Bauer et al in Germany reported a 57.5% prevalence, but the study was conducted on elderly patients aged 68-92 years.[38] The prevalence of chronic pain varied across age groups, with the 60-69 years group having a 42.3% prevalence, the 80-89 group 77.8%, and the 90-99 years group 40.0%. Elzahaf et al in Libya reported that chronic pain increases with age and is highest in the over-70-year-old age group.[39] Goyal et al in India found that chronic pain in the elderly increases with age.[40] In Malaysia,

Zakiet al observed an increasing prevalence of chronic pain with advancing age, with the highest prevalence observed among the old-old group.[34]

This study reveals a higher prevalence of chronic pain in women compared to men, consistent with previous research.[33,41] This may be due to the higher number of female respondents, increased pain sensitivity due to low estrogen levels, and psychosocial factors associated with pain response, unlike male patients who may hide their pain.

Pattern of pain:

This study found that the majority of respondents reported mild pain, with 52.3% reporting mild pain, while 15.6% had severe pain. This difference could be due to the use of different grading tools, such as numerical rating scales and visual numerical scales. Liberman et al's study used a five-point verbal descriptor scale, while Robinson-Lane et al's focused ethnography study on older black adults in the United States reported severe pain.[42,43] The reason for the majority of respondents having mild pain may be due to better access to healthcare, as well as the knowledge of pain intensity.

The commonest cause of chronic pain in the elderly was musculoskeletal pain, with low back pain being the most frequent cause, accounting for 36.7% of chronic pain. This finding is similar to findings from other studies and literature, such as a systematic review of low back pain prevalence in Nigeria.[44]

Studies have shown that limb pain, followed by back pain, is the most common cause of chronic pain in the elderly. In South Africa, over half of the patients with chronic pain had back pain[7]. In Israel, back pain was also common, followed by knee pain.[42] In India, musculoskeletal pain, particularly back and knee pain, is the most common cause,[35] indicating the impact of degenerative diseases.[45]

Remarkably, no statistically significant correlation was found between CMP and any of the evaluated sociodemographic variables. Contrary to findings in other contexts, chronic pain has been associated with lower socioeconomic position, female sex, advancing age, and a lack of education.[46] The study participants' rather uniform sociodemographic profile or sociocultural elements like stoicism and the acceptance of chronic pain among Nigerian older individuals could account for the disparity.

On the other hand, a statistically significant correlation was found between the usage of different pain treatment techniques and persistent musculoskeletal pain. The fact that analgesics are used by everyone with chronic pain emphasises how important they are for managing symptoms. Similarly, people with chronic pain were far more likely to seek herbal remedies and other alternative therapies (such as spiritual or traditional therapies). This is consistent with earlier research results that CAM is widely used to treat musculoskeletal disorders, especially in places with limited resources where access to conventional care may be limited or culturally less preferred [47]

Although they seem to be underutilised, the nearly significant relationship shown with warm compresses indicates some awareness of non-pharmacological therapy options. These trends highlight how crucial it is to use evidence-based and culturally relevant therapies for managing CMP in older persons.

The high burden of CMP observed in this study calls for improved routine screening and pain assessment in geriatric healthcare. Furthermore, public health efforts should focus on supporting the appropriate use of pharmaceutical drugs and educating patients on the benefits and hazards of herbal and traditional remedies. The lack of substantial sociodemographic determinants suggests that prevention and treatment efforts should be generally targeted rather than focusing only on high-risk populations.

Limitations

This study is subject to certain limitations. The cross-sectional design limits causal interpretation, and the reliance on self-reported pain and treatment practices introduces the possibility of recall and reporting bias. Additionally, because the study was hospital-based, the findings may not reflect community-level patterns.

Conclusion

Chronic musculoskeletal pain is common among older adults in this setting and is significantly associated with various pain management practices, especially the use of analgesics and herbal remedies. No significant associations were found between CMP and sociodemographic characteristics, suggesting the need for universal preventive strategies and culturally sensitive pain management interventions.

Conflict of interest: Nil

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