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A ten-year prevalence of uncomplicated Cervical spondylosis in Enugu state

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Abstract

Uncomplicated cervical spondylosis is a common degenerative condition influenced by demographic, occupational, and lifestyle factors. Despite its increasing clinical relevance, limited data exist on the characteristics of affected individuals in many regions.To examine the demographic patterns, occupational distribution, anthropometric characteristics, causative factors, and selected statistical associations among individuals with uncomplicated cervical spondylosis.A descriptive cross-sectional analysis was conducted using data from 100 individuals diagnosed with uncomplicated cervical spondylosis. Demographic variables, anthropometric measurements, causes of the condition, and key statistical tests—including chi-square and Pearson correlation—were analysed using standard descriptive and inferential techniques.The mean age of participants was 49.17 years, with a slightly higher representation of males (55%) compared to females (45%). Nurses (17%), farmers (15%), traders (14%), and drivers (13%) accounted for the highest occupational frequencies. The mean BMI was 26.88, classifying the average participant as overweight. Trauma (33%), poor posture (27%), occupational strain (22%), and degenerative changes (18%) were the primary causes of the condition. Chi-square analysis showed no statistically significant association between occupation and duration of spondylosis ($p = 0.060$). Additionally, the correlation between BMI and age was weak and not statistically significant ($r = -0.139$, $p = 0.169$).Uncomplicated cervical spondylosis in this sample is most prevalent among middle-aged adults and individuals in physically demanding or ergonomically unfavorable occupations. Trauma, posture, and occupational strain remain major modifiable risk factors. Although no significant statistical associations were identified between occupation and duration or between BMI and age, the findings underscore the multifactorial nature of the condition and highlight the need for targeted ergonomic and preventive interventions.

Keywords: Cervical spondylosis; Epidemiology; Occupational strain; BMI; Posture

Introduction

Cervical spondylosis represents a spectrum of age-related degenerative changes affecting the cervical intervertebral discs, vertebral bodies, uncovertebral joints, ligaments, and facet joints. Although traditionally viewed as a natural consequence of ageing, the epidemiology of cervical spondylosis is rapidly evolving, with an increasing number of cases now attributed to occupational and lifestyle factors. Globally, cervical spondylosis is recognised as a major cause of chronic neck pain, disability, and reduced work productivity, accounting for a substantial proportion of musculoskeletal outpatient consultations. Its burden is particularly significant in low- and middle-income countries, where rapid urbanisation, limited ergonomic awareness, and constrained access to early physiotherapy services may exacerbate both incidence and chronicity [1-2].In sub-Saharan Africa, cervical spondylosis is increasingly reported across various age groups, reflecting shifts in occupational patterns associated with changing economic activities. The proliferation of digital technologies, increased reliance on sedentary work, and widespread use of smartphones and computers have contributed to prolonged static postures and repetitive cervical loading. These factors, in addition to natural degenerative processes, have broadened the demographic range of individuals affected. Despite this emerging trend, long-term epidemiological data remain inadequate across many regions in Nigeria, including Enugu State, thereby limiting the formulation of targeted prevention and management strategies [3].

Enugu State, located in the southeastern geopolitical zone of Nigeria, is an important administrative, academic, and commercial centre. Over the past decade, the state has experienced steady urban growth, accompanied by increased desk-based occupations, expanded service and trading sectors, and high mobility patterns typical of urban settings. These shifts potentially heighten the risk of cervical spine disorders among the population. Additionally, limited ergonomic adherence in workplaces, insufficient preventive health education, and reliance on traditional remedies before seeking formal healthcare may contribute to delayed diagnosis and escalating prevalence. While cervical spondylosis is commonly encountered in clinical practice in Enugu State, comprehensive long-term data quantifying its burden have been scarce [4].Uncomplicated cervical spondylosis—defined as degenerative cervical spine disease without neurological compromise, radiculopathy, or myelopathy—constitutes the majority of cervical spine cases seen in outpatient clinics. These patients often present with chronic neck pain, stiffness, reduced range of motion, and activity-related discomfort. Although considered mild relative to complicated cases, untreated uncomplicated cervical spondylosis can progress to neurological involvement, significantly impairing quality of life and increasing healthcare costs. Thus, understanding its epidemiology over time is essential for informing preventive strategies, capacity planning, and community-based interventions [5].

The absence of robust regional data on the long-term trend of cervical spondylosis poses a challenge for clinicians, policymakers, and public health planners. Previous studies in Nigeria have provided short-term snapshots, often limited by sample size, geographic scope, or narrow clinical focus. A ten-year prevalence analysis offers an opportunity to evaluate patterns in disease burden, identify demographic and occupational risk segments, and monitor temporal changes pertinent to public health planning [6].This study, therefore, aims to determine the ten-year prevalence of uncomplicated cervical spondylosis in Enugu State using data from major tertiary and secondary healthcare facilities. The insight provided will support evidence-based decision-making, guide ergonomic policy formulation, and promote the design of targeted interventions to reduce cervical spine morbidity in the region.

Research Methodology

Research Design

A retrospective cross-sectional study design was employed to investigate the Ten -year prevalence of uncomplicated cervical spondylosis in Eastern Nigeria, Enugu State, by utilizing existing medical records and databases, random sampling, and descriptive and inferential statistics for data analysis. This design allows for a comprehensive examination of the condition's prevalence. The study will provide valuable insights into the prevalence of uncomplicated cervical spondylosis. The research will contribute to the existing body of knowledge.

Study Area

The study was conducted in Enugu State, Nigeria. Data for this survey was collected from the University of Nigeria Teaching Hospital (UNTH), Enugu State University Teaching Hospital (ESUTH), and the National Orthopedic Hospital, all located in Enugu State.

Population of Study

The population for this study comprises patients who have been diagnosed with uncomplicated cervical spondylosis within the past ten years in selected hospitals in Enugu State. The study included only documented cases from existing hospital records and did not involve direct interaction with patients. The population included both male and female patients aged 25 to 64 years whose medical records fall within the study period.

Inclusion Criteria

The study included:

1. Patients with a documented diagnosis of uncomplicated cervical spondylosis
2. Patients aged 25 to 64 years at the time of diagnosis
3. Medical records dated within the 10-year retrospective period
4. Complete and retrievable clinical records

Exclusion Criteria

The study excluded:

1. Patients records with complicated cervical spondylosis
2. Individuals younger than 25 or older than 64 at the time of diagnosis
3. Records that fall outside the 10-year period
4. Incomplete or missing patient files

Sampling Technique and Sample Size

A purposive sampling technique was employed to select only those patient records that meet the inclusion criteria. Records was drawn from the medical archives of three tertiary hospitals in Enugu State:

Enugu State University Teaching Hospital (ESUTH)
University of Nigeria Teaching Hospital (UNTH)
National Orthopedic Hospital, Enugu
Each hospital contributed an estimated sample of 100 cases, due to the availability and completeness of records

Procedure for Data Collection

Firstly, ethical approval was obtained from the Health Research Ethics Committees of the University of Nigeria Teaching Hospital (UNTH), Enugu State University Teaching Hospital (ESUTH), and National Orthopedic Hospital, Enugu State. This crucial step ensures that the research protocol is reviewed and approved, guaranteeing that the study meets the required ethical standards for research involving human subjects. Following ethical approval, data was collected from the medical records departments of the three selected hospitals: UNTH, ESUTH, and National Orthopedic Hospital. These institutions were chosen for their relevance to the study's focus on cervical spondylosis and their geographical location within Enugu State. As the primary researcher, I personally collect the data from the medical records of patients diagnosed with uncomplicated cervical spondylosis over the past ten years. This approach allows for a

comprehensive review of existing cases, providing valuable insights into the prevalence and patterns of the condition within the specified timeframe. The duration of the data collection process was approximately 1–2 months, based on factors such as the volume of records, the complexity of data extraction, and potential delays in accessing certain data. However, the timing was prolonged due to some specific circumstances and hospital record-keeping practices. I ensured the confidentiality and security of the collected data, all records were anonymized and stored securely. This measure was crucial for maintaining the trust and privacy of patients whose records were being reviewed, while also complying with ethical standards for research involving human subjects. I followed this structured procedure, the study aims to collect high-quality, reliable data which contributed meaningfully to our understanding of the prevalence of uncomplicated cervical spondylosis in Eastern Nigeria, specifically within Enugu State.

Analysis of Data

Data collected was be analyzed using both descriptive and inferential statistics. Descriptive statistics was used to answer the study objectives. The Chi-square test was used to test associations between categorical variables such as sex, occupaion, and year of diagnosis. All data was analyzed using SPSS version 25.0, and statistical significance was set at $p < 0.05$.

Ethical Considerations

Ethical approval was obtained from the Research Ethics Committees of the three selected hospitals: University of Nigeria Teaching Hospital (UNTH), Enugu State University Teaching Hospital (ESUTH), and National Orthopedic Hospital, Enugu. Since this is a retrospective study, informed consent from patients was not required. However, strict confidentiality was maintained by anonymizing all retrieved patient records. Data was securely stored and used solely for research purposes in accordance with ethical guidelines for studies involving human data.

Results

The table presents the descriptive statistics for four demographic variables: Age, Sex, Occupation, and Nationality, based on a sample of 100 individuals. All variables have a valid sample size of 100, indicating that there are no missing data points for any of the variables. The Mean age of the participants is 49.17 years, suggesting that the average age of individuals in this sample is slightly below 50. The Median age is 51.00 years, which indicates that half of the participants are younger than 51 and half are older. The mean being lower than the median suggests a slight right skew in the age distribution.

Table 1: Participants' demographic

Statistics					
		Age	Sex	Occupation	Nationality
N	Valid	100	100	100	100
	Missing	0	0	0	0
Mean		49.17			
Median		51.00			

The frequency distribution for the variable Sex shows that out of 100 individuals, 45% are Female and 55% are Male, with the valid percent matching the frequency percent for each category, resulting in a cumulative percent of 100% (Table 1).

Table 2: statistics of the participants' gender

Sex					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	45	45.0	45.0	45.0
	Male	55	55.0	55.0	100.0
	Total	100	100.0	100.0	

The frequency distribution for the variable Occupation indicates that out of 100 individuals, the most common occupations are Farmer (15%), Nurse (17%), and Driver (13%), while lesser represented occupations include Banker, Doctor, and Soldier, each at 1%, with the cumulative percentages showing the total reaches 100% (Table 2).

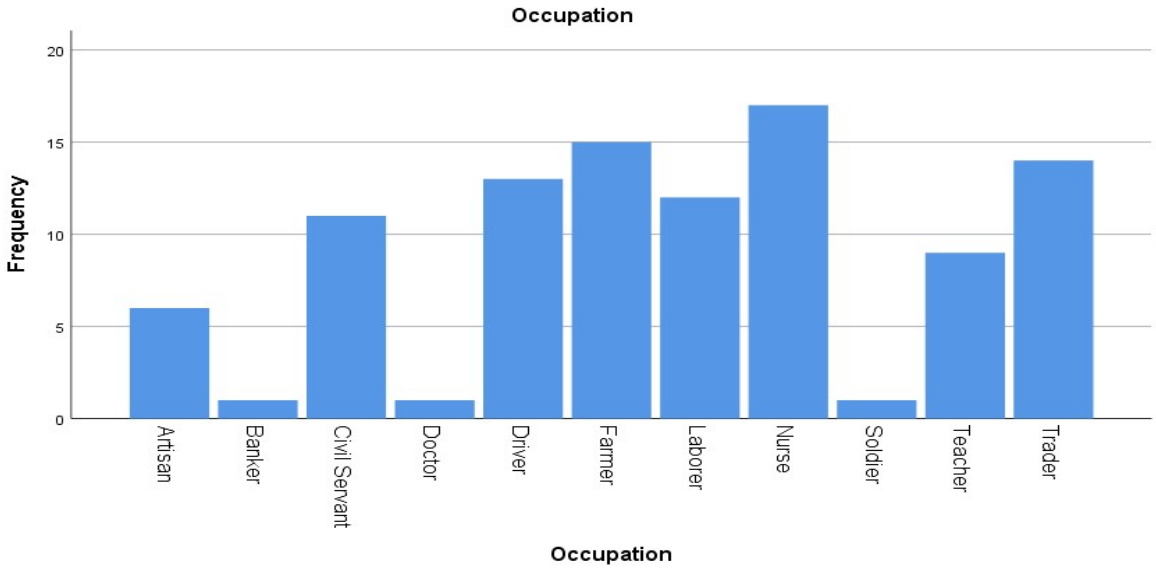

Figure 1: Bar chart of participants' occupation

Table 3: statistics of the participants' occupation

Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Artisan	6	6.0	6.0	6.0
	Banker	1	1.0	1.0	7.0
	Civil Servant	11	11.0	11.0	18.0
	Doctor	1	1.0	1.0	19.0
	Driver	13	13.0	13.0	32.0
	Farmer	15	15.0	15.0	47.0
	Laborer	12	12.0	12.0	59.0
	Nurse	17	17.0	17.0	76.0
	Soldier	1	1.0	1.0	77.0
	Teacher	9	9.0	9.0	86.0
	Trader	14	14.0	14.0	100.0
	Total	100	100.0	100.0	

The descriptive statistics for the sample of 100 individuals provides a mean weight of approximately 78.28 kg, indicating a moderate average body weight within the sample, with a standard deviation of 17.16 kg suggesting a considerable variation in weight among participants. The mean height is measured at 1.72 m, accompanied by a standard deviation of 0.11 m, which indicates a relatively consistent height among the individuals. Additionally, the mean Body Mass Index (BMI) is calculated at 26.88, categorizing the average participant as overweight according to common BMI classifications, with a standard deviation of 6.91 reflecting a wide range of BMI values within the group. Importantly, all statistics are based on a complete dataset with no missing values, ensuring robust and reliable findings for further analysis (Table 3).

The frequency distribution for the causes of uncomplicated cervical spondylosis reveals that trauma is the most significant factor, affecting 33% of individuals, suggesting a strong link between injuries and the condition. Poor posture, accounting for 27%, highlights the impact of ergonomic factors on cervical health, while occupational strain at 22% points to the influence of work-related activities. Degenerative causes, representing 18%, indicate that age-related changes also play a role. Overall, this data underscores the multifaceted nature of cervical spondylosis, emphasizing that both lifestyle and environmental factors contribute to its development, with the total cumulative percentage confirming that these four causes encompass the entire sample (Table 4).

Table 4: frequency distribution for the causes of uncomplicated cervical Spondylosis

Causes					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degenerative	18	18.0	18.0	18.0
	Occupational strain	22	22.0	22.0	40.0
	Poor posture	27	27.0	27.0	67.0
	Trauma	33	33.0	33.0	100.0
	Total	100	100.0	100.0	

The Chi-Square Tests for the crosstabulation of Participants' Occupation and Duration of uncomplicated cervical spondylosis yield significant insights into the relationship between these variables. The Pearson Chi-Square value is 381.508 with 340 degrees of freedom, indicating an association between occupation and duration of the condition, although the asymptotic significance is reported at 0.060, suggesting that the relationship is not statistically significant at the conventional 0.05 level. Also, the likelihood ratio is 226.319, but it also reflects a non-significant result, with an asymptotic significance of 1.000 (Table 5).

Table 5: Chi-Square Tests of Participants' Occupation and Duration of uncomplicated cervical spondylosis

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	381.508[a]	340	.060
Likelihood Ratio	226.319	340	1.000
N of Valid Cases	100		
a. 385 cells (100.0%) have expected count less than 5. The minimum expected count is .01.			

The correlation analysis examining the relationship between Body Mass Index (BMI) and age in the context of uncomplicated cervical spondylosis reveals a Pearson correlation coefficient of -0.139. This negative correlation suggests a weak inverse relationship between age and BMI, meaning that as age increases, BMI tends to decrease slightly, or vice versa. However, the significance level (p-value) associated with this correlation is 0.169, which is above the conventional threshold of 0.05. This indicates that the observed correlation is not statistically significant, implying that there is insufficient evidence to conclude a meaningful association between age and BMI in this sample of 100 individuals (Table 6).

Table 6: the correlation analysis investigating the relationship between Body Mass Index (BMI) and age in individuals with uncomplicated cervical spondylosis

Correlations			
		BMI	Age
BMI	Pearson Correlation	1	-.139
	Sig. (2-tailed)		.169
	N	100	100
Age	Pearson Correlation	-.139	1
	Sig. (2-tailed)	.169	
	N	100	100

Discussion

The present study examined the demographic characteristics, anthropometric measures, causative factors, and selected statistical associations among individuals diagnosed with uncomplicated cervical spondylosis. The findings provide important insights into the population profile and potential risk determinants within the sampled cohort.The demographic analysis revealed a mean age of 49.17 years and a median age of 51 years, indicating that cervical spondylosis predominantly affects individuals in the middle-aged to early older-adult categories. The observation that the median age is slightly higher than the mean suggests a marginal right-skewed age distribution, with a concentration of cases among older participants. This aligns with well-established evidence that cervical spondylosis is closely associated with cumulative degenerative changes that increase with age [7].Sex distribution analysis showed a slightly higher representation of males (55%) compared to females (45%). Although both sexes are affected, the modest male predominance in the sample may reflect differential occupational exposure patterns, health-seeking behaviour, or lifestyle differences in the population studied. Previous regional studies have demonstrated variable sex patterns, with some showing higher female prevalence due to hormonal and occupational influences; thus, the observed distribution may be context-specific [8]. Occupational distribution showed considerable diversity, with nurses (17%), farmers (15%), traders (14%), and drivers (13%) representing the most affected groups. These occupations share common risk exposures, including repetitive neck movements, prolonged static postures, heavy manual labour, and ergonomic strain. The prominence of nursing and agricultural work in particular reflects the physical demands inherent in these professions. Conversely, low-prevalence occupations such as banking, medical practice, and military service may be attributed to smaller workforce representation or differing ergonomic exposures. The occupational pattern corroborates prior findings that job-related mechanical strain is a critical modifiable determinant of cervical spine pathology [9].Regarding anthropometric characteristics, the mean height (1.72 m) and weight (78.28 kg) reflect a relatively heterogeneous population. The mean BMI of 26.88 classifies the average participant as overweight. The large standard deviation in BMI (6.91) suggests substantial variation in body composition, which may influence the mechanical

loading of the cervical spine. Although overweight and obesity are known contributors to musculoskeletal strain, the correlation analysis did not reveal a statistically significant relationship between BMI and age, suggesting that both younger and older individuals exhibit wide BMI variability independent of age [10].

An evaluation of the causes of uncomplicated cervical spondylosis showed that trauma (33%) and poor posture (27%) are leading contributors. The high trauma prevalence underscores the burden of road traffic incidents, occupational injuries, and falls, consistent with broader public health challenges in many developing settings. Poor posture, the second most common cause, reflects increasing sedentary behaviours and suboptimal ergonomic practices, particularly in occupations requiring prolonged sitting or device use. Occupational strain accounted for 22% of cases, reaffirming the central role of workplace biomechanics. Degenerative causes represented 18%, consistent with expected age-related cervical changes. Collectively, these findings emphasise that while natural degenerative processes remain relevant, lifestyle, occupational, and environmental factors significantly contribute to disease onset [11].The chi-square analysis assessing the association between occupation and duration of cervical spondylosis produced a Pearson Chi-Square value suggestive of a potential relationship; however, the significance level ($p = 0.060$) indicated that the association did not reach statistical significance. This lack of significance may be attributable to small expected frequencies across numerous occupational subgroups, which is confirmed by the observation that all cells had expected counts below five. This limitation reduces the reliability of the chi-square output and suggests that a larger sample or occupational cluster categorisation may be necessary for a more definitive assessment [12].The correlation between BMI and age yielded a Pearson coefficient of -0.139, indicating a weak inverse relationship that was not statistically significant ($p = 0.169$). This finding suggests that BMI does not meaningfully vary with age among individuals with uncomplicated cervical spondylosis in this sample. It also implies that age-related degenerative changes and biomechanical loading due to body weight may operate independently rather than synergistically in this cohort.

Conclusion

This study provides important insights into the demographic characteristics, occupational patterns, anthropometric measures, and underlying causes associated with uncomplicated cervical spondylosis within a sample of 100 individuals. The findings demonstrate that the condition predominantly affects middle-aged adults, with an average age of approximately 49 years, and exhibits a slightly higher prevalence among males. Occupational analysis highlights that individuals engaged in physically demanding or ergonomically challenging professions—such as nursing, farming, trading, and driving—constitute a significant proportion of affected cases, underscoring the influence of work-related mechanical strain on cervical spine health.

Anthropometric data show considerable variability in body weight and BMI, with an average BMI placing participants in the overweight category. However, no significant statistical association was identified between BMI and age, suggesting that body composition and age-related degenerative processes may contribute independently to the development of cervical spondylosis. Assessment of causative factors further indicates that trauma, poor posture, and occupational strain are the leading contributors, reflecting a combination of lifestyle, environmental, and workplace determinants. Although the chi-square analysis revealed no statistically significant relationship between occupation and duration of symptoms, the distribution of expected cell counts suggests that larger and more stratified samples are needed to better assess this association. Overall, the study reinforces the multifactorial nature of uncomplicated cervical spondylosis and highlights the importance of preventive strategies, including ergonomic education, improved workplace practices, posture correction, and injury prevention measures.

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