

Low Back Pain, Neck Pain and Degenerative Back Pain in Chad: A Multicenter Retrospective Study

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Abstract

Objective: To describe the epidemiological, clinical, diagnostic and therapeutic features of degenerative spine diseases managed in Chad. **Methods:** A retrospective, descriptive study conducted in the Rheumatology Department of the National Referral Hospital and the Internal Medicine Department of the Hospital of Refondation in Chad, from January 2019 to December 2024. We included patients with a degenerative spinal condition confirmed clinically and radiographically (Kellgren & Lawrence). **Results:** Of 6196 records, 3880 (62.6%) involved degenerative disease. The mean age was 58.4 years (25 - 85), and 65% were women. Low back pain accounted for 57.8% of consultations, followed by neck pain (23.6%) and thoracic pain (12.1%). Radiographic findings mainly included disc degeneration (65%), osteophytes (52%) and disc space narrowing (43%). Management relied on analgesics, NSAIDs, physical therapy, infiltrations, and surgery in 4% of cases. **Conclusion:** Degenerative spine diseases are the leading cause of spine-related consultations in Chad. Their functional burden calls for integrated prevention and management strategies adapted to local resources.

Keywords

Degenerative Spine Disease, Low Back Pain, Osteoarthritis, Sub-Saharan Africa, Chad

1. Introduction

Degenerative spine diseases (DSD) encompass a group of conditions related to aging and biomechanical constraints, including disc degeneration, facet joint osteoarthritis, and lumbar spinal stenosis. They are the leading cause of spinal pain worldwide and represent a major public health burden [1]-[5].

In sub-Saharan Africa, demographic transition and urbanization contribute to the rising prevalence of DSD, although available data remain heterogeneous and often limited to hospital-based series. In Chad, publications dedicated to spinal diseases remain scarce, restricting guidance for management policies [6]-[8].

This study aims to describe, in a Chadian referral center, the epidemiological and clinical profiles of DSD, their diagnostic modalities (standard radiography according to Kellgren & Lawrence), therapeutic approaches, and the main determinants of functional impact.

2. Methods

2.1. Study Design

This was a retrospective, descriptive study conducted in the Internal Medicine Department of the Hospital of Refondation of Chad (HRT) and the Rheumatology Unit of the National Referral Hospital of N'Djamena (Chad). The study period extended from January 1, 2019 to December 31, 2024, covering six full years.

2.2. Study Population

All patients consulting for a spinal disorder were examined. Only records confirming a degenerative spinal disease (low back pain, neck pain, thoracic pain, disc degeneration, facet joint osteoarthritis, lumbar spinal stenosis, and vertebral compression fractures of degenerative origin) were included.

2.3. Inclusion Criteria

Complete medical record with a clinical diagnosis supported by standard imaging (X-ray) and confirmed according to the radiological criteria of Kellgren and Lawrence (grade ≥ 2). Radiographs were independently reviewed by two rheumatologists; in case of disagreement, a senior radiologist made the final decision. In total, 6196 spine consultations were screened: 3620 at the National Referral Hospital and 2576 at the Hospital of Refondation. Both centers applied identical inclusion criteria.

2.4. Exclusion Criteria

Patients with inflammatory spinal diseases (spondyloarthritis, rheumatoid arthritis), infectious diseases (Pott's disease), or tumors were excluded.

2.5. Data Collection

Collected information included demographic data (age, sex, occupation), reasons for consultation, medical history, clinical findings, radiological data, treatments

received, and clinical outcomes.

2.6. Quality of Life Assessment

Health-related quality of life was assessed using three validated French instruments: 1) The SF-36, which includes eight domains (0 - 100) and yields two summary scores: Physical Component Summary (PCS) and Mental Component Summary (MCS), with higher scores indicating better quality of life. 2) The Nottingham Health Profile (NHP), covering six domains (pain, mobility, energy, sleep, emotional reactions, social isolation); higher scores indicate greater impairment. 3) The WOMAC index (pain, stiffness, function), also scored 0 - 100, with higher scores indicating worse symptoms. These instruments were administered to a subgroup of patients with chronic or severe forms, and mean scores were calculated for each domain.

2.7. Statistical Analysis

Data were entered and analyzed using standard software (Excel/Sphinx). Descriptive statistics were used to summarize the data, including means \pm standard deviation, medians [IQR], counts and percentages. In addition, simple comparative tests were performed to strengthen descriptive interpretations: Chi-square (χ^2) tests were applied to compare categorical variables, notably the sex distribution across spinal segments. Student's t-test (or Mann-Whitney U test for non-normal distributions) was used to compare mean ages between groups. Distribution normality was checked using the Shapiro-Wilk test. A p-value < 0.05 (two-tailed) was considered statistically significant. These analyses were exploratory in nature and intended to complement the main descriptive approach.

3. Results

3.1. Overall Sample

During the study period, six thousand one hundred and ninety-six records were collected in the Rheumatology Department. Among them, 3880 cases (62.6%) corresponded to a degenerative spinal disease.

3.2. Demographic Characteristics

The mean age of patients was 58.4 years, ranging from 25 to 85 years. The most represented age group was 50 - 59 years. Females predominated, accounting for 65% of cases, with a sex ratio of 0.5. See **Table 1**.

Table 1. Demographic characteristics of included patients.

Characteristic	Value
Total cases	3880
Mean age (years)	58.4 (25 - 85)
Female sex	2522 (65%)
Male sex	1358 (35%)
Sex ratio (M/F)	0.5

Comparative analyses showed a significant female predominance in the low back pain group compared with cervical and thoracic pain groups ($\chi^2 = 10.8$; $p = 0.001$). Mean age was also significantly higher among women than men (58.9 ± 11.7 vs 56.8 ± 10.9 years; $t = 3.15$; $p = 0.002$). These differences highlight age- and sex-specific patterns of degenerative spine diseases in Chad.

Most patients were housewives (34%), followed by farmers (22%), manual workers (18%), employees (15%), and retirees (11%). These occupational constraints partly explain the predominance of women and the middle-aged distribution. Physical activity levels were not systematically collected in all patients, which limits our ability to explore its relationship with clinical profiles. Future studies should address this aspect systematically.

3.3. Reasons for Consultation

Low back pain was the leading reason for consultation (57.8%), followed by neck pain (23.6%) and thoracic pain (12.1%). Some patients presented with mixed forms involving several affected spinal segments. See **Table 2**.

Table 2. Distribution of degenerative spine conditions in the cohort.

Condition	n (%)
Chronic low back pain	2243 (57.8%)
Neck pain	915 (23.6%)
Thoracic pain	469 (12.1%)
Mixed forms	253 (6.5%)

3.4. Radiological Findings

Disc degeneration was the most frequent lesion (65%), followed by osteophytes (52%) and disc space narrowing (43%). Cases of lumbar spinal stenosis accounted for about 10%, and degenerative vertebral compression fractures represented 8%. See **Table 3**.

Table 3. Radiographic findings observed in degenerative spine disease.

Radiographic sign	n (%)
Disc degeneration	2522 (65%)
Osteophytes	2018 (52%)
Disc space narrowing	1668 (43%)
Lumbar spinal stenosis	388 (10%)
Degenerative vertebral fractures	310 (8%)

3.5. Therapeutic Management

All patients received analgesics of different levels. Non-steroidal anti-inflammatory drugs (NSAIDs) were prescribed in 72% of cases, physical therapy in 41%,

spinal infiltrations in 12%, and surgery in 4% of cases. Corticosteroids were used occasionally for acute painful episodes. See **Figure 1**.

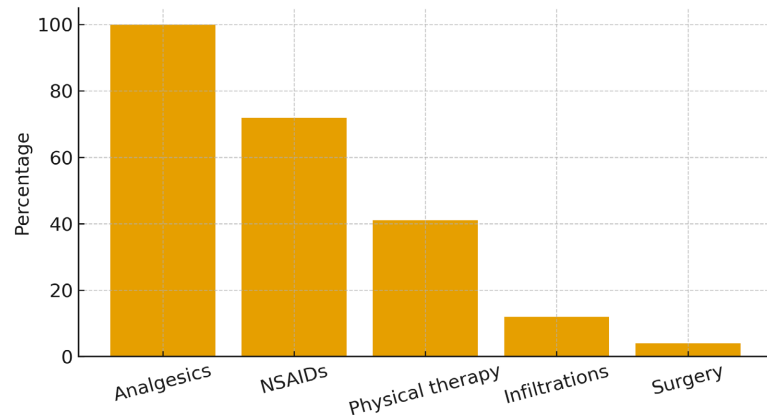


Figure 1. Distribution of patients according to treatment received.

Quality of life assessment was performed in a subgroup of patients with chronic or severe functional limitations. The mean SF-36 general health score was 58.2 ± 12.5 , and the SF-36 pain score was 54.6 ± 13.8 , indicating a moderate reduction in quality of life. NHP scores revealed notable impairments in the pain (56.9 ± 13.7) and mobility (52.4 ± 10.5) domains. The mean WOMAC global score was 54.9 ± 13.9 , reflecting moderate to severe functional limitations. These findings confirm the significant functional impact of degenerative spine diseases in this population. See **Table 4**.

Table 4. Quality of life and functional scores.

Score/Domain	Mean \pm SD
SF-36 (General health)	58.2 ± 12.5
SF-36 (Pain)	54.6 ± 13.8
NHP (Pain)	56.9 ± 13.7
NHP (Mobility)	52.4 ± 10.5
WOMAC (Global)	54.9 ± 13.9

3.6. Clinical Outcomes

Most patients reported improvement after treatment. However, persistent chronic forms were noted, particularly in elderly subjects, postmenopausal women, and overweight patients.

4. Discussion

Our retrospective hospital-based study of 3,880 patients with degenerative spine diseases (DSD) over a 6-year period constitutes, to our knowledge, the first series of this magnitude in Chad. DSD accounted for more than 60% of spinal consulta-

tions, confirming their major role in rheumatology [3]-[5].

The female predominance (65%) observed in our cohort is consistent with findings from other African studies. In Togo, Houzou *et al.* reported a female proportion of 62% [6]. In Guinea, Djaha *et al.* also noted a majority of women (60%) [7]. This over-representation may be related to postmenopausal osteoporosis and mechanical factors. The mean age (58 years) confirms that DSD mainly affects middle-aged adults, as described in the international literature [4] [8]-[15].

Low back pain was the main reason for consultation (almost 58%), followed by neck and thoracic pain. This pattern is similar to data from Burkina Faso, where low back pain accounted for more than half of spinal consultations [8]. In Europe and the United States, low back pain is also the leading cause of musculoskeletal disability [14]-[17].

Radiological lesions dominated by disc degeneration, osteophytes, and disc space narrowing correspond to the classic criteria of Kellgren and Lawrence [18]-[20]. These signs reflect disc and joint degeneration, the central mechanism in the pathophysiology of DSD [21]-[23]. The frequency of lumbar spinal stenosis and degenerative vertebral compression fractures was modest but clinically significant, as they are associated with severe functional impairment [24]-[26].

Management was based on a combination of pharmacological and non-pharmacological approaches [27]-[29]. Analgesics and NSAIDs remained the mainstay of treatment, while physical therapy played a key role in functional rehabilitation [30]-[32]. The use of infiltrations and surgery was more limited, explained by resource constraints. These findings are consistent with international recommendations that prioritize a stepwise management approach [33] [34].

Quality-of-life assessments (SF-36, NHP, WOMAC) revealed significant functional impact. These results are consistent with Ward *et al.*, who reported substantial impairment of quality of life in chronic spinal disorders [35] [36]. The improvement observed after management confirms the benefit of multidisciplinary follow-up.

The main limitation of our study lies in its retrospective and monocentric nature. The lack of systematic MRI may have limited the detection of early lesions. However, the sample size and duration of follow-up give this study significant value for understanding DSD in Central Africa.

5. Conclusions

Degenerative spine diseases are the leading cause of spinal consultations in Chad, mainly affecting middle-aged women. Low back pain is the predominant clinical presentation, and the most common radiological lesions are disc degeneration and osteophytes.

Management, essentially based on analgesics, NSAIDs, and physical therapy, provides significant functional improvement, although severe forms may require infiltrations or surgery.

This study highlights the functional and socioeconomic burden of degenerative

spine diseases and emphasizes the need to strengthen diagnostic and therapeutic resources in Chad. Prospective multicenter studies would be useful to refine data and evaluate prevention strategies.

Authors' Contributions

All authors participated in the study design, data collection, analysis, and manuscript drafting. All authors approved the final version.

Ethics

The study protocol was conducted with due regard for patient anonymity and confidentiality. Authorization to collect and use data was obtained from the management of the Refoundation Hospital of Chad and the research director of the Faculty of Human Health Sciences at the University of N'Djamena. Informed oral consent was obtained during consultations.

Conflicts of Interest

None declared.

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