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Quality of Life of Patients Followed for Common Low Back Pain: A Case-Control Study

Norbert Edgard Lamini N'Soundhat[1,2*], Edie Francina Bakalé Omboumahou[1], Daphtone Chabel Nkouala-Kidédé[1,2], Romaric Affleck Ledier Angalla[1,2], Bernadette Nkoumou Yandza[1], Anah Précieu Salemo[1], Richard Bileckot[1,2]

[1]Department of Rheumatology, Brazzaville University Teaching Hospital, Brazzaville, Congo
[2]School of Health Sciences, Marien NGOUABI University, Brazzaville, Congo
Email: *nlamini@yahoo.fr

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Abstract

Introduction: Common low-back pain is a frequent reason for consultation and a genuine public health problem. Preserving quality of life remains one of the main challenges. **Objective:** To evaluate the quality of life of patients with low back pain seen in rheumatology consultations at Brazzaville University Hospital. **Patients and Method:** Cross-sectional, analytical study with control group, conducted at the Brazzaville University Hospital, from January 2 to September 30, 2023. Patients over 30 years of age, seen for documented common low-back pain, were included. Study variables were epidemiological, clinical and functional. The EIFEL and SF-36 scores were used to assess functional impact and quality of life, respectively. **Results:** We included 96 people divided into two groups: 48 patients with low back pain and 48 controls. The frequency of common low-back pain was 12.8%. The mean age of patients with low back pain was 59.14 ± 11.86 years. Women predominated (sex ratio 0.3). Degenerative disc disease was the main etiology. Common low-back pain had a moderate impact on functional abilities, with a mean EIFEL score of 11 +/− 5.51. Quality of life was impaired in patients with low back pain (overall SF-36 at 43.95%) compared with the control group, with a statistically significant difference ($P < 0.05$). The dimensions most affected were limitations due to physical condition and physical pain, with an average of 20% and 24 % respectively ($P < 0.05$). **Conclusion:** Common low back pain affects patients' overall quality of life, particularly in terms of physical pain and limitations due to physical condition.

Keywords

Low Back Pain, Quality of Life, Disability, Brazzaville

1. Introduction

The main degenerative disease of the spine in rheumatology, common low back

pain is defined by the World Health Organization (WHO) as "an unpleasant sensation indicating potential or actual damage to a structure located in the lower back, caused by degenerative or mechanical damage, retained in the absence of signs suggestive of an inflammatory, infectious, fractural or tumoral pathology" [1]-[3]. It is a global public health problem, with a worldwide incidence and prevalence estimated at 2748.9 and 568.4 million per 100,000 inhabitants per year respectively, but also because of its major functional impact, making it the world's leading cause of disability [4] [5]. In sub-Saharan Africa, it predominates in adults over the age of 40, who are professionally active, sedentary, and overweight, with a sex ratio favoring females [6]. A chronic course and significant loss of functional capacity characterize the clinical and functional profile of patients mainly [7]. Its management currently relies on a combination of medication, physical therapy and rehabilitation to restore the patient's functional capacities and improved quality of life [2] [3] [8]. The impact of common low back pain on quality of life is well known in the West, and has been the subject of many studies. It mainly concerns physical and mental dimensions [9]-[11]. In sub-Saharan Africa, studies on the quality of life of patients treated for common low back pain are rare, particularly in the Congo, where no studies on this subject have been carried out [12]. In this context, it is difficult to fully appreciate the real impact of common low back pain, particularly on activities of daily living, as well as the long-term effectiveness of its management [13]. Thus, the present study, whose aim was to assess the quality of life of patients treated for common low back pain, is part of the need to better understand how this disease affects the daily lives of patients in sub-Saharan Africa, particularly in Congo, in order to better adapt their management.

2. Patients and Method

Over the course of nine months, from January 1 to September 30, 2023, a cross-sectional investigation was conducted at the Brazzaville University Teaching Hospital (CHU-B) with a control group.

The case group consisted of patients over 30 years of age, seen in rheumatology consultation for common low-back pain. The diagnosis of common low back pain was based on:

- Clinical arguments: mechanical rhythm low back pain, apyretic patient in good general condition and mobilizable lumbar spine assessed by measurement of finger-ground distance and Schöber index.
- Paraclinical arguments:
  - Absence of biological inflammatory syndrome confirmed by an erythrocyte sedimentation rate (ESR) < 20 mm at 1st hour and a C-reactive protein (CRP) < 6 mg/l;
  - On standard X-rays of the lumbar spine from the front and side, the presence of signs of degenerative disease, namely pinching, condensation and osteophytosis in the disco-vertebral region and/or posterior facet joints. Standard X-rays were supplemented by computerized tomography scans and/or magnetic

resonance imaging where appropriate, particularly in cases of diagnostic doubt.

The control group consisted of people selected from the staff of CHU-B, independently of their professional activity. The control group included people with no history medical of, or follow-up for, common low back pain. The control group was matched in gender and age to the case group. In the second time, for both the case and control groups, only those who had no other chronic, non-communicable conditions likely to have a significant impact on their lifestyle, such as diabetes mellitus, high blood pressure, asthma, cancer and mental illness, were definitively included, after obtaining their informed consent.

The study variables were:

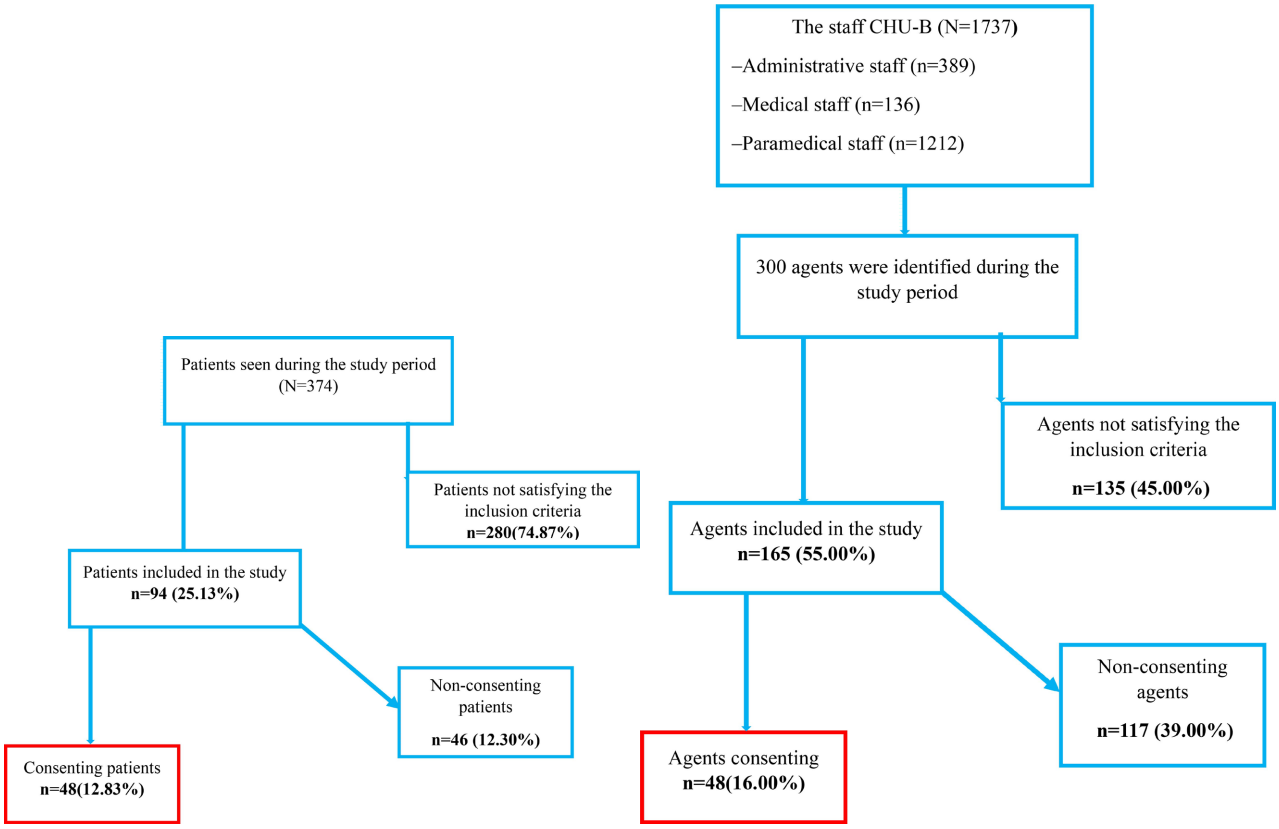
- Epidemiological: age, sex, marital status, socio-economic level, level of education.
- Clinical: pain intensity assessed by visual analog scale (VAS), duration of progression (acute < 3 months and chronic > 3 months), mode of onset and signs of spinal damage, in particular spinal mobility assessed by Schöber index, finger-to-floor distance.
- Functional: the functional capabilities of the patient with low back pain were assessed using the Functional Incapacity Scale for Evaluation of Low Back Pain (EIFEL), a standardized, validated questionnaire for assessing the functional impact of common low back pain [14].
- Quality of life: this was assessed using the Medical Outcome Study Short Form-36 (SF-36 or MOS SF-36), a standardized and validated questionnaire for evaluating quality of life, independently of the socio-economic level and professional activity of the people interviewed. The assessment criteria per domain, taking into account the score, were: very impaired quality of life (score between 0 and 35), average quality of life (score between 36 and 70) and slightly impaired quality of life (>70). The overall score was considered impaired between 0 and 50, and good between 51 and 100 [15].

Data were collected by a single interviewer, face-to-face, for both groups, using a non-standardized questionnaire for epidemiological, clinical and morphological data. Excel version 2016 and Epi info version 7.2.5.0 were used to create the database, graphs and statistical analysis respectively. Qualitative variables were presented (by comparative description of the two groups) in terms of numbers and proportions. Quantitative variables were expressed as averages and standard deviations. The dependent variable was "Quality of life" (categorized into 2 groups, "good" and "poor", according to the final score of the eight domains explored), with its comparative analysis based on the chi-square test of homogeneity at the 5% threshold. This study was carried out with the authorization of the national ethics committee, and with strict respect for anonymity and confidentiality [16].

3. Results

We included 96 patients in our study, 48 in each group. **Figure 1** shows the

selection process for cases (Figure 1(a)) and controls (Figure 1(b)). A total of 48 participants were included in each group (cases and controls).



(a) Case selection diagram (b) Control selection diagram

Figure 1. Case and control selection diagram.

The frequency of common low back pain, in rheumatology consultations, was 12.83%. The mean age of patients with low back pain was 59.14 ± 11.86 years, and that of the control group 50.20 ± 7.10 years. Each group comprised 37 female and 11 male patients, giving a sex ratio of 0.30. The clinical profile of the low-back pain patients was characterized by a chronic course in 89.6% of cases and a progressive onset in 77.5%. Mean pain intensity, as measured by VAS, was 3.6 ± 1.14, with extremes of 2 and 5. Spinal flexibility was characterized by a mean Schöber index of 13.66 ± 1.29 cm with extremes from 11 to 15 cm and a mean finger-ground distance of 3.83 ± 4.08 cm with extremes from 0 to 14 cm. The main etiology was degenerative disc disease (79.17%). Common low back pain had a significant impact on functional abilities, with a mean EIFEL score of 11 ± 5.51. Quality of life was impaired in patients with low back pain, with an SF-36 score of 43.9 compared with the control group (SF-36 score of 79.9), with a statistically significant difference ($P = 0.006$). The dimensions most affected were limitations due to physical condition and physical pain, with an average of 20 and 24, respectively ($P < 0.05$). Table 1 shows the mean scores for the various quality of life domains measured, as well as the overall SF-36 score.

Table 1. Overall breakdown of quality of life domains.

Quality of life scale	Case	Control	P-Value
	Average (SD)	Average (SD)	
Physical activity	43.54 (19.01)	69.89 (24.72)	0.303
Evolution of perceived health	48.97 (14.66)	71.35 (17.61)	0.126
Limitations due to physical health	20 (12.06)	89.2 (20.02)	0.011*
Limitations due to mental state	46.2 (19.24)	91.9 (19.20)	0.000*
Physical pain	24.3 (9.93)	94.4 (17.31)	0.000*
Health perception	47.8 (14.92)	64.7 (13.92)	0.166
Life and relationships with others	57.2 (16.28)	75.1 (13.00)	0.150
Mental health	63.7 (20.99)	82.6 (18.88)	0.001*
SF-36	**43.9**	**79.9**	**0.006***

*p-value significant; SD: Standard deviation.

4. Discussion

Assessing the quality of life of patients followed for common low back pain is of major interest if we really want to improve their care. It enables us to take an objective look at the impact of quality of life on daily life, and thus to better guide therapeutic choices in terms of medication, functional rehabilitation and psychological support. As measuring quality of life is not a quantitative indicator, we opted for a cross-sectional case-control study, focusing on patients seen in hospital consultation. This has the advantage of enabling a rapid assessment of the level of deterioration in quality of life in patients treated for common low back pain. This methodological choice, while relevant for analyzing the impact of common low back pain on patients' quality of life, presents a number of weaknesses, notably the small sample size of the control group (48 people included) reducing the power of our results. The same applies to the choice of hospital staff, who are not representative of the general population, to form the control group, which makes it impossible to generalize from our results.

The importance of common low back pain in rheumatology is well established. The main cause of consultation and hospitalization alongside common lumboradiculalgia, its frequency of 12.8% in our series is justified by the short duration of the study and the strict criteria for inclusion of patients in the case group [17]. Classically, its frequency increases after the age of 40, with a peak between the ages of 45 and 55 in sub-Saharan African series [1] [18] [19].

In our study, the onset was later, with an average age of 59.14 ± 11.86 years, essentially reflecting a change in the epidemiological profile of low-back pain patients, in line with the emergence of non-communicable diseases and the advancing age of the Congolese population, whose life expectancy at birth is estimated at 64 years according to the latest general population census [20]. Female predominance is typical in sub-Saharan Africa, favoured by a lifestyle responsible for high

mechanical stress on the lumbar spine [21] [22]. A genuine public health problem, the chronic course of common low back pain remains the rule, as was the case in our series and that of Atemkeng T.F *et al.* in Cameroon [23] [24]. This evolution is linked to numerous risk factors, notably age, gender, obesity, occupation and sedentary lifestyle [25] [26]. Its intensity varies from one series to another, depending on the inclusion criteria for low-back pain patients. However, low back pain is one of the most frequent causes of self-medication with analgesics in rheumatology, which introduces a bias in the assessment of its intensity. This consumption may thus justify the intensity measured in our series, with an average of 3.6 ± 1.14 [27]. In common low back pain, spinal flexibility is preserved for a very long time. This contrasts with the collapse of the isometric muscular endurance capacities of the abdominal strap muscles, resulting in a significant functional impact assessed by the EIFEL score [7]. Although validated for assessing the functional impact of common low-back pain, it only reflects the practitioner's perception of the patient's situation. It does not reflect the patient's day-to-day experience. Thus, analysis of quality of life, using a validated measurement indicator, would appear to be a more appropriate way of assessing the impact of common low-back pain. The choice of the SF-36 score in our study is justified by its robustness and reliability, providing a general measure of perceived health. It explores perceived health in its physical, emotional, functional, psychological and socio-professional dimensions [15]. Based on our results, the quality of life of patients with low back pain appears to be impaired compared with that of healthy subjects, with a statistically significant difference, thus confirming the functional impact objectified by the EIFEL score and the difficult experience of patients with low back pain [12]. In fact, in sub-Saharan Africa, and particularly in the Congo, the lifestyle of the vast majority of the population remains precarious. Spinal strain is frequent in the course of everyday activities, culturally encouraged by the adoption of poor spinal posture and the carrying of heavy loads [28] [29]. Thus, in the case of common low back pain, the performance of activities of daily living becomes even more difficult, resulting in a deterioration in patients' quality of life. Education on spinal postural hygiene and economy, and on improving the overall living conditions of the population, is therefore of particular interest if we are to reduce the impact of common low back pain on quality of life [30]-[32]. Although affecting overall quality of life, low back pain does not affect all SF-36 domains in the same way. low back pain does not affect all SF-36 domains in the same way. In fact, only three out of 8 SF-36 domains were particularly impaired, with a statistically significant difference. These were physical pain and limitation due to physical activity, with mean scores of 24.3 and 20 respectively ($P < 5\%$), and limitation due to psychological state, with a mean score of 46.2 ($P < 5\%$). Pain is the main symptom of common low-back pain. It results from the activation of specific peripheral nociceptive information receptors, as well as spinal cord polymodal receptors. This nociceptive stimulus originates from various disco-vertebral, ligamentary, posterior articular and muscular structures, and underlies the clinical

response observed, the main consequence of which is loss of functional physical ability. For the low-back pain sufferer, this results in a disruption of perceived quality of life in the areas of physical activity and physical pain. Impairment of the "limitations due to psychic state" domain can be explained by the integration of nociceptive pain information at the level of spinothalamic and cortical encephalic structures, at the origin of the emotional and behavioural component, such as fear and/or anxious-depressive mood, which accompanies the painful event [22]. The three domains disturbed in patients with low back pain were also those found in our study of quality of life during knee osteoarthritis according to the AMIQUAL score, suggesting that degenerative rheumatism affects the overall quality of life score particularly in the domains of pain, physical activity and psychological state [33].

5. Conclusion

A frequent complaint in rheumatology consultations, common low-back pain in our study concerned older adults. It affected patients' functional capacities and overall quality of life, mainly in terms of physical pain, physical limitations and psychological limitations. The management of common low back pain thus warrants a multidisciplinary approach, not only focused on pain, as is most often the case in sub-Saharan Africa, but also geared towards restoring functional capacities and, above all, improving quality of life, an essential element in the perception of therapeutic success for both patient and practitioner. The development of therapeutic education through the establishment of a back school is therefore of great interest in improving patients' quality of life. Similarly, it seems necessary to continue this study by identifying the associated factors influencing quality of life in patients treated for low back pain.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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