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Quality of Life in Patients with Knee Osteoarthritis in Lomé at CHU S.O.

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Abstract

Introduction: In sub-Saharan Africa, the knee is the most common peripheral joint affected by osteoarthritis. Osteoarthritis of the knee (KOA) can lead to functional disability and have a significant social and occupational impact. **Objectives:** To assess the quality of life of knee osteoarthritis patients in rheumatology consultations using the AMIQUAL questionnaire. **Methods:** This was a cross-sectional study conducted over a period of 14 months in the rheumatology department of the CHU Sylvanus Olympio of Lomé, including patients with KOA fulfilling ACR criteria. Sociodemographic data and comorbidities were collected. **Results:** A total of 200 patients were included in the study, including 169 women (84%) and 31 men (15.5%), with a mean age of 55.7 years (range 20 - 95 years). Comorbid conditions were overweight in 63 patients, obese in 77, hypertension in 86 and diabetes in 34. According to the AMIQUAL scale, 98 patients had a normalised score between 25 and 50 for physical activities, 75 between 50 and 75 for pain, 128 between 50 and 75 for mental health, 90 between 50 and 75 for social activities, and 170 scored above 75 for social support. The highest mean normalised score was for the social support dimension (83.6 ± 12.6) and the lowest for physical activity (42.2 ± 20.4; range 4 - 99.4). Age was significantly associated with pain, social and occupational activities, gender with physical and occupational activities, and pain with social support. **Conclusion:** The quality of life of patients with knee osteoarthritis was most affected in the dimensions of physical and occupational activities, and less so in the dimensions of social activities and social support.

Keywords

Quality of Life, Knee Osteoarthritis, Africa

1. Introduction

Knee osteoarthritis or gonarthrosis is the most common form of osteoarthritis (three times more common than hip osteoarthritis) and is involved in most cases of knee pain. It can affect different compartments of the knee: the femoropatellar, external femorotibial and internal femorotibial compartments. These different localisations, sometimes in combination, give rise to uni-, bi- or tri-compartmental involvement [1]. In Africa, particularly in Togo, knee osteoarthritis accounts for about 8% of rheumatology consultations at the CHU-SO in Lomé [2] [3]. It is a major cause of disability and loss of function in the elderly and places a significant burden on individuals and healthcare systems [4] [5]. According to the World Health Organization (WHO), quality of life is a person's perception of his or her place within the context of the culture and values he or she lives by, and of his or her goals, expectations, standards, and worries [6] [7]. Large epidemiological studies report knee osteoarthritis as a major cause of extremely poor quality of life for hundreds of millions of adults of all ages worldwide [8]. It is considered by many to be a public health crisis due to its burden on individuals, health and social care systems [9].

To our knowledge, studies on the Togolese population are lacking, focusing mainly on epidemiological and diagnostic aspects. We therefore aimed to assess the quality of life of knee osteoarthritis patients attending rheumatology consultations at CHU SO, Lomé.

2. Patients and Methods

2.1. Setting, Type, Period and Study Population

Our study was carried out at the Department of Rheumatology of the Sylvanus Olympio University Hospital Centre in Lomé. It was a cross-sectional and analytical study carried out from 12 March 2020 to 12 May 2021, for a total duration of 14 months. The study population was made up of all the patients who attended the rheumatology consultations at the CHU SO during the study period, regardless of their age or sex.

2.2. Inclusion and Exclusion Criteria

Patients with knee osteoarthritis fulfilling the American College of Rheumatology (ACR) classification criteria during the study period and who agreed to participate in the questionnaire survey were included in this study.

Patients with knee osteoarthritis meeting ACR criteria but with another disabling condition unrelated to knee osteoarthritis or who could not understand and/or respond to the questionnaire were excluded.

2.3. Data Collection Technique and Parameters Assessed

A pre-designed questionnaire was used for data collection. Data were collected on consultation days. Recruitment was stopped when the calculated minimum sample size was reached. The minimum sample size (n) was calculated using Cochran's formula, resulting in a required minimum of n = 113 patients.

After obtaining verbal consent, patients were interviewed before, during or after the consultation. The questionnaire was administered in a language that the patient understood. Variables assessed included sociodemographic and clinical data, comorbidities and parameters from the AMIQUAL tool [10] [11].

2.4. Score Calculation, Operational Definitions and Data Analysis

AMIQUAL scores were calculated by averaging the items within each dimension. If more than half of the items in a dimension were missing, the score for that dimension was not calculated. If half or fewer items were missing, the missing values were replaced by the mean of the observed scores for that dimension for the individual.

For each dimension, normalized scores ranged from 0 to 100, with 0 representing the worst quality of life and 100 the best. For independent items, scores also ranged from 0 to 100, with 0 representing no impairment and 100 representing very severe impairment. AMIQUAL items Q12, Q22 and Q23 assessed occupational activities, marital relationships and sexuality respectively.

For active patients, the mean score for the occupational activities item was calculated. Retired, unemployed, pupils and students were considered as inactive.

Mean scores for the marital and sexual relationship items were calculated only for patients with a partner (married or in a consensual union).

A comparative analysis was performed to identify differences between the collected variables and quality of life. Statistical tests used included Pearson's chi-square test or Fisher's exact test for qualitative variables and Student's t-test for quantitative variables. The significance level was set at 0.05.

2.5. Ethical and Administrative Considerations

Approval was obtained from the head of the rheumatology department of the CHU SO before the study began. Verbal informed consent was obtained from each participant or their legal guardian before administration of the questionnaire. Anonymity was maintained on the questionnaires.

3. Results

Two hundred consecutive patients, including 169 women (84.5%) and 31 men (15.5%), were included in the study. The mean age was 55.7 years (range 20 - 95 years). One hundred and forty-seven patients (74%) were employed, and 97 patients (48%) were married. The mean body mass index (BMI) was 28.91 kg/m^2 (range 16.63 - 56.46 kg/m^2). Sixty-three patients (32%) were overweight (BMI between 25 and 30 kg/m^2) and 77 patients (38.5%) were obese (BMI over 30

kg/m^2). Hypertension was present in 86 patients (43%) and diabetes in 34 patients (17%).

The highest mean normalized AMIQUAL score was observed in the social support dimension (83.6 ± 12.6, range 0 - 100), while the lowest score was observed in the physical activities dimension (42.2 ± 20.4, range 4 - 99.4) (Table 1).

Table 1. Normalized scores for AMIQUAL quality of life dimensions.

Dimension	Mean	Standard Deviation	Minimum	Maximum
Physical Activities	42.2	20.4	4	99.4
Mental Health	57.1	12.7	32	100
Pain	46.2	23	0	100
Social Support	83.6	12.6	0	100
Social Activities	68.4	15.5	20	100

Interpretation:

- 0 - 25: Very severe impairment
- 25 - 50: Severe impairment
- 50 - 75: Moderate impairment
- Above 75: Minimal impairment

Distribution of Patients Based on AMIQUAL Normalized Scores

Ninety-eight patients (49%) had a normalized score between 25 and 50 for physical activities, and 75 patients (38%) had a score between 50 and 75 for pain. For mental health, 128 patients (64%) scored between 50 and 75. For social activities, 90 patients (45%) scored between 50 and 75, and 170 patients (85%) had a normalized score above 75 for social support.

Association between Studied Parameters and Quality of Life

Age was significantly associated with pain, social activities and occupational activities. Gender was significantly associated with physical activities ($p < 0.001$) and professional activities ($p = 0.038$), but no significant association was observed with other dimensions and independent QOL items.

Marital status was significantly associated with social activities and social support. Patients in a relationship had higher QoL scores than those who were single.

Occupation was significantly associated with pain ($p = 0.026$) and social activities ($p = 0.010$). Patients who were unemployed had a lower quality of life score compared to patients who were employed.

Patients with higher education had better quality of life scores in almost all dimensions except for pain and social activities. The differences were statistically significant for social activities and occupational activities.

No significant association was found between BMI and patients' quality of life.

Comorbidities were significantly associated with physical activities, pain and occupational activities. Patients without comorbidities had higher overall scores.

Detailed results are shown in Table 2.

Table 2. Association between parameters and quality of life of participants.

Parameter	Physical Activities	Mental Health	Pain	Social Support	Social Activities	Professional Activities	Couple Relations	Sexuality
Age	NS°	NS°	0.004	NS°	0.028	<0.001	NS°	NS°
Gender	<0.001	NS°	NS°	NS°	NS°	0.038	NS°	NS°
Profession	NS°	NS°	0.026	NS°	0.010	<0.001	NS°	NS°
Marital Status	0.12	0.46	0.54	0.007	0.013	0.51	NC	NC
Education Level	0.052	0.117	0.357	0.429	0.019	0.023	0.538	0.207
Obesity	0.178	0.532	0.321	0.625	0.224	0.163	0.062	0.332
Comorbidities	0.012	0.71	<0.001	0.41	0.26	<0.001	0.45	0.85

NS°: Not significant; NC: Not concerned.

4. Discussion

Using the AMIQUAL questionnaire, we were able to assess quality of life in our cohort of 200 patients with knee osteoarthritis. Quality of life was severely impaired in the physical activities and pain dimensions, moderately impaired in the mental health, social activities and independent items, and minimally impaired in the social support dimension.

A significant association was observed between quality of life and parameters such as age, gender, occupation and comorbidities. However, there was no statistically significant association between BMI and QoL.

The marked predominance of women in our study (84%) is consistent with findings from the African and global literature on knee osteoarthritis [12]-[14]. The increased prevalence in women may be due to hormonal changes during menopause.

In our study, gender was significantly associated with physical and occupational activities, with women having a lower quality of life than men. This finding is consistent with the work of Mahmoud *et al.*, who found that gender was significantly associated with all dimensions of quality of life [15]. However, studies by Ouédraogo *et al.* in Burkina Faso and Kawano *et al.* in Brazil reported no statistically significant differences in QOL between men and women in the domains assessed by the SF-36 [14] [16].

The mean age of our participants was 55.7 years, which is like other studies [15] but lower than those reported in France and Brazil (66 and 61 years, respectively) [11] [14]. These findings suggest that the population studied was diagnosed before the age of 60. Early onset directly affects productivity and ability to work.

In our participants, age was significantly associated with pain, social activities and occupational activities. Older patients had more pronounced impairments in their quality of life, leading to greater levels of inactivity. Similar findings were reported by Mahmoud *et al.* in Egypt, who found that age was significantly associated with all QOL dimensions [15]. However, Kawano *et al.* in Brazil found no

significant association between age and QOL domains in their study [14].

Employment was significantly associated with pain ($p = 0.026$), social activities ($p = 0.010$) and occupational activities ($p < 0.001$). Patients who were unemployed had lower quality of life scores compared to those who were employed. This highlights the potential role of employment in improving quality of life in patients with knee osteoarthritis.

No significant association was found between BMI and QoL in our participants. This observation is consistent with the findings of Mahmoud *et al.* in Egypt [15]. On the other hand, Onigbinde *et al.* reported that BMI was a significant predictor of the level of functional activity in patients with knee osteoarthritis [17].

The mean score of 57.1 for the mental health dimension indicates a moderate impairment of quality of life in our patients. This score is comparable to findings from Burkina Faso by Ouédraogo *et al* and from Egypt by Mahmoud *et al.* [15] [16]. Despite the lower mental health scores, our results show a better quality of life in this dimension compared to studies conducted in Western countries, such as Rat in France and Helga in Hungary. This discrepancy may be due to a better acceptance of the disease in our study population [11] [18].

In our study, there was a significant association between comorbidities and quality of life in the dimensions of physical activity, pain, and occupational activity. These findings are consistent with the literature, particularly the work of Mahmoud *et al.* in Egypt, who reported that hypertension was a predictor of worse physical activity and pain scores [15]. Similarly, Tekaya *et al.* in Egypt found that the coexistence of knee osteoarthritis and comorbidities was associated with more severe pain [19].

In the social support dimension, a mean score of 83.6 indicates minimal impairment of quality of life in our patients. This score is higher than those reported in other countries, including Burkina Faso, Egypt, France and Hungary. This finding suggests that knee osteoarthritis has a limited impact on social support.

In the social activities dimension, patients in our study showed moderate impairment in quality of life, with a mean score of 68.4. This result is better than those reported in studies conducted in Egypt by Mahmoud *et al.*, in France by Rat *et al.*, in Hungary by Ben Tekaya *et al.*, and in Iran by Saffari *et al.* [11] [15] [19] [20].

When compared with other African studies, our results are generally less favourable than those from Burkina Faso and Egypt. The exception is the dimensions of social support and social activities in Egypt [15] [16].

Limitations and biases of our study

Our study had several limitations:

The AMIQUAL questionnaire was not adapted to the socio-cultural context of Africa. Unlike European and Asian populations, where validation studies have been conducted, this tool has not been validated for sub-Saharan African populations, making its application and comparison with existing literature challenging.

The AMIQUAL questionnaire is self-administered. Due to the high illiteracy

rate in our study population, the questionnaire had to be administered by interviewers. This may have influenced the responses.

Uncertainty about participants' truthfulness.

5. Conclusion

Impairment of quality of life is a common feature of knee osteoarthritis, regardless of the psychometric tool used. This impairment varies between cultures and depends on the adaptation of the measuring tool and the region studied. Our results were better than those reported in some Western studies (France, Iran and Hungary). A significant association was found between quality of life and factors such as age, sex, occupation, marital status, education level and comorbidities. However, our study did not show a statistically significant association between BMI and QoL in our participants. It is important to adapt and validate the AMIQUAL questionnaire for the African context, particularly in Togo, and to conduct studies with larger sample sizes in order to generalise these findings.

Conflicts of Interest

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

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