Health-Related Quality of Life of patients with lumbar spondylosis with associated socio-economic and clinical factors in Kwara State

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Abstract

Background: Lumbar spondylosis, a degenerative condition affecting the lumbar vertebrae, is of a significant public health concern due to its impact on patients' quality of life. This study investigated the health-related quality of life (HRQOL) in patients with lumbar spondylosis and identified factors influencing it.
Methodology: It was a hospital based cross sessional study that employed the use of consecutive sampling technique which was conducted at two tertiary health facilities in Kwara State, Nigeria. The study comprised 176 patients diagnosed with lumbar spondylosis. Data were collected using a structured pro forma questionnaire designed by the authors and the 12-Item Short Form Health Survey (SF-12) questionnaire, covering physical and mental health components. Data were analyzed using SPSS, with the level of significance set at 0.05.
Result: The results revealed that patients with lumbar spondylosis experienced substantial impairments in HRQOL, particularly in physical functioning and general health perception. Older age, divorced or widowed, and prolonged duration of back pain were significantly associated with lower scores in the physical domain.
Conclusion: The study highlighted the importance of multidisciplinary approaches, such as pain management and social support, in the management of lumbar spondylosis. .

Qualité de vie liée à la santé des patients atteints de spondylose lombaire avec facteurs socio-économiques et cliniques associés dans l'État de Kwara

Résumé
Contexte de l'étude : La spondylose lombaire, une maladie dégénérative qui touche les vertèbres lombaires, constitue un problème de santé publique majeur en raison de son impact sur la qualité de vie des patients. Cette étude a examiné la qualité de vie liée à la santé (QVLS) chez les patients atteints de spondylose lombaire et a identifié les facteurs qui l'influencent.
Méthode de l'étude : Il s'agissait d'une étude intersessions en milieu hospitalier qui a utilisé la technique d'échantillonnage consécutif et qui a été menée dans deux établissements de santé tertiaires de l'État de Kwara, au Nigéria. L'étude comprenait 176 patients diagnostiqués avec une spondylose lombaire. Les données ont été collectées à l'aide d'un questionnaire pro forma structuré conçu par les auteurs et du questionnaire SF-12 (Short Form Health Survey) en 12 points, couvrant les composantes de santé physique et mentale. Les données ont été analysées à l'aide de SPSS, avec un niveau de signification fixé à 0,05.
Résultats de l'étude : Les résultats ont révélé que les patients atteints de spondylose lombaire présentaient des altérations importantes de la qualité de vie liée à la santé, notamment en ce qui concerne le fonctionnement physique et la perception générale de la santé. L'âge avancé, le divorce ou le veuvage et la durée prolongée des douleurs dorsales étaient significativement associés à des scores plus faibles dans le domaine physique.
Conclusion : L'étude a souligné l'importance des approches multidisciplinaires, telles que la gestion de la douleur et le soutien social, dans la prise en charge de la spondylose lombaire.
Mots-clés : Spondylose lombaire, qualité de vie liée à la santé (QVLS), lombalgie chronique, fonctionnement physique.

INTRODUCTION

Lumbar spondylosis is described as a degenerative disease that affects lumbar vertebra bones. Studies have shown that this condition affects millions of people worldwide, however, its prevalence varies across the globe ranging from 3% to 30% in different populations and regions (1). The main problem in lumbar spondylosis is basically the wear and tear of the lumbar vertebrae, leading to disc degeneration, facet joint osteoarthritis, and ligamentum flavum hypertrophy (2). The affected patients usually present with chronic low back pain, stiffness, and limited mobility and these significantly affected daily activities and overall well-being (3). It is a significant public health concern due to its high prevalence, impact on daily functioning, and economic burden.

Health-related quality of life (HRQOL) is a crucial outcome measure in patients with lumbar spondylosis, as it encompasses physical, mental, and social aspects of well-being. Understanding the HRQOL of patients with lumbar spondylosis is essential to develop effective treatment strategies and improve patient outcomes. In patients with lumbar spondylosis, HRQOL is significantly impaired due to chronic pain, limited mobility, and emotional distress (4). The condition can also lead to anxiety, depression, and sleep disturbances, further affecting HRQOL (5).

Factors that are associated with low HRQOL among patients with lumbar spondylosis are age, gender, marital status, level of education, pain severity, duration of back pain, and presence of anxiety and depression (6). Understanding the impact of these factors on HRQOL is crucial to develop targeted interventions and improve patients' outcomes. Older patients experience more severe physical impairment and hence will present with reduced HRQOL (7). It has also been reported that women experience worse HRQOL when compared with men who also have lumbar spondylosis (8). Studies also reported that marriage is a favourable factor when it comes to HRQOL. Married patients have better HRQOL due to social support available to them (9).

The severity of pain significantly affect the HRQOL as patients with more severe pain report lower HRQOL (10). Similarly, duration of the pain is inversely related to the HRQOL, hence patients with chronic pain report poorer HRQOL than those with shorter duration (11). Presence of co-occurring anxiety and depressive disorders also reduce individual quality of life which shows lumbar spondylosis comorbid with psychiatric disorders negatively affect individuals HRQOL (5).

This study's main aim was to investigate the HRQOL of patients with lumbar spondylosis and to determine factors that were associated with it. It explored the relationship between the socio-demographic variables such as age, gender, marital status, level of education of the respondents and HRQOL. It also looked into the effects of clinical parameters such as the pain severity, duration of back pain on the respondents' HRQOL.

MATERIALS AND METHODS

Study Location

This study was conducted at both the Orthopaedic outpatient clinics of the University of Ilorin Teaching Hospital, Kwara State, and the Orthopaedic outpatient clinic of the Kwara State University Teaching Hospital, Ilorin, Kwara state. These are two tertiary health facilities that offers orthopaedic services in the state.

Study Design

The study was a hospital-based descriptive cross-sectional study that used questionnaires to extract information from the respondents.

Study Population: All patients attending both orthopedic clinics in the two teaching hospitals with a clinical diagnosis of Lumbar Spondylosis constituted the study population.

Sample size: The study employed the method of consecutive sampling technique where all consenting patients that met the inclusion criteria were recruited. Respondents were recruited from the orthopaedic clinic of the two institution. Trained research assistants helped in the administration and collection of the questionnaire, and the period of data collection lasted for six months. A total of one hundred and seventy-six (176) respondents that met the inclusion criteria were recruited into the study which consisted of one hundred and eight (108) respondents from the Kwara State University Teaching Hospital and sixty-eight (68) respondents from the University of Ilorin Teaching Hospital, Ilorin.

Instruments

1. Pro forma questionnaire. The authors designed this questionnaire to assess the socio-demographic variables and relevant clinical parameters of the respondents.
2. The 12-Item Short Form Health Survey (SF-12) is a shorter version of SF-36,

which is used for the measurement of quality of life. Just like SF-36, SF-12 is found to be very sensitive and reliable in detecting both physical and mental components but less cumbersome and faster to use and could be administered in two minutes. It comprises eight domains which are: limitation of physical activities, limitation of social activities, limitation of usual role activities as a result of physical problems, presence of pain, general mental health, vitality, difficulties in role activities due to psychological problems, and vitality (12). The SF-12 generates two summary scores, **Physical Component Summary (PCS)** which reflects physical health and m**ental Component Summary (MCS)** that reflects mental health. The scoring for the SF-12 is done using an online calculator to determine if it is positive of not. The instrument has been validated and used extensively in Nigeria (13).

The patients' case notes attending the clinics were reviewed, and those with diagnosis of lumbar spondylosis based on clinical and radiological findings were approached for their consent to participate in the study. The confidentiality was maintained by not including the names or other identifying parameters on the questionnaires. Those who gave their informed consent were given questionnaires, which they filled out and returned to the research assistants, who were resident doctors in psychiatry and medical social workers who had earlier been trained on the use of the instrument by a consultant psychiatrist who has adequate knowledge on the use of SF-12. The research assistants also helped in the administration of the instruments to respondents who were not educated or could not fill out the questionnaires themselves.

Inclusion and exclusion criteria

Individuals aged 40 years and above with clinical and radiological diagnosis of lumbar Spondylosis. While the patients with previous history of psychiatric illness prior to the onset of back pain were excluded from the study.

Ethical Issue

Approval for the study was sought and obtained from the Ethical Review Committee (ERC) of the University of Ilorin Teaching Hospital, Ilorin (ERCPAN/04/0979). Permission was also obtained from Kwara State Ministry of Health which regulates the activities of Kwara State University Teaching Hospital to conduct the research at institution after reviewing the ethical clearance by the UITH. Informed consent of each respondent was also sought, and only those who gave their consent, after the procedure had been adequately explained to them, were recruited into this study.

Limitations of the study

Limitations of the study include the cross-sectional design, which precludes causal inferences, and the relatively small sample size. Future studies should aim to recruit larger and more diverse samples and use longitudinal designs to examine the temporal relationships between lumbar spondylosis and HRQOL.

RESULTS

The study on the health related quality of life (HRQOL) of patients with lumbar spondylosis attending orthopaedic clinics of both University of Ilorin Teaching Hospital and Kwara State University Teaching Hospital, Ilorin was done with use of questionnaire and data collected over the period of 6 months.

A total of one hundred and seventy-six patients (176) who met the clinical and radiological diagnosis of lumbar spondylosis and gave their informed consent to participate in the study were recruited from the two institutions. Their ages ranged between 40 and 80 years. Respondents in the age group of 40 to 49 years made up the majority constituting 53.9%. The mean age was 51 year and SD was ±7.8. There were more female (54.5%) than male (45.5%) respondents. Majority of the respondents were married (68.8%), 17.0% were either divorced or widowed, others were never married. Muslim represented 65.3% of the respondents while others were Christian. The result also revealed that almost half of the respondents had up to tertiary education, 27.3% were schooled to only secondary school level and 15.3% had only primary level education (Table 1). About two-third of the study population were engaged in one form of work or the other. Among these, about 54% were traders or self-employed, 34% were government workers, others were retirees. The duration of back pain revealed that those with pain of less than a year was 41.5% of the population, between a year and two years were 20% and those above 3 years were 24.4%.

When describing their general health related quality of life (HRQOL), only 7.4% believed that they had an excellent health and 30% felt their overall quality of life was good while others rated their overall quality of lives to

either be fair or poor. The HRQOL is divided into the Physical Component Summary (PCS), which assesses the physical health aspects of quality of life, and the Mental Component Summary (MCS), which assesses the mental health aspects of quality of life. For physical health, a cut-off point is 50% and any respondents who score above 50% enjoy a better physical health related quality of life, while those who score below 50% have a poorer quality of life on the tested component. However, for mental component summary, the cut-off point is 42%, which implies that any respondents that scored 42% and above enjoy better mental health HRQOL. In this study, 92% of the respondents scored below 50% on PCS while only 8% scored 50% and above. Meanwhile only 37.5% scored below 42% on the mental health component (MCS) while others scored 42% and above (Table 2).

Further analysis of the data showed that older age, being divorced or widowed, and back pain lasting more than a year were significantly associated with poor Physical Component Summary (PCS) scores on the SF-12 (p-value < 0.05). Respondents older than 60 years reported poorer health-related quality of life (HRQOL) on the physical component. Similarly, the divorced or widowed group reported worse HRQOL than the married group. Additionally, respondents with back pain lasting more than a year had poorer HRQOL on physical scores compared to others. None of the socio-demographic and clinical variables were associated with mental component of HRQOL (Tables 3 and 4).

DISCUSSION

The findings of this study provide valuable insights into the health-related quality of life (HRQOL) of patients with lumbar spondylosis. The results indicate that patients with lumbar spondylosis experience significant impairments in their HRQOL, particularly in the physical and functional domains. The physical component summary (PCS) score was significantly lower in patients with lumbar spondylosis compared to the general population, indicating reduced physical functioning, persistent body pain, are associated with perceived poor physical health by the patients with lumbar spondylosis. This is consistent with previous studies that have reported decreased physical functioning and increased pain levels among patients with lumbar spondylosis (14). Affectation of physical component highlighted the impact of lumbar spondylosis on daily activities and social participation by the patients because do have difficulties performing seemingly simple tasks such as walking, bending, and lifting, which are essential for daily living (15).

We observed a relationship between older age and reduced HRQOL in our study. Respondents who were older than 60 years experienced significantly lower HRQOL scores in the physical component summary (PCS). This is consistent with studies by Gibbons et al. and Sakai et al that have reported decreased physical functioning and increased pain levels with advancing age among patients with lumbar spondylosis in Ireland and Japan respectively (16, 17). The decline in physical functioning with age may be attributed to the natural aging process, which can lead to decreased muscle mass, bone density, and flexibility.

We also found in this study that respondents who were widowed, divorced or separated experienced significantly lower HRQOL scores in the PCS when compared to married and single respondents. This is consistent with previous study that reported that being in harmonious marriage has beneficial effects on physical health outcomes of patients generally (18). It has been reported that marriage can provide emotional support, practical help, and a sense of security, which can mitigate the negative effects of lumbar spondylosis on HRQOL (19).

The only clinical parameter that was found to be associated with HRQOL in our study was the duration of the back pain. Patients with a longer duration of back pain experienced significantly lower HRQOL scores in the PCS. This is consistent with previous research that has reported a negative impact of chronic back pain on HRQOL (20). The prolonged nature of back pain can lead to decreased physical functioning, increased pain sensitivity, and emotional exhaustion, ultimately affecting HRQOL.

The mental component summary (MCS) score was also lower in patients with lumbar spondylosis, indicating decreased mental health, vitality, and social functioning. More than one-third of the respondents reported below average mental wellness. This is in line with previous research that has shown that chronic low back pain, including lumbar spondylosis, can lead to depression, anxiety, and reduced social participation (21). However, none of the socio-demographic variables and clinical parameter was found to be significantly associated with this.

The significant impairments in HRQOL experienced by patients with lumbar spondylosis highlight the need for comprehensive and

multidisciplinary management approaches that address not only the physical but also the mental and social aspects of the condition. This may include pain management, physical therapy, and psychological interventions, as well as social support and vocational rehabilitation (22).

Furthermore, the results of this study emphasized the importance of patient-reported outcomes in the assessment and management of lumbar spondylosis. The SF-12 questionnaire used in this study to assess HRQOL can be used to monitor changes in patients' symptoms and functional abilities over time.

CONCLUSION

In conclusion, this study provides valuable insights into the HRQOL of patients with lumbar spondylosis. The findings highlight the significant impairments in physical and mental functioning experienced by patients with this condition and emphasize the need for comprehensive and multidisciplinary management approaches that address the physical, mental, and social aspects of lumbar spondylosis.

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Conflict of interest: None of the authors declared any conflict of interest.

Authors contribution: Sulyman D carried out the conceptualization of the study, study design, data collection, data analysis and manuscript writing. Kuranga AT was involved in conceptualization of the study, study design and data analysis, manuscript writing. Mahmud YM did the study design, data collection, data analysis and manuscript writing. Awodun M did the study design, data collection, data analysis and manuscript writing. Kadir D and Ademola M contributed to the data analysis, manuscript writing, review and editing of manuscript.

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Table 1: Socio-demographic variables of respondents with lumbar spondylosis

Variables	Frequency (%)
Age in years	
41 – 50	95 (53.9)
51 – 60	36 (20.5)
> 60	45 (25.6)
Mean ± SD	51 ± 7.88
Range	40 – 90
Gender	
Male	80 (45.5)
Female	96 (54.5)
Marital Status	
Single	25 (14.2)
Married	121 (68.8)
Widowed/Separated/Divorced	30 (17.0)
Religion	
Christianity	61 (34.7)
Islam	115 (65.3)
Employment status	
Employed	132 (75.0)
Unemployed	44 (25.0)
Level of education	
None	19 (10.8)
Primary	27 (15.3)
Secondary	48 (27.3)
Tertiary	82 (46.6)
Support from family	
Yes	158 (89.8)
No	18 (10.2)

Table 2: General health survey of respondents with lumbar spondylosis

Variables	Frequency (%)
Excellent	13 (7.4)
Very good	43 (24.4)
Good	58 (33.0)
Fair	59 (33.5)
Poor	3 (1.7)
PCS	
< 50%	162 (92.0)
= 50%	14 (8.0)
MCS	
< 42%	66 (37.5)
= 42%	110 (62.5)

PCS= Physical Component Summary;
MCS= Mental Component Summary

Table 3: Association between PCS and socio-demographic and clinical variables

Variables	PCS		÷²/t-test	p-value
	< 50 (%)	**= 50 (%)**		
***Age in years**				
41 – 50	89 (93.7)	6 (6.3)		
51 – 60	35 (97.2)	1 (2.8)	7.181	**0.027**
> 60	37 (82.2)	8 (17.8)		
Gender				
Male	74 (92.5)	6 (7.5)	0.041	0.839
Female	88 (91.7)	8 (8.3)		
***Marital Status**				
Single	24 (96.0)	1 (4.0)		
Married	115 (95.0)	6 (5.0)	11.7077	**0.002**
Widowed/Separated/Divorced	23 (76.7)	7 (23.3)		
***Employment status**				
Employed	119 (90.2)	13 (9.8)	3.250	0.124
Unemployed	43 (97.7)	1 (2.3)		
***Level of education**				
None	16 (84.2)	3 (15.8)		
Primary	22 (81.5)	5 (18.5)	7.006	0.052
Secondary	46 (95.8)	2 (4.2)		
Tertiary	76 (95.0)	4 (5.0)		
***Duration of back pain (months)**				
= 12	73 (100.0)	0 (0.0)		
13 – 24	28 (80.0)	7 (20.0)	15.563	**0.001**
25 – 36	22 (88.0)	3 (12.0)		
> 36	39 (90.7)	4 (9.3)		

*Fischer's exact test statistics was used for data with any cell with less than 5

Table 4: Association between MCS and socio-demographic and clinical variables

Variables	MCS		÷²	p-value
	< 42 (%)	**= 42 (%)**		
Age				
= 30	4 (25.0)	12 (75.0)		
31 – 40	8 (34.8)	15 (65.2)		
41 – 50	21 (37.5)	35 (62.5)	2.577	0.639
51 – 60	17 (47.2)	19 (52.8)		
> 60	16 (35.6)	29 (64.4)		
Gender				
Male	28 (35.0)	52 (65.0)	0.391	0.639
Female	38 (39.6)	58 (60.4)		
Marital Status				
Single	5 (20.0)	20 (80.0)		
Married	47 (38.8)	74 (61.2)	4.435	0.110
Widowed/Separated/Divorced	14 (46.7)	16 (53.3)		
Employment status				
Employed	48 (36.4)	84 (63.6)	0.291	0.590
Unemployed	18 (40.9)	26 (59.1)		
Level of education				
None	6 (31.6)	13 (68.4)		
Primary	8 (29.6)	19 (70.4)	1.767	0.631
Secondary	21 (43.8)	27 (56.3)		
Tertiary	29 (36.3)	51 (63.7)		
Duration of back pain (months)				
= 12	23 (31.5)	50 (68.5)		
13 – 24	12 (34.3)	23 (65.7)	3.865	0.281
25 – 36	13 (52.0)	12 (48.0)		
> 36	18 (41.9)	25 (58.1)		