

**Evaluating Quality of Life in Patients with Diabetes and Chronic Low Back Pain: A Cross-Sectional Study****Pradeep Kumar Pathak<sup>1</sup>, Vinay Kumar Oddam<sup>2</sup>, Jeetandra Kumar Sharma<sup>3</sup>, Rahul Mishra<sup>4</sup>, Rajesh Tembhornikar<sup>5</sup>, Bhavna Chopra<sup>6</sup>**<sup>1</sup>Assistant Professor, Department of Orthopaedics, Birsa Munda Government Medical College, Shahdol, Madhya Pradesh, India<sup>2</sup>Assistant Professor, Department of Orthopaedics, Birsa Munda Government Medical College, Shahdol, Madhya Pradesh, India<sup>3</sup>Assistant Professor, Department of Medicine, Birsa Munda Government Medical College, Shahdol, Madhya Pradesh, India<sup>4</sup>Associate Professor, Department of Psychiatry, Birsa Munda Government Medical College, Shahdol, Madhya Pradesh, India<sup>5</sup>Professor and Head, Department of Orthopaedics, Birsa Munda Government Medical College, Shahdol, Madhya Pradesh, India<sup>6</sup>PGMO SNCU/PICU, KushaBhau Thakrey District Hospital, Shahdol, Madhya Pradesh, India

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**Abstract:****Introduction:** Low back pain with radicular symptoms is a prevalent musculoskeletal condition and a leading cause of disability. Radicular back pain involves multiple nerve roots, leading to pain and potential loss of sensation and motor function. Quality of life (QOL) is a crucial patient-centered measure assessing the impact of health conditions and treatment effects. Low back pain affects QOL and work performance. This study aimed to evaluate QOL in diabetic patients with low back pain and radiculopathy.**Methods:** A descriptive-analytical study was conducted at a Birsa Munda medical college in India involving 234 patients with low back pain and healthy individuals. The SF-36 questionnaire, assessing QOL across eight dimensions on a 0–100 scale and generating physical (PCS) and mental (MCS) component summary scores, was utilized. Higher PCS and MCS scores denote better QOL.**Results:** Among 234 patients, SF-36 assessments revealed significantly lower mean PCS and MCS scores in low back pain diabetic patients compared to the normative population, indicating poorer QOL.**Conclusion:** Diabetic patients with low back pain and radiculopathy exhibit compromised QOL compared to the general population, necessitating prompt intervention, patient education, and rehabilitation to address this aspect of their well-being, which remains underexplored.**Keywords:** Diabetes, Quality of Life, Low Back Pain, Radiculopathy.

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**Introduction**

Recurrent low back pain accompanied by radiculopathy presents a considerable socioeconomic burden. Globally, the annual incidence of low back pain in adults is estimated at approximately 15%, with a point prevalence of around 30%. In India, the prevalence of low back pain is notably high, affecting roughly 60% of the population at some stage of their lives and impacting up to 23% of the Indian population [1-3].

The quality of life (QOL) of diabetic patients experiencing low back pain with radiculopathy is influenced by both subjective evaluations of their condition and objective health indicators. The efficacy of therapeutic interventions also plays a

crucial role in this aspect of QOL [4-7]. Despite advancements in medical research, there remains no universally accepted optimal strategy for managing low back pain with radiculopathy. Various treatment modalities, including medication, physical interventions, and kinesiotherapy, are employed, yet there is no definitive evidence favouring conservative approaches over surgical interventions [8-14].

Assessing the outcome of treatment for patients with low back pain and radiculopathy involves measuring factors such as symptoms, functional ability, overall well-being, work capacity, and treatment satisfaction. To achieve this, standardized methods

for evaluating QOL are utilized. QOL is a crucial consideration in managing low back pain in diabetic patients with radiculopathy, as the condition can significantly impact their QOL over time. The SF-36 instrument has traditionally been widely used to assess QOL in low back pain cases [15-17]. However, data concerning the QOL of low back pain patients with radiculopathy in India are limited. This study aims to assess the QOL among diabetic patients experiencing low back pain with radiculopathy and explore its impact on their overall QOL

### Materials and Methods

The study was conducted at Birsa Munda Government Medical College and Hospital on OPD and IPD patients by Departments of Medicine, Orthopedics and Psychiatry collectively. The study included diabetic patients with chronic low back pain (CLBP) and radiculopathy attending the physiotherapy department. The inclusion criteria for this study comprised diabetic patients falling within the age range of over 18 years and less than 70 years, exhibiting CLBP along with radiculopathy, with a Pain DETECT score exceeding 18 and a LANSS score of over 12.

Exclusion criteria included individuals with a history of drug abuse, pregnant women, and those diagnosed with severe coexisting conditions such as liver failure, severe hypertension, convulsions, kidney dysfunction, and heart dysfunction. These criteria were established to ensure a focused and specific patient population for the research study.

All patients were clinically assessed, screened, and informed about the study. Informed consent was obtained, and demographic data were recorded.

Neuropathic pain was evaluated using the Pain DETECT and LANSS scores. SF-36 scores were used to assess QOL during the initial OPD visit. Patients were required to have low back pain with a radicular component, characterized by pain radiating from the back and hip into the legs, possibly accompanied by numbness, tingling, and muscle weakness. The Pain DETECT score (>18) was used to confirm the radicular component, along with the LANSS score (>12) to support the diagnosis of radicular low back pain. The SF-36 questionnaire was administered to assess QOL. Scores were calculated on a scale of 0 (worst health) to 100 (best health) for eight domains, with physical and mental component summary scores (PCS and MCS) derived. Data were analyzed using Epi Info software.

### Results

During the initial outpatient department (OPD) visit, 278 patients were analyzed, of which 234 patients provided informed consent and were included in the study. The average age of the participants was 48.3 years, ranging from 18 to 70 years. Among them, 61.11% were male patients and 38.89% were female patients. Additional general characteristics of the patients are presented in Table 1.

Table 2 displays the average values of the SF-36, PCS and MCS scores obtained at the beginning of the study, along with normative data.

The mean Physical Component Score, as assessed by the SF-36 questionnaire, was significantly lower in the patient group compared to the normative population. Similarly, the mean Mental Component Score was also statistically lower in the patient group.

**Table 1: General variables of study participants**

Characteristics of Patients	n	%
Age in years; Mean $\pm$ SD	48.3 $\pm$ 12.72	
Gender		
Males	143	61.11
Females	91	38.89
Education		
None	19	8.12
Up to 12th Standard	107	45.73
Undergraduate	94	40.17
Postgraduate	14	5.98
Marital Status		
Married	192	82.05
Unmarried	42	17.95
Divorced	0	0.00
Predominant Problem		
Tingling + Numbness in Legs	63	26.92
Weakness + Pain in Legs	75	32.05
Pain in Legs	96	41.03

**Table 2: SF-36 in diabetic patients with CLBP and radiculopathy and normal individuals**

SF-36 Component	Diabetes and CLBP with Radiculopathy	Normal Individuals	P-value
Physical Functioning	60.21	89.34	<0.05
Role-Physical	40.75	92.11	<0.05
Bodily Pain	50.42	85.19	<0.05
General Health Perception	45.87	80.68	<0.05
Energy/Vitality	54.93	78.07	<0.05
Social Functioning	55.67	87.42	<0.05
Role-Emotional	55.92	80.14	<0.05
Mental Health	75.26	95.08	<0.05
PCS (Physical Component Score)	30.14	50.39	<0.05
MCS (Mental Component Score)	31.33	45.72	<0.05

## Discussion

When CLBP accompanied by radiculopathy, several critical questions arise. On one hand, there are epidemiological, psychosocial, and economic dimensions to consider; on the other hand, the nature of the illness and the effectiveness of treatments also have a significant impact. The estimated annual global incidence of LBP in adults is approximately 15%, with a point prevalence of around 30%.

According to Papageorgiou et al. [18], at least half of all individuals will experience some degree of low back discomfort during their lifetime. Approximately 20-30% of these individuals will experience persistent problems for 1-2 years, with a surgery requirement rate of about 10%. There is no consensus on whether surgical or medical treatment is superior, and there is no universally accepted standardized treatment for low back pain with radiculopathy. Studies examining the QOL of diabetic patients with low back pain and radiculopathy in India are still rare. Hence, it is crucial to investigate the QOL among patients with low back pain and radiculopathy.

In our study, we observed that the mean SF-36 scores among diabetic patients with CLBP and radiculopathy were lower than those of normative individuals. Similar findings were reported in a study by Singh et al. [19], where they found that various domains of the SF-36 were affected. However, a study conducted by Ahdhi et al. [20] on Indian women did not show any deterioration in QOL, although this study did not specifically address radicular pain.

Our study found that both the PCS and MCS were lower compared to normative individuals. This aligns with the findings of Boskovic et al. [21], who noted that the physical component was significantly below normative data, although the mental component score was not statistically lower. Haladaj et al. [22] also reported a statistically lower QOL index in their study participants. Several other studies have also demonstrated lower QOL in low back pain patients compared to the general population. A significant finding in our study was

that not only was the physical component lower, but the mental component score was also significantly lower among affected patients. Strength of our study was the comprehensive assessment of both the PCS and MCS, providing insights into both the physical and mental aspects of diabetic patients with low back pain and radiculopathy. However, our study had limitations, including being conducted at a single center and the lack of follow-up assessments for PCS and MCS. Future research with longer study durations and evaluations of follow-up patients' PCS and MCS could provide further insights into this area.

## Conclusion

QOL in diabetic patients experiencing CLBP with radiculopathy showed significant impairment in both the physical and mental components when compared to individuals in the normative population. This underscores the critical need for early intervention and education among patients regarding the profound impact of CLBP on their overall health. Initiating rehabilitative measures early in the treatment process becomes imperative to address the lower QOL observed in these patients. Moreover, as treatment options for radicular pain continue to evolve, effective management strategies are essential to mitigate the detrimental effects on both mental and physical well-being.

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