



# CLINICO EPIDEMIOLOGY OF SPONDYLOLISTHESIS IN TERTIARY CARE CENTER

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## ABSTRACT

**Introduction:** Spondylolisthesis is defined as the anterior migration, or slip, of one vertebra in relation to the next caudad vertebra.

**Aim:** To assess the clinico epidemiological of spondylolisthesis in patients of chronic low back pain.

**Methods:** This was a cross sectional study, conducted on patients of chronic low back pain (CLBP) presented and evaluated with relevant radiological investigation in neurosurgery clinics in Rajasthan.

**Results:** 31.91%) patients belong to age group of 46-55 years, 68.09% were female and 68.09% had moderate work, spondylolisthesis 63.83% was seen on L4 – L5 level whereas minimum 4.26% on L3 – L4 level, 82.98% was antero and grade 1 spondylolisthesis.

**Conclusion:** Spondylolisthesis was prevalent in L4-L5. It is essential to develop research based findings about the lumbar spondylolisthesis.

**Keywords:** spondylolisthesis, lumbar spine, Low back pain

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## Introduction:

First described by Herbineaux in the late 18th century, lumbar spondylolisthesis remains a significant source of back pain and disability.<sup>1</sup> The lumbar spine, or low back, is a remarkably well-engineered structure. Spondylolisthesis is defined as the anterior migration, or slip, of one vertebra in relation to the next caudad vertebra.<sup>2</sup> Spondylolisthesis is considered to have two main etiologies, spondylolytic and

degenerative. The managements of spondylolisthesis were depended on the physical symptoms and the severity of the vertebral slips. Grade-I and grade-II can be managed under conservative management, whether other grades were needed for surgical and post operative physiotherapy management.<sup>3</sup>

Lumbar spondylolisthesis is significant source of back pain and disability, along with other



morphological abnormalities of lumbar spine. Few studies were administered in this respect, and there is possibility to do studies in developing countries like India, which has different life style.<sup>4</sup> Addressing Indian perspective; there is very limited literature available regarding frequency of spondylolisthesis and its associated factors and other disorders, related to very common and disabling symptom of CLBP, in general population. In India no such study has been reported yet. For this reason, this study aimed at analyzing the clinico epidemiological profile of spondylolisthesis in patients with CLBP.

**Aim:** To assess the clinico-epidemiological spondylolisthesis in patients of chronic low back pain.

**Methods:** This was a cross sectional study, conducted on patients of chronic low back pain (CLBP) presented and evaluated with relevant radiological investigation in neurosurgery clinics in Rajasthan. Study will be done after getting permission from the institutional review board and the ethical committee of Pacific Institute of Medical Sciences, Umarda, Udaipur. All patients

of chronic low back pain reported to the neurosurgery clinic in study duration were included in the study, considering the exclusion criteria. Socio-demographic data will be taken by filling the structured study proforma and patients were evaluated clinically and radiologically by clinicians. Spondylolisthesis is defined as anterior or posterior migration, or slip, of one vertebra in relation to the next caudal vertebra. The presence of Spondylolisthesis was assessed from L1 to S1. Spondylolisthesis was categorized using the standard Meyerding Grading Scale for assessing the magnitude of slip. Data will be collected and entered in Microsoft Excel sheet in form of master chart and will be analysed by using standard statistical software (SPSS version 20).

**Results:**

Out of 47 total cases of spondylolisthesis maximum 15 (31.91%) patients belong to age group of 46-55 years followed by 36-45 years 10 (21.28%) whereas minimum 8.51% in 66 – 75 yr. Mean age of spondylolisthesis was 47.21 years with SD 12.52 years, with 68.09% were female.

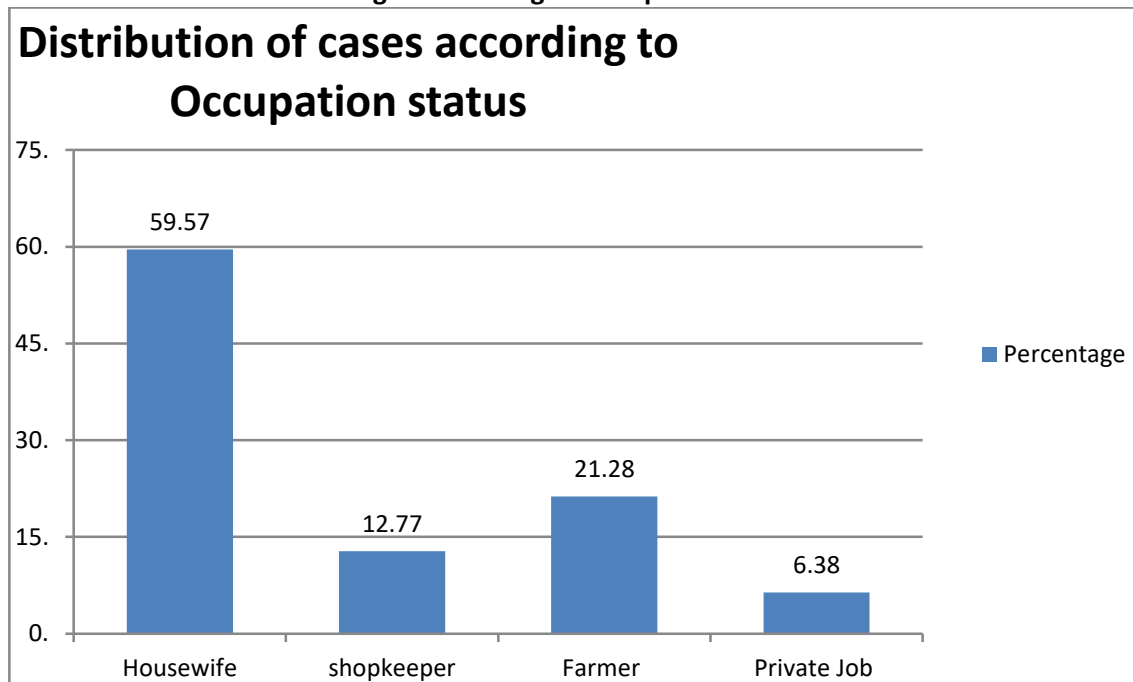
**Table 1. Socio-demography**

Age groups (In Years)	No.	%
18 – 25	1	2.13
26 – 35	9	19.15
36 – 45	10	21.28
46 – 55	15	31.91
56 – 65	8	17.02
66 – 75	4	8.51
Mean ± SD	47.21 ± 12.52	
<b>Gender</b>		
Male	15	31.91
Female	32	68.09

maximum 59.57% were housewife followed by farmer 21.28% whereas minimum 6.38% private job.



**Fig: 1 According to Occupation status**



Maximum 68.09% had moderate work followed by severe work 19.15% whereas minimum 12.77% had mild work.

**Table: 2 Severity of work**

Severity	Number	Percentage
Mild	6	12.77
Moderate	32	68.09
Severe	9	19.15

According to BMI maximum 63.96% were in normal weight class followed by 24.38% in overweight class whereas minimum 2.83% in underweight class.

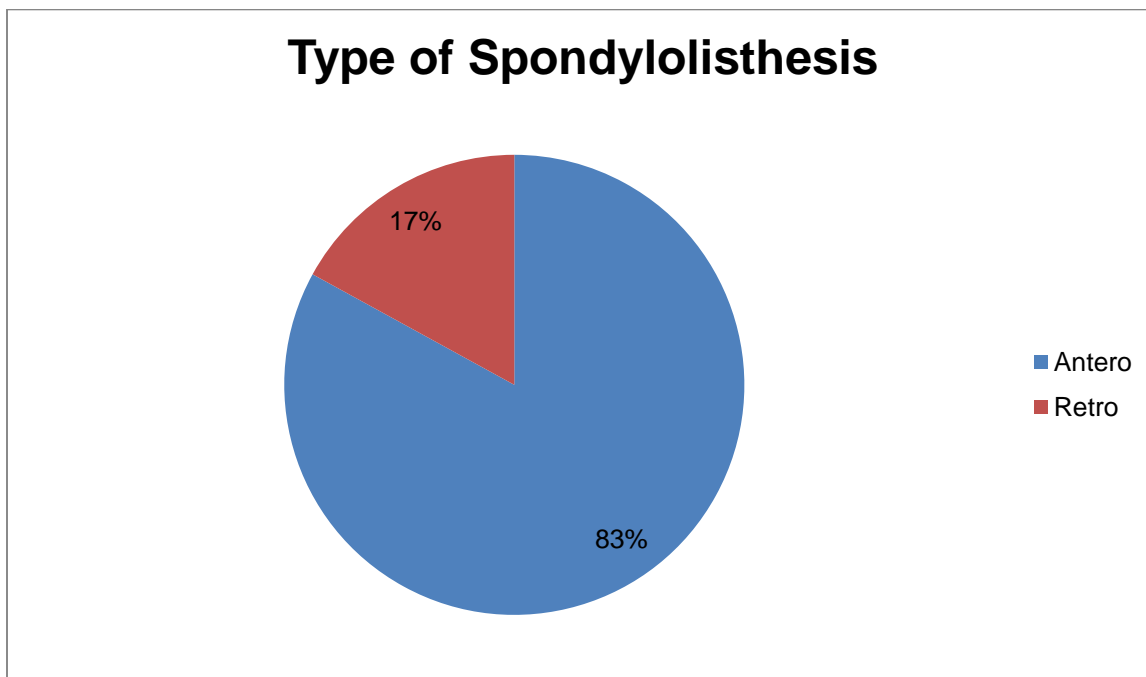
**Table: 3 According to level of Spondylolisthesis**

level of Spondylolisthesis	Number	Percentage (%)
L2 – L3	2	4.26
L3 – L4	5	10.63
L4- L5	30	63.83
L5 – S1	12	25.53
>1 level	2	4.26

Maximum spondylolisthesis 63.83% was seen on L4 – L5 level followed by 25.53% on L5 – S1 whereas minimum 4.26% on L2 – L3 level. 4.26% cases had more than one level of spondylolisthesis. Maximum spondylolisthesis 82.98% was antero whereas minimum 17.02% were retro.



Fig. 2 Type of Lysthesis



Maximum 63.82% were presented after 12 months of symptoms appeared whereas minimum 5.65% in 6-12 months.

Table 3- Distribution of patients according to Grades

Grade	Number	Percentage (%)
1	42	89.36
2	4	8.51
3	1	2.13
4	0	0.00
Total	47	100

Maximum 89.36% had grade 1 spondylolisthesis followed by 8.51% grade 2 whereas minimum 2.13% in grade 3.

**Discussion:**

In our study, maximum 63.83% was seen on L4 – L5 level followed by 25.53% on L5 – S1 whereas minimum 4.26% on L2 – L3 level. 4.26% cases had more than one level of spondylolisthesis. Our study was in line with study of [Mahsa Layegh et al. \(2017\)](#)<sup>5</sup> reported

that most common level of involvement in spondylolisthesis among patients in this study was L4-L5, and the level of L2-L3 had the least common of involvement.

In our study maximum spondylolisthesis 82.98% was antero whereas minimum 17.02% were retro, also [Fulya Bakilan et al. \(2021\)](#)<sup>6</sup> reported



that Anterolistheses were seen in 90.6% all spondylolisthesis . On contrary **Da He et al (2021)**<sup>7</sup> found that the retrolisthesis was the most common accounting for 61.51% cases and then anterolisthesis.

In our study, maximum 89.36% had grade 1 spondylolisthesis followed by 8.51% grade 2 whereas minimum 2.13% in grade 3. Similarly **Yasuchika Aoki et al. (2020)**<sup>8</sup> found that out of 19 cases, 7 patients (36.8%) had grade 2 spondylolisthesis .

In our study, out of 47 total cases maximum 15 (31.91%) patients belong to age group of 46-55 years followed by 36-45 years 10 (21.28%) whereas minimum 8.51% in 66 – 75 yr. Mean age of spondylolisthesis was 47.21 years with SD 12.52 years. also **Shakeel Ahmad et al. (2013)**<sup>9</sup> reported that middle age group had significant association with spondylolisthesis.

In our study Spondylolisthesis was more 68.09% in female also **Da He et al (2021)**<sup>7</sup> reported that women with age more than 60 were more likely to suffer from spondylolisthesis.

In our study, spondylolisthesis was maximum 59.57% were housewife followed by farmer 21.28%. Similarly **Shakeel Ahmad et al. (2013)**<sup>9</sup> Housewives 57% (21) were found to be associated with Grade 3 Spondylolisthesis.

**Conclusion:** Spondylolisthesis was prevalent in L5/S1. It is essential to develop research based findings about the lumbar spondylolisthesis. There was no such study conducted in Indian population targeting Lumbosacral spondylolisthesis. In this regard, the study is very first in its own in Indian context. In conclusion, spondylolisthesis is more common in middle age women's doing moderate job at their household and more commonly at L4 L5 level. This study opens the door for further studies on etiopathogenesis of spondylolisthesis in Indian population.

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