



PREVALENCE OF DISABILITY IN LOW BACK PAIN: A HOSPITAL-BASED STUDY

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ABSTRACT

Low back pain affects up to 80% of the population at some time during their active life. Oswestry Disability Index (ODI) is the most commonly used outcome measure used in low back pain. The aim of the study was to find out the prevalence of disability among chronic low back pain patients. A cross sectional study was conducted on 104 patients with low back pain admitted in PMR department, RIMS. Demographic data were collected. Disability was calculated from the ODI questionnaire. A total of 104 patients were recruited. Male constituted 44.2% (46) and female 55.8% (58). Among the occupations, housewives were more affected 39.4% (41). Age group in the range of 45-54 year were most affected with maximum number of patients having PIVD at L4-5 level. 44 (42.3%) patients had ODI score of moderate disability. Minimal disability was found in 5 (4.8%) patient and 8(7.7%) patients had ODI score of 81-100 (bed ridden). Prevalence of disability was found to be 95%. Low back pain is an extremely common musculoskeletal condition that contributes to impairment and disability. Maximum number of patients had moderate disability on ODI and can be used for quantifying disability in person with low back pain.

KEYWORDS : Low back pain, Disability, Oswestry Disability Index, work loss.

Introduction

Low back pain is a symptom, not a disease and is multifactorial. It is generally described as pain between the costal margin and the gluteal folds.

Low back pain (LBP) is the most frequent work related musculoskeletal complaint and one of the leading causes of health related problems in developed world^{1,4}. It is a costly burden to society and a leading cause of disability and loss of productivity⁵.

The yearly prevalence varies from 5% to as high as 65% and lifetime prevalence from 35% to 80%². Prevalence increases and peaks between the ages of 35 and 55⁶. The 2010 Global Burden of Disease Study estimated that low back pain is among the top 10 diseases and injuries that account for the highest number of DALYs worldwide⁷.

Many cases of acute LBP are self-limiting and resolve with little intervention. However, many patients with acute LBP go on to develop chronic LBP. Low back pain poses an economic burden to society, mainly in terms of the large number of work days lost by a small percentage of patients who develop chronic LBP⁸. Chronic LBP is the most common cause of disability among people younger than 45 years and the third most common cause of disability among people aged 45-64 years⁹.

Measurement of disability poses a huge challenge. Sophisticated techniques like Computed Tomography or Magnetic Resonance Imaging have limited use in evaluating disability. Disability prediction provides measure by which impact of disorder is evaluated, can judge effectiveness of a particular treatment and get patients of LBP back to work.

Unfortunately LBP is not considered as a cause of disability and

there is scarcity of data available on this burgeoning epidemic in developing countries such as India.

Thus this study aims at describing the epidemiology of LBP in terms of prevalence, demographic features & association of work loss.

MATERIALS AND METHODS

A cross sectional study was performed in the Department of Physical Medicine and Rehabilitation, Regional Institute of Medical Sciences, Imphal from September 2015 to August 2016. All low back pain patients (n=104) admitted in PMR department were included in the study. The independent variables considered were age, sex & occupation of the patients, duration of the disease, MRI confirmed diagnosis and work loss.

Work loss was defined as the duration of the patient's absence from work due to low back pain¹⁰.

The outcome measures considered in the study were 1) Oswestry Disability Index (ODI), 2) Numeric Rating Scale (NRS) for pain.

1) ODI is a scale used for assessing disability or the impact of pain in activities of daily living. It contains 10 items ranging from 0 to 5. The first assesses intensity of pain and the remaining assesses the impact of pain in activities of daily living. The score ranges from 0 (absence of disability) to 100 (maximum disability). It is a self-administered questionnaire and can be completed in less than five minutes. The validity of ODI in Portuguese showed good internal consistency (Cronbach's alpha=0.87) and excellent reliability on the test-retest (0.99)¹¹.

2) NRS is a 11 point numeric scale where the patients are asked to encircle the number between 0 and 10 that fits best to their pain intensity. Zero usually represents "no pain at all" while 10 represents

“the worst pain ever possible”. It has shown high correlation with several other pain assessment tools^{12,13}. The feasibility of its use and good compliance have also been proven^{14,15}.

Individuals were considered disabled if they scored ≥ 20 on the ODI score¹⁰.

Collected data was entered in SPSS 21. Baseline characteristics were calculated by descriptive statistics. Correlation was calculated by Pearson correlation coefficient. P value < 0.05 was considered to be significant.

The recruited patients were explained about the study and after taking informed consent all the demographic data were collected. ODI questionnaire was given to each patient and were asked to fill up according to their situation.

RESULTS

In our study 104 patients admitted in the PMR department with MRI positive PIVD were enrolled. The mean age was found to be 46.36 ± 12.13 years with a median duration of disease as 5 weeks. Females (58) were more commonly affected than males (46) comprising of 55.8% and 44.2% respectively. Among the various occupations of the patients, the housewives were found to be most commonly affected (39.4%). The most common diagnosis was found to be PIVD L4-5(72.1%) followed by PIVD L5 S1 (21.2%). (TABLE 1)

TABLE 1

Variables		Frequency	Percent
Age(in mean \pm SD) years		46.36 \pm 12.13	
Median Duration(in weeks)		5.00	
Gender	Male	46	44.2
	Female	58	55.8
Occupation	Housewife	41	39.4
	Student	2	1.9
	Government Employee	11	10.6
	Business	16	15.4
	Defence Personnel	12	11.5
	Self Employed	1	1.9
	Cultivator	16	15.4
	Others	4	3.8
	Diagnosis	PIVD L3-4	2
	PIVD L4-5	75	72.1
	PIVD L5 S1	22	21.2
	PIVD L4-5/L5 S1	5	4.8

Following analysis, maximum disability due to low back pain as measured by ODI was found to be of severe grade (42.3%) followed by crippled grade (27.9%).(TABLE 2)

ODI		
Grade	Frequency	Percent
0-20 (mild)	5	4.8
21-40 (moderate)	18	17.3
41-60 (severe)	44	42.3
61-80 (crippled)	29	27.9
81-100 (bed ridden)	8	7.7

So as per the definition of disability of low back pain¹⁰, out of 104 patients in the present study, 99 patients were found to have been disabled because of low back pain. Hence the prevalence of disability in low back pain in the present study was found to be 95.19%. (Prevalence of disability = $99/104 * 100 = 95.19\%$)

TABLE 2

ODI		
Grade	Frequency	Percent
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41-60 (severe)	44	42.3
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Maximum patients (40.4%) had a work loss of more than 4 weeks thereby reflecting the high disabling nature of low back pain (TABLE 3)

TABLE 3

		Frequency	Percent
Work Loss	<1 week	25	24.0
	1-4 weeks	37	35.6
	>4 weeks	42	40.4

On cross tabulation, maximum work loss (>4 weeks) was seen in patients with crippled disability and those with severe disability had a work loss of 1-4 weeks. (TABLE 4)

TABLE 4

ODI	WORK LOSS		
	<1 week	1-4 weeks	>4 weeks
0-20	4	1	0
21-40	13	5	0
41-60	8	22	14
61-80	0	9	20
81-100	0	0	8

In our study NRS pain had a statistically significant correlation with ODI (p value < 0.05). (TABLE 5)

TABLE 5

		NRS
ODI	Pearson correlation	0.681
	Significance(2 tailed)	0.000
	N	104
		Statistically significant < 0.05

DISCUSSION

The analysis of descriptive statistics of the study sample showed that age was a risk factor for developing low back pain. The mean age of patients were found to be 46 years. This is in par with a study Tiwari et al which claimed that age ≥ 35 years was found to have 9 times more risk as compared to < 35 years¹⁶. Another study by Salvetti et al showed that the maximum patients affected with low back pain were more than 46 years¹⁰. This demarcation can be explained by degeneration of spine with increasing age.

Females were more commonly affected than men and among females housewives were most affected (41%). In a study by Gupta G et al 83% housewives were affected by low back pain¹⁷. The difference in findings is most probably due to inclusion of only housewives in the latter study. Women are also biologically prone to develop low back pain due to risk factors such as pregnancy, contraceptive use and use of estrogen during menopause. All of these result in hormonal changes responsible for global laxity in the muscles and ligaments of the back, which ultimately leads to dysfunctions of spine^{18,19}. Daily chores of housewives require repeated bending, twisting, lifting and pulling movements of the spine leading to low back pain²⁰.

The prevalence of disability in our study was found to be very high (95.19%) compared to Salvetti et al where it was found to be 65%¹⁰. Other authors who analysed adults and elderly people with chronic LBP and observed prevalence ratios between 40% and 56%^{21,22}. The variation found between the disability prevalence identified in this and other studies can be explained by the different definitions of disability. Another reason was that only admitted patients were included in the study which might lead to the high disability prevalence ratio.

59.6% patients experienced moderate to severe disability in our study. Another study by Walsh IAP et al showed 49% of workers with moderate to severe disability²³. Salvetti et al showed 80.7% patients with moderate to severe disability¹⁷. It should be highlighted, however, that the highly disabling potential of chronic low back pain was confirmed.

A greater trend towards disability was also observed among participants with more intense pain ($p=0.055$), although no statistically significant relation was revealed in a study by Salvetti et al. In our study we also got significant relationship between pain and disability.

There were several study limitations. Only admitted patients were included in the study, other possible causes of low back pain were not considered, small sample size and it was a hospital based study. Further research is due to evaluate whether disability prevention or reduction interventions can minimize this problem, improving these patients' functionality.

CONCLUSION

Disability related to LBP is a complex and multifactorial phenomenon, associated with high social and health costs. This study might lead to identify whether disability prevention or reduction interventions can minimize this problem, improving these patients' functionality. Further studies may be needed to find out the associated factors.

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