



## PREVALENCE OF DISABILITY IN NON SPECIFIC LOW BACK PAIN USING OSWESTRY DISABILITY INDEX AMONG FARMERS OF PUDUCHERRY AND DELTA ZONE IN TAMIL NADU

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### Abstract

**Background:** Non-specific low back pain is defined as mechanical back pain which is not attributable to any recognizable, known specific pathology and is common musculoskeletal disorder in farmers. Low back pain was considered as the world wide cause of disability. Even though the association between Non specific Low back pain and disability is established. This relationship has not yet been observed in the agricultural workers population of Puducherry and Delta Zone in Tamil Nadu. This study aims to find the prevalence of disability in Non specific low back pain among agricultural workers in Puducherry and Delta Zone in Tamil Nadu using Tamil version of Oswestry disability questionnaire.

**Methods:** Participants are selected based on selection criteria. The need and purpose of the study was verbally explained prior to the participation. After the participants agreed to participate in the study, the ODI Questionnaire sheet was administered to all of them individually. Once filled, the questionnaire was collected and Scoring was done on the same sheets.

**Result:** Statistical analysis has done using spearman correlation formula. Analysis of data showed that 26% of farmers had minimal disability, 36.6% had moderate disability, 19.3% had severe disability, 12.6% farmers were crippled and 3.3% were bed bound. Spearman's correlation analysis shows positive correlation between age and disability due to low back pain with  $r=0.63$ .

**Conclusion:** The study concludes that presence of disability related to low back pain was seen in farmer's population of Puducherry and Delta Zone in Tamil Nadu.

**Keywords:** Non Specific Low Back Pain, Oswestry Disability Questionnaires In Tamil, Disability.

### Introduction

Non-specific low back pain is defined as mechanical back pain which is not attributable to any recognizable, known specific pathology (e.g. infection, tumour, osteoporosis, fracture, structural deformity, inflammatory disorder, radicular syndrome, or cauda equina syndrome)(El-Sayed AM, Hadley C, et al.,2010)(Louw QA, Morris LD, Grimmer-Somers K 2007).

In India About 26% subjects had to change their profession due to low back pain.(Sharma et al., 2003) and most severely affected body region across one year posing considerable activity limitation was LBP(Bodhare et al., 2011).

Low back pain is the most common musculoskeletal disorders in farmers (Garima Gupta and Tarique 2013). Farming has been considered a high risk occupation for musculoskeletal disorders, owing to high level of physical work. Farming activities includes agriculture; cultivation; tilling; tillage; husbandry; land management; farm management and more. In this study, agricultural labourer or workers are taken into consideration.

In the Union territory of Puducherry and Delta Zone in Tamil Nadu, prevalence of Low back pain is about 313,152(42%) out of 745,600 in overall population (Gunasekarabधि et al., 2016). Agricultural workers account for



47259 in Puducherry (census 2011) and Delta Zone in Tamil Nadu population (Dr.C.Paramasivan and R.pasupathi 2016).

Low back pain was responsible for around 60.1 million years lived with disability (YLD) in 2015, an increase of 54% since 1990. It is number one cause of disability globally as well as in 14 of the 21 GBD world regions (Lancet 2016). A disability is any restriction or lack of the ability to perform an activity in the manner or within the range considered normal (Zdravvar et al., 2011).

Measuring pain and disability are important to set goals, plan treatment and assess outcomes in Low Back Pain patients. To quantify patients self assessment pain of their disability we need valid, reliable and responsive self-report measures.

Unfortunately low back pain 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. This review aims at describing the epidemiology of Low Back Pain in terms of prevalence, demographic features, risk factors, impact and health care service utilization for low back pain in Indian context.

Recent survey also indicates that back pain result in restriction of social and other activities and has substantial impact on the lifestyle of the people those who are affected.

Oswestry Disability Index (Fairbank JC, Pyncent PB 2000) is widely used as a disease specific questionnaire in back pain patients to evaluate pain and disability.

Tamil is a language that is spoken across the globe by over 76 million people and is official language in India (Lewis MP, Gary FS et al., 2013) and spoken in Puducherry. The ODI Tamil is a valid and reliable means of measuring change in pain and disability in low back pain in Tamil speaking peoples (Joshua Israel Vincent, Joy Christine Macdermaid et al., 2014).

Number of studies has shown relationship between the low back pain and disability this has not been documented among the farmers in Puducherry and Delta Zone in Tamil Nadu. Thus in our study an attempt has been made to identify that farmers in Puducherry who are disabled due to non specific low back pain.

### **Methods and Materials**

This study was an epidemiological survey conducted in Puducherry (Ariyur area) and Delta Region of Tamil Nadu (Mayiladuthurai). We enrolled 150 farmers with Low back pain as our study population who are all selected based on selection criteria. The duration of the study was 3 months.

The ODI was translated and cross-culturally adapted to the Tamil language according to established guidelines (Joshua Israel Vincent, Joy Christine Macdermaid et al., 2014).

The use of ODI-T was approved by the Mapi Research trust which holds the copyrights for Tamil version of Oswestry disability index. Participants are selected based on selection criteria. The need and purpose of the study was verbally explained prior to the participation. After the participants agreed to participate in the study, the ODI Questionnaire sheet was administered to all of them individually. Once filled, the questionnaire was collected and Scoring was done on the same sheets.

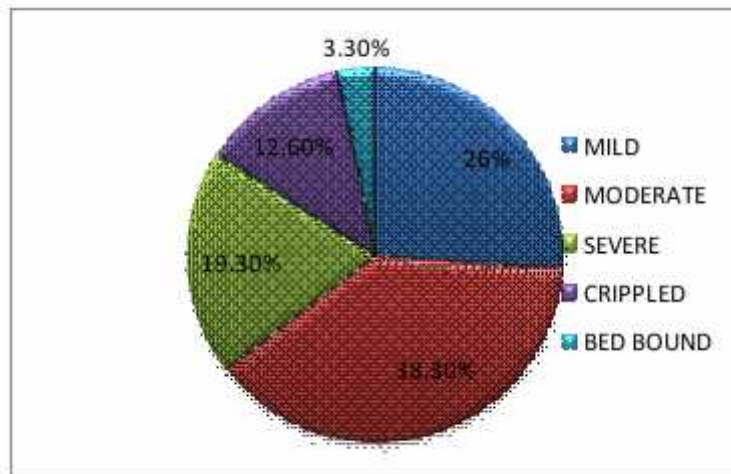
The statistical analysis was performed using Microsoft Excel 2007.



**Disability due to non specific low back pain based on the Oswestry disability index (ODI) according to the age group.**

Age Group	0-20% Minimal Disability	21-40% Moderate Disability	41-60% Severe Disability	61-80% Crippled	81-100% Bed Bound	Total
30-39	16	13	3	1	1	34
40-49	18	32	9	9	1	69
50-60	15	13	17	9	3	47
Total	39	58	29	19	5	150
Percentage	26%	38.6%	19.3%	12.6%	3.3%	100%

**Chart Shows The Amount of Disability In The Population.**



**Demographic detail**

Age Group(Years)	Respondents(N)
30-39	34
40-49	69
50-60	47
TOTAL	150

Statistical cross tabulation analysis showed that 16 out of 34 subjects in the 30-39 years old group were with minimally disabled, 13 were moderately disabled, 3 were severely disabled, 1 is crippled and bed bound respectively; in the 40-49 years old group 18 out of 69 were minimally disabled, 32 were moderately disabled, 9 were severely disabled, 9 were crippled and 1 was bed ridden ;in the 50-60 years old group 5 out of 47 were minimally disabled, 13 were moderately disabled, 17 were severely disabled, 9 were crippled and 3 was bed ridden.

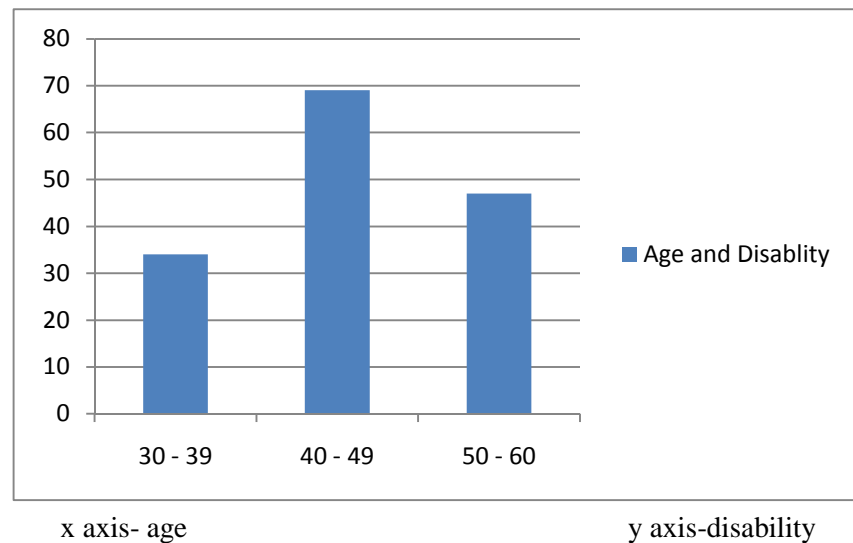
**Results**

The study was conducted to find out the prevalence of disability in farmers with non specific low back pain in Puducherry and Delta Zone in Tamil Nadu. The sample consists of 150 farmers with non specific low back pain



with mean age  $46.02 \pm 7.71$ . The mean value of disability score for the population was  $18.53 \pm 10.20$ . Higher prevalence was seen among the age group of 40-49.

**Shows the age and disability correlation**



The r value calculated by spearman's correlation formula is 0.637

There is positive correlation between disability due to low back pain and increasing age( $r=0.64$ ).

**Discussion**

The analysis of descriptive characteristics in the study sample showed the predominance of a low-income and low-education population, reflecting the Puducherry and Delta Zone in Tamil Nadu reality, even in the country's large metropolitan centres.

The prevalence ratio of disability observed in this research was high (38%), and higher than the reports of other authors who analysed adults and elderly people with NSLBP and observed prevalence ratios between 40% and 26%.

The variation found between the disability prevalence identified in this and other studies can be explained by the different definitions of disability. It should be highlighted, however, that the highly disabling potential of nonspecific low back pain was confirmed.

Further research is due to evaluate whether disability prevention or reduction interventions can minimize this problem, improving these patients' functionality.

Pain-related disability affects different aspects of daily life and provokes mental suffering. Individuals who face difficulties to accomplish daily activities and are unable to keep up their professional activities tend to take distance from social contact and avoid leisure activities.

Social isolation and avoidance of pain-related activities can reduce self-efficacy and increase the chance of developing depressive and disability symptoms. Besides the emotional impact, the presence of disability overburdens the health system. Individuals who feel disabled by pain go through many consultations, examinations and surgeries, in search of answers and often without reaching the expected results.

Disability-related social costs are also huge, considering that people disabled by pain present reduced productivity, absence from work and frequent leaves of absence, factors that put a significant strain on the social security system (Marina de Goes Salvetti, Cibele Andruccioli de Mattos Pimenta).



In this study, 38% of participants experience moderate to severe disability, a high level when compared to studies. The high frequency of moderate to severe disability found can be explained by the fact that the sample exclusively comprised people with NSLBP, a condition with a highly disabling potential. In addition, this sample consisted of people attended at health services, Low back pain is the leading worldwide cause of years lost to disability and its burden is growing alongside the increasing and aging population (Lancet2016). Gupta G, Tarique (2013) found that nearly 60% of the farmers are affected with low back pain.

As back pain is associated with disability our study finds the prevalence of disability in farmers with non specific low back pain of AriyurPuducherry and Delta Zone in Tamil Nadu. For the farmers their primary source of income is their work if disabled might make them unemployed and their livelihood will be affected.

In our study out of 150 samples females are more than males that shows they are prone to low back pain because of their bilateral workload both at farming and household activities. As already noted by (BN Birabi 2012), female seems to be higher work force in agricultural labour. Over 38.3% of population are affected with moderate disability that shows the need of proper health care service and prevention methods.

In our study, most of the agricultural labourers with the age group of 40-49, experience moderate pain and they are disabled in activities like sitting, lifting weight and walking. Due to pain they cannot able to sit for more than 1 hour and during lifting weight and walking, they were able to perform the activity inspite of the pain.

Though there is moderate to severe disability seen in the population, all the samples are still working with their disability because of socio economic factors. Among the individual items of ODI pain was the highly scored item. Follow by that most high disability seen in sitting and all the other items are at the same level.

Studies suggested that predisposing factors for Low back pain are poor/awkward work postures; forward bending; heavy lifting and carrying and physical strenuous work.

Birabi et al.,(2012) study shows that once LBP occurred, it is likely to progress. Similarly our study shows positive correlation between disability due to LBP and increasing age( $r=0.63, p\pm 0.0001$ ). The result of the present study would help to concentrate on disability associated with non specific low back pain, to enhance the health care, health education, postural modification and ergonomic measures.

## Conclusion

This study concludes that presence of disability related to low back pain was seen in farmers population of Puducherry and Delta Zone in Tamil Nadu.

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