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Low back pain: functional impairments, activity limitations and participation restrictions in farmers

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ABSTRACT

Many studies have demonstrated low back pain to be one of the most frequently reported problems in farmers. But the nature of pain severity, and its affection in their day to day activity and work has not been studied in detail so far. Method: A community based cross sectional study was conducted on 80 crop farmers with chronic low back pain, in the area of Karjat & Junnar village. A validated questionnaire for work analysis and Marathi version of "Roland Morris disability questionnaire." were used to identify functional Impairments in farmers with Low Back Pain. Results: 55% of farmers reported having moderate intensity of pain at rest, whereas majority of farmers experienced severe (60%) intensity of pain on activity. In the Roland Morris Questionnaire 89% of the study subjects marked the responses of 'changing position frequently to try to get my back comfortable, and 'back is painful almost all of the time'. Conclusion: All the farmer's low back pain increased in intensity between moderate to severe pain with activity. Majority of the study subjects reported their back to be painful almost all of the time and had to keep changing position frequently to try to get their back comfortable.

Keywords: Farmer, Low back pain, Limitations, Marathi version Roland Morris disability questionnaire, Numeric rate scale

INTRODUCTION

Farming has been considered a high-risk occupation for musculoskeletal disorders, owing to the high level of physical work. [1] In a review by Walker-Bone et al, farming is a physically arduous occupation and this places farm workers at potential risk of musculoskeletal disorders such as osteoarthritis of the hip and knee, low back pain, neck and upper limb complaints, and hand-arm vibration syndrome [2]. Carrying of heavy loads can cause serious musculoskeletal disorders, such as chronic back pain, chest pain and miscarriages

(in women) [3]. Occupational risk factors include static positioning, forward bending, heavy lifting and carrying, kneeling. The loads which are applied to the tissue include kinetic (motion), kinematic (force), oscillatory (vibratory) and thermal. Loads can originate from external sources such as vibration tools or from internal sources through repetitive motion pattern. [4]

The physical demand of the farm work which range from moderate to heavy demands, often include standing, squatting, bending and reaching during work for long hours, carrying heavy loads may cause certain musculoskeletal hazards to the

person. Farmers continue to use the same traditional tools (sickle, spade, leveler, harrow, country plough) for their work. Long hours of work, variety of physical work and precision activities, extreme postures for prolonged periods, poor nutrition and health may lead to serious physical stress amongst the farming community. [5] Many studies have demonstrated that low back pain as the most frequent problem that found in the farmers. [2, 3] But the nature of pain severity, and its affection in their day to day activity and work has not been studied in detail so far. Low back pain (LBP) is a frequent musculoskeletal problem causing disability. Evaluating Functional difficulties is important because lower back is involved in performing various ADLs in our day to day lives. The assessment of disability is essential for evaluation planning and monitoring therapeutic interventions in the routine clinical management of patients with LBP. There are many scales available for outcome assessment in LBP, most of which measure impairment and activity limitation. Roland-Morris disability questionnaire (RMDQ) which is a self reported questionnaire, has been used in this study to identify the functional disability in farmers. Its contains elements of functional impairment, and participation restriction according to the International Classification of Functioning, Disability and Health. The population in which the study is carried out is from rural sector and the known language was only Marathi, hence Marathi version of RMDQ scale was more appropriate for this study. The Marathi version of Oswestry questionnaire is has been proven to a reliable and valid tool. It has shown psychometric characteristics as good as the English version. [6] So, the present study intends to evaluate functional impairments, activity limitation and participation in farmers with low back pain using Marathi version of Roland Morris disability questionnaire.

METHODOLOGY

This study was a community based cross sectional study.. The study was conducted on crop farmers of Karjat & Junnar village. 80 farmers could be included in the study through convenience sampling within duration of 3 months. Farmers having chronic low back pain were the study subjects. Only those farmers were included whose main occupation was crop farming. Subject with any known history of trauma to lower back or any kind of congenital musculoskeletal or neurological conditions were excluded.

PROCEDURE

Ethical Approval

The study was approved by the Institutional Ethics & Research Committee at D. Y.Patil University. Written informed consent was obtained from all the subjects. Information regarding their identification obtained during the study has been strictly kept confidential. A validated questionnaire for work analysis and Marathi version of “Roland Morris disability questionnaire.” were used to identify functional Impairments in farmers with Low Back Pain. The Questionnaires were administered to 80 Farmers (crop farming) having low back pain using interview method. Roland Morris disability questionnaire scores were calculated for all the subjects. The information obtained from both the questionnaires was presented using descriptive statistics in the form of simple percentages and graphs. Microsoft word and Excel were used to generate graphs and tables.

RESULTS

Around 80 farmers participated in the survey. 30% of the respondents were in age group of 41-50years. 70% subjects were male whereas 30% were female. Out of 80 farmers 54 (68%) had normal BMI, whereas 17 (21%) subject were underweight and only 3 subject were obese.

Table 1: Details of the study subjects

Variables	Frequency
Age of famers	21-30 years 5%
	31-40 years 23%
	41-50 years 30%
	51-60 years 26%

	61-70 years	16%
Gender of farmers	Male	70%
	Female	30%
BMI	18.5	21%
	18.5-24.9	68%
	25.0-29.9	8%
	30.0-34.9	4%

On Numeric rate scale (NRS) for pain majority i.e 55% of farmers reported having moderate intensity of pain at rest, followed by 33% and 13% of them with mild and severe pain respectively. But, majority of farmers experienced severe (60%)

intensity of pain on activity, whereas none had mild pain on activity and the percentage of subjects reduced to 40% in moderate intensity pain category.

Table 2: Numeric rate scale for pain for the low back pain by the study subjects

NRS	Mild	Moderate	Severe
At REST	33%	55%	13%
On ACTIVITY	0%	40%	60%

Analysis of Roland Morris Questionnaire revealed that majority (89%) of the study subjects marked the responses of ‘changing position frequently to try to get my back comfortable, and

‘back is painful almost all of the time’. These were followed by response ‘walk more slowly than usual because of my back’ by 81% and ‘avoid heavy jobs around the house because of my back’ by 80%

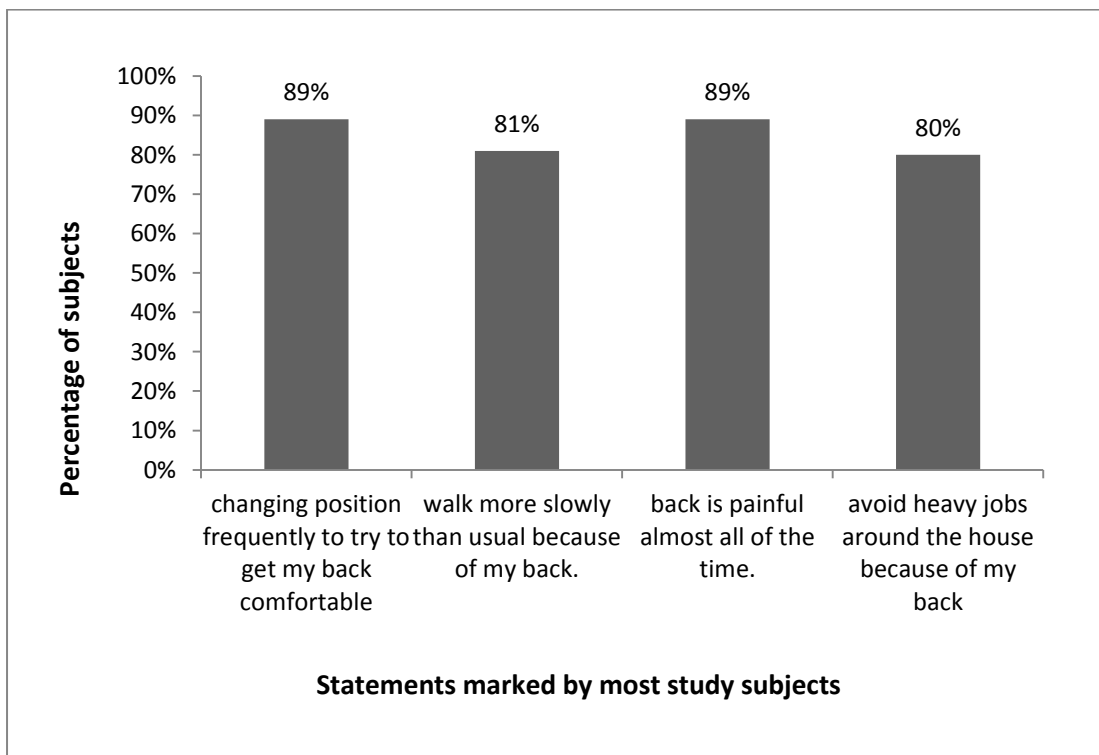


Fig 1: Statement marked by most of the farmers with low back pain (study subjects)

DISCUSSION

This study intended to identify functional disabilities in farmers with low back pain using RMDQ. According to this survey 76% of the study subjects experienced continuous pain. Even as per **RMDQ**: 89% of farmers reported to have painful back almost all of the time. On Numeric rate scale (NRS) for pain, majority i.e. 55% of farmers reported having moderate intensity of pain at rest, followed by 33% and 13% of them with mild and severe pain respectively. But, majority of farmers experienced severe (60%) intensity of pain on activity. Intensity of pain was noted to be increased on activity (as compared to rest) for all the farmers, as none had mild pain on activity and the percentage of subjects reduced to 40% in moderate intensity pain category and increased to 60% in severe intensity category. Probable reason of the increase in severity of pain with activities could be the extreme postures assumed by the farmers. 39% of farmers used forward leaning as common posture followed by stooped posture. They were also used to assuming other extreme postures like squatting, bending while farming. In RMDQ the farmers were found to have difficulties in assuming similar to these positions. For example 49% of farmers had trouble putting on sock (or stockings) due to pain in back as per RMDQ. In this study 90% of farmers were found to be involved in the profession since 10 years or more. Most of them used to work for more than 6-10 hours in the field.. Repetitive motion pattern which involve extremes of movement are shown to cause mechanical compression thereby temporarily reducing the blood supply to the anatomical structures around the lower back, resulting in anoxia of surrounding structures leading to inflammation and oedema, leading to pain.[7] As chronic back pain was considered in this study, it has been noted that patients with chronic low back pain patients have delayed muscle response when asked to perform a task [8] or on sudden loading of spine [9]. Patients of chronic back pain show poorer spinal posture control and balance, especially during complex tasks in comparison to subjects without back pain [10, 11, 12].

Additionally Walker-Bone and Palmer et al in their study found that usage of tools and equipment's which are not ergonomically designed and improper or awkward posture assumed, usually

bring about body discomfort and musculoskeletal problems that are harmful for their health. [2] Type of work performed by farmers included sowing, weeding, ploughing, harvesting, loading goods etc. which requires too much lifting, bending and can lead to back pain. The lower back supports most of the weight of the body and is subjected to mechanical stress during lifting heavy weights, squatting, forward leaning stooping. The facet joints may get injured when excessive stress forces act on the spine during those activities. Surrounding muscles may go into spasm and cause low back ache and marked limitation in motion of trunk. [7]

69% of the farmers used to experience pain radiating to the lower extremities and upper back. Majority of them were experienced more than single type of pain like dull aching, pricking, throbbing, tingling, and stabbing. 28% of farmers even had tingling sensation in lower extremities. These are mainly observed in intervertebral disc pathologies. Most of the subjects who participated in this study were above 40 years of age. Research signifies that the disc changes start occurring after the age of 40 years. There is more pronounced cell proliferation, mucoid degeneration of the extracellular matrix, granular changes in the intervertebral disc, and structural disorganization of the end plates causing low back pain. Lumbar intervertebral disc undergoes very extensive destructive changes with age and degeneration, the degree of this tissue destruction is closely linked to age. [13, 14] These factors may act additively to the biomechanics mentioned earlier in the discussion

In the **RMDQ** questionnaire 80% of farmers were reported to avoid heavy jobs because of their back pain. But it was also found that 94% of farmers continued working even after experiencing pain. Pain is a physiological indicator of tissue damage. It signals the body to stop/limit activities and give rest to those tissues. Continuation of activities even after experiencing pain can result in further tissue damage leading to structural derangements. But continuation of work, bearing pain by the study subjects could be due to the various causes. First of all the farmers were laborers in the farm, belonging to very low socio-economic strata. Their wages depend on the hours spent working on the field. It is possible that they ignored their discomfort and continued working in

order to earn their complete wages. Secondly, most of them were uneducated. So, ignorance regarding the treatment approaches for back pain and specially physiotherapy could be a reason for the negligence towards their back pain. Thirdly, the farmers included in the survey belonged to rural sector. Unavailability or difficulty in accessibility to medical facilities could be an additional cause for their negligence regarding their back pain.

CONCLUSION

Most of the farmers experienced moderate pain at rest whereas it increased to moderate to severe pain with activity. Majority of the study subjects reported their back to be painful almost all of the time and had to keep changing position frequently to try to get their back comfortable.

REFERENCES

- [1]. Holmberg S, Stiernström EL, Thelin A, Svärdsudd K. Musculoskeletal symptoms among farmers and non-farmers: a population-based study. *International journal of occupational and environmental health*. 8(4), 2002, 339-45.
- [2]. Walker-Bone K, Palmer KT. Musculoskeletal disorders in farmers and farm workers. *Occupational medicine*. 52(8), 2002, 441-50.
- [3]. Forastieri The ILO program on occupational safety and health In agriculture; International Labor Office, Geneva; 2005
- [4]. N Stanton; handbook of human factors and ergonomics methods. CRC press; 2005
- [5]. De Beeck RO, Hermans V. work-related low back disorders. Bilbao, Spain. 2000.
- [6]. Joshi VD, Raiturker PP, Kulkarni AA. Validity and reliability of English and Marathi Oswestry Disability Index (version 2.1 a) in Indian population. *Spine*. 38(11), 2013, E662-8.
- [7]. Barr AE, Barbe MF. Pathophysiological tissue changes associated with repetitive movement: a review of the evidence. *Physical therapy*. 82(2), 2002, 173-87.
- [8]. Taimela S, Osterman K, Alaranta H, Soukka A, Kujala UM. Long psychomotor reaction time in patients with chronic low-back pain: preliminary report. *Archives of physical medicine and rehabilitation*. 74(11), 1993, 1161-4.
- [9]. Magnusson ML, Aleksiev A, Wilder DG, Pope MH, Spratt K, Lee SH, Goel VK, Weinstein JN. European spine society—The acromed prize for spinal research 1995 unexpected load and asymmetric posture as etiologic factors in low back pain. *European Spine Journal*. 5(1), 1996, 23-35.
- [10]. Byl NN, Sinnott P. Variations in Balance and Body Sway in Middle-Aged Adults: Subjects with Healthy Backs Compared with Subjects with Low-Back Dysfunction. *Spine*. 16(3), 1991, 325-30.
- [11]. Luoto S, Aalto H, Taimela S, Hurri H, Pyykkö I, Alaranta H. One-Footed and Externally Disturbed Two-Footed Postural Control in Patients with Chronic Low Back Pain and Healthy Control Subjects: A Controlled Study with Follow-Up. *Spine*. 23(19), 1998, 2081-9.
- [12]. Radebold A, Cholewicki J, Polzhofer GK, Greene HS. Impaired postural control of the lumbar spine is associated with delayed muscle response times in patients with chronic idiopathic low back pain. *Spine*. 26(7), 2001, 724-30.
- [13]. Boos N, Weissbach S, Rohrbach H, Weiler C, Spratt KF, Nerlich AG. Classification of age-related changes in lumbar intervertebral discs: 2002 Volvo Award in basic science. *Spine*. 27(23), 2002, 2631-44.
- [14]. Buckwalter JA. Aging and degeneration of the human intervertebral disc. *Spine*. 20(11), 1995, 1307-14.

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