

Research Paper :

## Indury and health hazards related to manual material handling tasks

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Accepted : January, 2010

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### ABSTRACT

For more than a decade, farming has been rated one of the most dangerous occupations in the developing countries. A considerable number of adverse health conditions, including musculoskeletal disorders, are linked to agricultural work. The present study was conducted in villages of Mawali tehsil of Udaipur. For the present study a sample of 100 agricultural workers (50 male and 50 female) engaged in agricultural tasks from last 10 years were selected for collecting data on injury and health hazards related to manual material handling tasks. The agricultural workers repeatedly perform lifting, pulling, twisting and bending motions that exert force on the musculoskeletal system of the body and thereby leading to fatigue and pain.

**Key words :** Injury, Health hazards, Manual material

Agriculture is an occupation framed within the context of family and community. The farm family is the central entity in agricultural production involving every member be it children, women or the elderly. It is carried out in a rural environment and there is no clear-cut distinction between working and living conditions. The symbiotic relationship between home and work allows all family members to be exposed to occupational hazards of the farm operations. Thus, agricultural worker is subject to the health hazards not only of the rural environment but also of those inherent in the work processes.

For more than a decade, farming has been rated one of the most dangerous occupations in the developing countries. A considerable number of adverse health conditions, including musculoskeletal disorders, are linked to agricultural work. Many risk factors associated with the development of musculoskeletal disorders are commonplace in agricultural tasks. Occupational risk factors include static positioning, forward bending, heavy lifting and carrying, kneeling, and vibration. Unfortunately, there has been limited application of research related to ergonomics and musculoskeletal disorders, although farmers frequently report musculoskeletal signs and symptoms. Women in rural areas spend most of their time meeting the basic needs of the family, such as fetching water and firewood, preparation of food and caring for dependants.

Work-related musculo-skeletal disorders (WMSDs) of upper limbs (UL) and spine, in the last 35 years, have become extremely widespread, reaching

epidemic level in all industrialized countries (Hagberg *et al.*, 1995). More recent European statistical data regarding upper limb musculoskeletal disorders shows that sectors in leading position (after manufacturing) are construction, fishing and agriculture. In 2004 in the agricultural sector, 51 per cent of all recorded work-related diseases were upper limb musculoskeletal disorders. In Italy, in 2005, WMSDs (spine and upper limbs) recorded in agriculture, were nearly 60 per cent of all work-related diseases. Other data report WMSDs incidence rates exceeding 3 per cent per year. These data confirm the need to tackle more systematically this issue in the specific sector.

Manual material handling (MMH) is defined as the unaided moving of objects, often combined with twisting and awkward postures, and contributing to musculoskeletal disorders. Traumatic occurrences (slips, trips, falls, and blows to the body) cause other bodily injuries, pains, and disabilities. Typically, not one specific occurrence but rather the awkward body positions, repetition, force, and duration associated with movement lead to back, neck, and other problems like Cumulative Trauma Disorders (Anonymous, 2007).

The lifting and carrying of loads in subsistence and agriculture on small landholdings are unavoidable. With the prevalent levels of poverty in rural areas and the lack of infrastructure, many people are carrying loads of 30 kg or more on their heads, shoulders and backs for long distances. In developing countries the lack of automation in agricultural fields necessitates the increased prevalence of manual materials handling tasks.

This research is important, because some MSDs risk factors may be reduced by an ergonomic intervention with relatively low cost, others risk factor that are inherent in the tool design, working environment, and task itself can be remedied.

The research work was executed to assess injury and health hazards related to manual material handling tasks.

## METHODOLOGY

The present study was conducted in villages of Mawali tehsil of Udaipur. For the present study a sample of 100 agricultural workers (50 male and 50 female) engaged in agricultural tasks from last 10 years were selected for collecting data on injury and health hazards related to manual material handling tasks. Percentage was analyzed to quantify the injury and health hazards related to manual material handling tasks.

## FINDINGS AND DISCUSSION

The most prominent physiological hazard as can be seen from Table 1 was fatigue reported by 90 per cent of female and 70 per cent of the male. While performing the activity bending posture caused musculoskeletal pain in various body parts which was reported by 60 per cent male and 94 per cent of female respondents. Such work related musculoskeletal disorders usually occur when there is a mismatch between the physical requirement of the job and the physical capacity of the human body. The data in the table clearly show that 26 per cent of male and 10 per cent of female reported problem of asymmetric shoulder.

**Table 1 : Percentage of respondents facing injury and health hazards related to manual material handling tasks (N=100)**

Sr. No.	Injury and health hazards	Percentage of respondents	
		Male (n=50)	Female (n=50)
1.	Fatigue	70	90
2.	Musculoskeletal Pain	60	94
3.	Asymmetric shoulder	26	10
4.	Headache	20	80
5.	Frequent falls	25	30
6.	Miscarriage	00	36
7.	Damage to the knees	10	16
8.	Fractures	22	20
9.	Low back pain	40	70
10.	Body pain	60	100
11.	Chronic and debilitating back and leg problems	16	26

The problem was more pronounced in males as they carried load on shoulder more than females. The data indicated that 80 per cent of females reported problem of headache as they mostly carried load on the head. Body pain was reported by 60 per cent of males and cent per cent of females. Frequent falls were reported by 25 per cent of male and 30 per cent of female respondents which may be due to the unlevelled floors which leads to fractures and damage to the knees. Damage to the knees and fractures were also reported by 10 and 22 per cent of males and 16 and 20 per cent of females, respectively. Thirty six per cent of females reported miscarriages due to manual material handling.

Approximately 40 per cent of males and 70 percent of females reported low back pain while 16 per cent of males and 26 percent of females reported chronic and debilitating back and leg problems. The data depicted in Table 1 justify that the task of manual material handling is very tiresome and require continuous back bending. The agricultural workers repeatedly perform lifting, pulling, twisting and bending motions that exert force on the musculoskeletal system of the body and thereby leading to fatigue and pain.

Back pain and pain in the shoulders, arms and hands are the most common symptoms reported by farmers (NIOSH, 2001). Women reported more symptoms in the neck, upper back and upper extremities than men (Hildebrandt, 1995).

## Conclusion:

Thus it can be concluded that rural communities often lack access to appropriate technologies which may result to various health hazards. Farm workers often view pain as a normal part of work and seek care when the condition becomes severe or disabling. This same issue carries over to preventive measures designed to reduce the incidence of musculoskeletal injuries or other hazardous work exposures. Frequently, workers do not understand the association of a problem with its source because of cultural misunderstandings.

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