

Assessment of body discomfort among gardeners

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■ **ABSTRACT** : Many body parts can be affected during work. The back is the most common, followed by the shoulders, neck, elbow, hands and wrists. The human body is an amazing machine. It can do a huge variety of difficult, complex and unique physical tasks. However, the human body is also limited in what it can do. Pains and strains/MSDs occur where the demands of the job exceed the capabilities of the person doing the job. Each person in a workplace is unique. The main aim of the present study is to assess the MSD related problem of the gardeners. This cross sectional research study was conducted on 120 sample inclusive 30 gardeners from each park by using multistage random sampling. Data were collected through interview method by using Nordic Musculo-skeletal Questionnaire (developed by Dickinson *et al.*, 1992). The results showed that the large number of gardeners were literate. Consequently, they suffered from discomfort in different parts of their body specifically in leg, lower arms, upper arms, neck and shoulder, which mainly prevented them from continuing their work. It was concluded that MSD among the gardeners might be related to the stressful work, proper work-rest schedules and awareness programme may be helpful for reducing the MSD and proper handling of hand tools.

■ **KEY WORDS** : Gardeners, Musculo-skeletal disorder, Body discomfort

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Gardening is a practice of growing ornamental or useful plants. There are so many health related benefits of gardening like access to food, improved nutrition, increased physical activity and good mental health. The occupational gardeners have a hectic physical work profile. Gardeners are prone to skin sensitivity, asthma, musculoskeletal problems and hypertension. (Bignoniya, 2010).

Gardening is a big project, among other seasonal activities; it is important one and cannot write-off the pain and discomfort as a small problem that will go away on its own. Pain is a signal that something is not right and checked out to ensure proper healing of the body.

Pain is the most common reason that people seek medical attention. But pain is actually hard to define because it's a subjective sensation. The International Association for the Study of Pain defines it as an "unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage"

(source: International Association for the Study of Pain.)

There are two aspects of body position (posture) that contribute to injuries in jobs involving repetitive tasks.

The first relates to the position of the part of the body that performs the actual task, usually the upper limb. For example, tasks that require repetitive movements to the extreme ranges of the joint in the wrist elbow or shoulder contribute to the occurrence of a painful condition in those areas.

The other postural aspect that contributes to WMSD (work related musculo-skeletal disorders) is a fixed position of the neck and the shoulders. To perform any controlled movement of an upper limb, the worker must stabilize the shoulder-neck region. Muscles in the shoulder and the neck contract and stay contracted to hold the position stable for as long as the task requires.

Weeding, hoeing, raking, shoveling- the repetitive motions of gardening can lead to hand and wrist pain and worsen existing conditions such as arthritis. Taking steps to

minimize irritation and discomfort work can help ensure, that gardening tasks don't create aches or worsen pain.

Musculo-skeletal disorders (MSD) is commonly caused by over exertion, muscle strain and repetitive strain. The risk of disorder is also directly related to the number and speed of movements and the amount of force exerted with each movement. A task with high repetition and poor posture may result in a significant number of complaints or injuries (Gangopadhyay, 2010 a and b).

The United Nation and World Health Organization (WHO) declared the decade, 2000-2010 as a bone and joint decade with the aim of increasing the understanding of the burden posed by MSD and improving the health-related quality of life. (Bihari, 2011)

Hence, the present study was conducted on gardeners body discomfort who toil whole day irrespective of the temperature and climatic conditions, tools they use, involve in the highly risky and hard work.

RESEARCH METHODS

Purposive sampling technique was used to select the Lucknow city. The methodological approach to this study was based on primary data through face to face interview. This study included four parks, Din Dayal, Eco-garden, Smiriti upwan and Rama Bai park. This cross-sectional study was conducted on 120 samples, 30 sample inclusive of each park aged between 20-50 years by using multistage random sampling. Research design depicted was cross sectional research design.

Demographic data of respondents was collected. To assess their body discomfort Body Discomfort Scale developed by Dickinson *et al.* (1992), was assessed. Data were collected through face to face interview method. Statistical Package and System Software (SPSS) was used in the analysis. The Pearson Chi-square test and F-test were used to test the strength of association between various categorical variables. Simple frequency distribution and cross tabulation was used to facilitate presentation of the findings.

RESEARCH FINDINGS AND DISCUSSION

It can be noted from Table 1 that out of total sample, 23.33 per cent gardeners were graduates and 30 per cent

Table 1: Educational status of the gardeners

Educational level	Age (in years)			Total
	20-35	36-50	>50	
Graduate	18 (15)	9 (7.5)	1 (0.83)	28 (23.33)
Intermediate	21 (17.5)	15 (12.5)	---	36 (30)
High School	24 (20)	16 (13.33)	3 (2.5)	43 (35.83)
Illiterate	1 (0.83)	3 (2.5)	9 (7.5)	13 (10.83)
Total	64 (53.33)	43 (35.83)	13 (10.83)	120 (100)

Figures in parenthesis in indicates percentage)

gardeners have completed their intermediate and 35.83 per cent gardeners have completed their High School and 10 per cent of gardeners were illiterate. Most of the gardeners were High School qualified. (Fig.1).

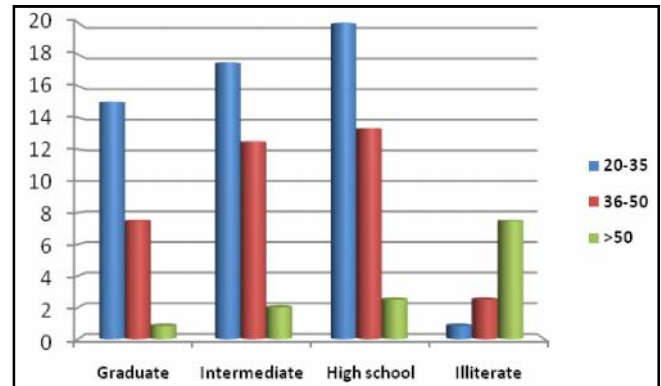


Fig. 1: Educational level of the gardeners

Some of them were literate but most of them could not complete their graduation due to poor economic condition. They were obliged to do agricultural work to run their family. Due to low educational level, the workers were not aware about the occupational diseases and their treatment or remedial measures (Kar and Dhara, 2007).

Table 2 explains body discomfort among the gardeners according to their age. It can be observed that, majority of the gardeners felt more pain in legs in the 20-35 age groups. Majority of the gardeners felt more pain in legs in the age group of 36-50 years, whereas majority of the gardeners felt more pain also in legs in 50 and above age group.

Table 2 : Assessment of body discomfort of the gardeners in different body parts

Body parts	Age (in year)			Total (120)
	20-35 (n=13)	36-50 (n=43)	>50 (n=13)	
Neck	5 (7.81)	3 (6.97)	2 (15.38)	10 (8.33)
Shoulder	6 (9.37)	5 (11.62)	1 (7.69)	12 (10)
Upper back	6 (9.37)	3 (6.97)	1 (7.69)	10 (8.33)
Upper arms	9 (14.06)	2 (4.65)	1 (7.69)	12(10)
Mid back	5 (7.81)	5 (11.62)	---	10 (8.33)
Lower arms	3 (4.62)	9 (20.93)	1 (7.69)	13 (10.83)
Lower back	3(4.62)	1 (2.32)	1 (7.69)	5 (4.16)
Buttocks	2 (3.12)	1(2.32)	---	3 (2.5)
Thighs	5(7.81)	4 (9.30)	---	9 (7.5)
Legs	20 (31.25)	10 (23.25)	6 (46.15)	36 (30)

Figures in parenthesis indicate percentage

The upper leg of the workers had problem in threshing (72.0%) job, which might be due to continuous standing posture during threshing. A high percentage of workers reported knee-ankle pain during uprooting (54.0%) and transplantation (60.0%) tasks. The occurrence of MSD among the workers might be related to the work posture, duration of work, and use of ill-

fitted hand tools. (Kar and Dhara, 1984).

According to Silverstein *et al.* (1987) an activity is said to be repetitive if 50 per cent of the work cycle involves similar motion patterns. This criterion of repetitiveness was satisfied in this study wherein the hammering activity covered 72.5, which was 80.1 per cent of the work cycle of 90.5s. Thus, high repetitiveness may be regarded as a causative factor for the development of MSD (musculo-skeletal disorders) in upper limbs.

Ghosh and Gangopadhyay (2010) found that the 80 per cent workers reported feeling of discomfort and among them 70 per cent felt discomfort during work and 30 per cent during rest. The feeling of discomfort was in different body parts of the workers. It was observed that the feeling of discomforts were mainly related to musculo-skeletal disorders like pain at low back (100%), hand (40%), shoulder (30%), wrist (20%) and neck (20%).

Gangopadhyay and Das (2010) found that the subjects suffered from occupational-related discomfort mostly affecting the lower back (97%), knees (85%) and shoulders (77%). The questionnaire study also showed that in the experimental group, 67 per cent of the subjects experienced discomfort in the hand and 58 per cent of the subjects suffered from discomfort in the wrist. The extreme parts of the upper extremities, *i.e.*, the hands were found to be the affected parts of the experimental subjects' bodies. The upper back and legs also affected the experimental group. Forty seven per cent of the subjects felt discomfort in the upper back and 43 per cent of the experimental group felt discomfort in the legs.

Between the heavy bags of soil, the many tools needed or full baskets of vegetables being carried into the kitchen for processing and lifting is a common labor when gardening. Remember to lift from a squatting position, with your back straight, so that legs do the work, not the back. When kneeling down, use gardening, kneepads or even just a rolled up towel to cushion the joints from the hard, damp ground. Remember to minimize twisting motions that can insure the back and joints. After working on the garden beds all day, they feel sore, stiff and bent out of shape. Unlike other activities-sports, for example-in which one can learn and master specific techniques, most gardeners simply get out there and "dig in" without thinking about the way they move. Therein lies the problem. Misusing the body while gardening places stress on the muscular and skeletal systems, this can cause discomfort or injury. And when the movements are awkward and inefficient, effort and energy will be wasted .

Conclusion:

It was concluded that musculo-skeletal (MSD) pain or discomfort was maximally reported in leg and where as lower

arms and shoulder was affected during threshing. Besides the weight of the sac, awkward posture like bending and twisting of trunk adopted frequently cause the problems.

It can be concluded from the study the health of the gardeners was highly affected by different awkward postures and they suffered from posture-related discomfort primarily affecting the low back region. Moreover, they have to work for a prolong period of time remaining in such gardening and awkward posture, which further amplifies their discomfort feeling.

Gardeners work in unfavourable working conditions with the high stress of occupation. It was concluded that musculo-skeletal disorders (MSD) among the gardeners might be due to the stressful work posture. Proper training of better posture, well-designed tools and proper work schedules may help the gardeners work comfortable, safe and efficient.

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