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Research Article

Physiotherapy for better pain management

Prevalence of Musculoskeletal Disorders in Gardeners.

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Abstract: Musculoskeletal disorders are a group of disorders that affect the musculoskeletal system involving the nerves, tendons and ligaments as well. Musculoskeletal disorders are emerging common health problems among workers due to intensive manual work. They include shoulder pain, tenosynovitis, carpal tunnel syndrome etc. Occupations with prolonged work hours and repetitive tasks are one of the main reasons for development of abnormal posture and micro injury to the muscles. Gardening is a profession where multiple positions are assumed that are required to be maintained over long periods of time eg squatting position or trunk bent position. Also, repetitive movements of the wrist and hand are used. Gardening is also a profession which has not been given much attention by the medical field and hence their postural and muscular abnormalities which are a result of labour intensive and cumbersome work are often overlooked. These problems can easily be dealt with if proper physiotherapy is done. Therefore, keeping in mind the workload of this target group. it is important to rule out the musculoskeletal abnormalities faced by them. So the present study was conducted with the aim to determine prevalence of musculoskeletal disorder among women gardeners. An observational study was conducted in 60 female gardeners at Krishna hospital Karad. Only women within the age group of 20-60 years were involved. As the outcome measure, visual analogue scale (VAS) was used to rate the intensity of pain or discomfort experienced by the gardeners. They were presented with a standard VAS and asked to mark their perceived amount of discomfort. Nordic pain questionnaire was also used to determine the sites of pain and also the duration of symptoms. The results of the study indicated that lower back pain was more prevalent in female gardeners of Krishna Hospital which is attributed to the nature of their work followed by neck problem 43.33%, knee problem 40%, wrist problem 31.66%, and shoulder problem 28.33%. Therefore it can be concluded that musculoskeletal disorders are prevalent in female gardeners with low bak pain being the most common.

Keywords: Prevalence, gardeners, women, musculoskeletal, low back pain. Nordic questionnaire

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1. INTRODUCTION

Musculoskeletal disorders are defined as groups of disorders that affect the musculoskeletal system including the nerves, tendons and muscle supporting structures[1]. Musculoskeletal disorders are emerging common health problems among workers due to intensive manual work. Musculoskeletal disorders include shoulder pain, tenosynovitis, carpal tunnel syndrome etc[2]. Back pain is the most common reason for sick absence from work[3]. Musculoskeletal disorder includes symptoms such as pain, numbness and tingling sensation. Occupation with maintained posture and repetitive work tasks can be a reason for neck and shoulder complaints, heavy physical work and motor vehicle driving are common reasons for low back pain[4]. Education and age also have significant association with the musculoskeletal disorder. Symptoms of musculoskeletal disorder are pain, stiffness, swelling, decrease in overall physical activity level, decrease working efficiency, low quality of life[1], Causes of the musculoskeletal disorder are related to the Age, Occupation, Activity level, Life Style, Family History. The prevalence of work – related musculoskeletal disorder is 2.5 times higher in workers compared with other people. The highest prevalence of musculoskeletal is reported in unskilled workers such as farmers and building workers[5]. Musculoskeletal problems are associated work related to the physical risk factor such as repetitive tasks, work environment and psychological factor[1]. This hard labour affects the health of workers in different aspects. Average number of health problem per worker was about 60% Workers had musculoskeletal problem[6], such as low back pain while gardening, spinal problem such as kyphosis and scoliosis due to prolonged wrong posture, varicose veins caused due to prolonged standing in workers is often encountered. Various musculoskeletal problem like Osteoarthritis, Lateral Epicondylitis, Supraspinatus Tendinitis, Biceps Tendinitis, Trapezitis, Carpal tunnel syndrome, Ankle Sprain are seen in this workers but Back pain is major problem seen in these patient[4]. Back pain is an extremely common human phenomenon, postural and traumatic back pain are the common cause of back pain. Osteoarthritis is a degenerative joint disease commonly to the wear and tear of joints mainly caused due to excess weight bearing. Lateral epicondylitis is a condition characterised by pain and tenderness at the lateral epicondyle of humerus due to inflammation at the origin of the extensor muscle of the forearm. It occurs due to overuse of extensors muscles, carrying a heavy weight for a longer period. Carpal tunnel syndrome is syndrome due to the compression of the median nerve caused due to repetitive movement of the wrist by using more wrist flexors (pathologically wrist osteoarthritis and bone thickening)[7]. The goal of this study was to collect information on musculoskeletal disorder in daily wage workers. However there is paucity of literature available to show the prevalence of musculoskeletal disorder in gardeners. Gardening is the practice of growing useful plants[8]. There are so many health related benefits of gardening. The gardeners have a hectic physical work profile. They have work in the afternoon of summer, early morning in winter, and rainy season. Gardeners are very prone to skin sensitivity, asthma, musculoskeletal problem[8]. Spading means a tool with a broad, deep scoop or blade and a long handle, used in lifting and moving loose material as soil, snow, gravel etc. Spading in Indian working population is widely varied depending on their work situation like digging of soil by gardeners and many others. Some journals had considered stooping, kneeling, squatting and twisting posture as the most uncomfortable and dangerous posture during gardening [8]. Occupational gardeners are exposed to various types of risk factors like dust, allergy sharp stool, and pesticides, which make them vulnerable to many diseases. This study aims to find out musculoskeletal disorders in gardening workers. India is a vast country and variation occurs in the socioeconomic pattern and other risk factors. Around half of the working force in the world is employed in agriculture[8]. There is a lack of health information in many subpopulations in India, and there is need to be explored for health policy. Musculoskeletal disorder is a leading cause of occupational ill health, awkward and static posture has been recognised as a risk factor for work related problems. The prolonged flexion of the knee and the external pressure on knee in kneeling work are the main cause of knee complaints [8]. While the gardeners are in squatting position, a maximum bending of knee and hip injuries to older gardeners are seen. Digging with a conventional spade was determined to lead to lower back injury[8]. Also, activities like overexertion in association with lifting, bending and pulling, prolonged static work position and heavy physical labour were seen to be associated with causes of low back pain[9,10,11]. There are variations seen in studies commenting on the prevalence of problems in individuals with this profession. Therefore the main aim of this study was to find out prevalence of musculoskeletal disorders in gardners.

2. MATERIALS AND METHODS

The ethical clearance was taken from the institutional ethical committee of Krishna Institute of medical Sciences, Karad (KIMSDU/IEC/02/2019). An observational study was conducted in 60 female gardeners at Krishna hospital Karad. The inclusion criteria was Age group: 20-40 and 40-60 years, physically active individuals working for more than 3 years, Women gardeners only, Individuals working at least 5 days per week, willing to participate. Informed consent was taken and the purpose and procedure of the study was explained to those willing to participate. The participants were interviewed personally and were asked to fill the Nordic questionnaire and VAS scale. Exclusion criteria of study was pregnant women, recent fractures and psychological ill patients. The outcome measures were visual analogue scale and Nordic questionnaire.

2.1 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

2.1.1. Prevalence of discomfort experienced by right and left handed workers

Table 1: Prevalence of discomfort

JOINTS	RIGHT	LEFT
Neck	23	3
Low Back	29	3
Upper Back	14	1

Knee	22	2
Elbow	13	3
Shoulder	17	0
Wrist	18	1

Interpretation: Above table represents total 60 gardening workers. Out of 60 subjects, 52 subjects were right handed and remaining 8 were left handed. The 52 right handed subjects had issues in various joints including 23 neck, 29 low back, 14 upper back, 22 knee, 13 elbow, 17 shoulder, 18 wrist joint issue subjects. Similarly, in left handed subjects, 3 neck, 3 low back, 1 upper back, 2 knee, 3 elbow, and 1 wrist problems were noted.

2.1.2 Prevalence of discomfort experienced by various age groups of workers

Table 2: Prevalence of discomfort in various age groups

JOINTS	20-40	40-60
NECK	7	19
LOW BACK	6	26
UPPER BACK	6	9
KNEE	4	20
ELBOW	6	10
SHOULDER	3	14
WRIST	2	17

Interpretation: Above table-2 represents a total of 60 gardening subjects. Out of 60 subjects, 15 subjects were in age group 20-40 years, 45 subjects are in age group 40-60 years. The former group consists of 7 neck, 6 low back, 6 upper back, 4 knee, 6 elbow, 3 shoulder and 2 wrist. The latter group consists of 19 neck, 26 low back, 9 upper back, 20 knee, 10 elbow, 14 shoulder, 17 wrist.

2.1.3 *Prevalence of discomfort according to duration*

Table 3: Prevalence Of Discomfort According To Duration.

	Last 12 Month Had	Seen Physician For Last 7 Days	
Joint	Trouble	Condition	Trouble
Neck	26	26	23
Low Back	32	28	28
Upper Back	15	10	10
Knee	24	15	20
Elbow	16	7	10
Shoulder	17	10	15
Wrist	19	7	13

Interpretation: Above table-3 represents a total of 60 gardening subjects. Out of 60 subjects, in the last 12 months, 26 had complaints of neck pain, 26 visited a physician and out of them 23 had been experiencing pain in the past 7 days. 32 had low back pain out of which 28 went to the physician and 28 had experienced pain in the past 7 days. 15 had complaints of upper back pain, 10 went to the physician and 10 had pain in the last 7 days. 24 had knee pain, 15 went to a physician out of 20 who had pain in the past 7 days. 16 had elbow pain, 7 went to a physician and 10 had pain for 7 days. 17 had shoulder pain, 10 had seen a physician and 15 had pain for the last 7 days. 19 had wrist pain, 7 had seen a physician and 13 had pain for the last 7 days.

3. DISCUSSION

The main purpose of this study was to find the prevalence of musculoskeletal disorders in gardeners using the standardized Nordic questionnaire, a validated instrument. The prevalence of musculoskeletal symptoms was described among a sample of 60 gardening workers from the Krishna hospital Karad. The finding suggests that the gardening profession is at high- risk for work- related musculoskeletal disorders. The result indicates that lower back trouble is a major health problem, followed by neck, shoulder, elbow, wrist, and knee. Out of 60 gardeners, in the last 12 month, 26 had complaints of neck pain, 26 are preferred to physicians, out of this 23 had seen trouble in the last seven days. Similarly, 32 Subjects had complaints of low back pain, 28 were preferred to physicians, and 28 had seen trouble in the last seven days. 24 had complaints of knee pain, 15 had preferred to physician and 20 had problems in the last seven days, 19 subjects had complaints of wrist pain, 7 preferred to physician and 13 had problems seen the last

seven days.17 had pain in shoulder, 10 preferred to physician, 14 had problems seen the last seven days. According to the present study the low back pain symptoms have the highest rate, 53.33% of preventing performance of normal work during the last 12 month, followed by neck problem 43.33%, knee problem 40%, wrist problem 31.66%, and shoulder problem 28.33%. There are many combined factors which may cause musculoskeletal symptoms, the symptoms may be influenced by working techniques, work organisation and individual characteristics. Psycho- social factors may also have some influence.[12] The roles played by work posture, load, and techniques in developing musculoskeletal strain which may result in disorders. The lower back pain is affected by the position of the body, gardening workers in forward bend posture is the main cause of lower back pain.[13] Also, activities like overexertion in association with lifting, bending and pulling, prolonged static work position and heavy physical labour were seen to be associated with causes of low back pain, at the same time prolonged flexion of the knee and the external pressure on knee in kneeling work are main cause of knee complaints.[14,15] While the gardeners are in a squatting position, a maximum bending of knee and hip injuries to older gardeners are seen. Knee pain may also be related to osteoarthritis and age. The wrist complaint due to the repetitive movements causes wear of joints and affects the soft tissues around the joint. Neck pain is due to combined issues of various joints and structures. Commonly, due to constant forward flexion of the neck results in bad posture leading to neck pain. Also vigorous movements of the shoulder or cervical spine can also cause neck pain. This may also be associated with soft tissue injuries at shoulder joints. Elbow joint is another joint which is commonly affected in this occupation, tennis elbow and golfer's elbow like soft tissue injuries are common in elbow joints due to repeated movements. These all musculoskeletal problems lead to increased absenteeism and decreased employment which further affect the quality of life. Hence, further research focusing on psycho-social factors contributing effect due to work related musculoskeletal disorders is needed.

4. CONCLUSION

The study concluded that the low back pain was more prevalent in the female gardeners of Krishna Hospital which is attributed to the nature of their work followed by prevalence of other musculoskeletal problems.

5. AUTHORS CONTRIBUTION STATEMENT

Dr. Smita Patil conceived the idea and guided in conducting this research study and also reviewed the manuscript. Mr. Rushikesh R Mangale carried out the research study, evaluated the results and drafted the manuscript.

6. FUNDING ACKNOWLEDGEMENT

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7. CONFLICT OF INTEREST

Conflict of interest declared none

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