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RESEARCH ARTICLE
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A CROSS SECTIONAL SURVEY OF WORK RELATED MUSCULOSKELETAL DISORDERS AND ASSOCIATED RISK FACTORS AMONG RURAL POPULATION OF VILLAGE KALIAWAS

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ABSTRACT:
Background: Musculoskeletal disorders in the health industry are quite common, however, there have only been a few studies regarding rural population and there is lack of data and research and these disorders are equally prevalent among rural population.
Aims and Objectives: The aims and objectives of this study are to analyze the prevalence of MSD among rural population and to investigate associated risk factor related to work related musculoskeletal disorders.
Methods: Community health screening and treatment by physician and physiotherapist were conducted twice a week during the period from May to June 2018. Nordic pain questionnaire was used to check the prevalence. Total 300 subjects participated out of which 188 subjects were identified with MSD and evaluated.
Results: This study was done on 300 participants out of whom 188 were diagnosed as having musculoskeletal disorders, 62% of the studied participants suffered from work related musculoskeletal disorders and the low back ache was the most prevalent.
Conclusions: The MSDs are the most prevalent health problem among the rural men and women of kaliawas village and there was no education program for the villagers. However it seems that to conduct educational interventions and ergonomic program for these communities are necessary to prevent the disorders in future.

Keywords: Risk Factors, Musculoskeletal Disorder, Risk Factors and Rural Population

Introduction Musculoskeletal disorders are among the most common work related complaints. Musculoskeletal disorders (MSD) have been reported as one of the most common and important health problems in working populations, generating social and economic implications.[1] Musculoskeletal (MS) conditions affect more than 1.7 billion people worldwide and have the fourth greatest impact on the overall health of the world population, considering both death and disability. This burden has been increased by 45% during the past 20 years and will continue to escalate unless action is taken. [2] Global prevalence of MSD was 8.4%, with its burden increasing with age and is ranked as sixth cause of Years lived with disability (YLD).[3] Developing countries health care and its related economy are the major concerns in countries. In terms of collective growth of their society as a whole, rural public's status of health prevalence of diseases and disorders, level of literacy,

accessibility, affordability and availability of timely medical intervention can save lives and improve the standard of rural population life style. Rural health care is one of the biggest challenges with 70% population living in rural areas and low-level health facilities.[4]India accounts for the largest maternity deaths, majority of these are in rural areas where maternal health care is poor. Health education should be promoted at community level so that the morbidity associated with MSD will be reduced and the quality of life of rural population improves.[3]Till date no study has been conducted on prevalence of work related musculoskeletal disorders in Kaliawas village, So this study was an attempt to address the same.

Aims and objectives of this research was

1. To analyze the prevalence of MSD among rural population.
2. To identify the risk factors.
3. To obtain details of social habits and nature of occupation.
4. To evaluate literacy level and utility of health care for MSD

Materials & Methodology:

A team of health professionals which included physician, physiotherapist and BPT students of SGT University visited the village twice a week and organized a camp. This study was conducted between May 2018 to June 2018. The participants who fulfilled the inclusion and exclusion criteria were included in the study. Nordic pain questionnaire was used to check the prevalence of musculoskeletal disorders, the participants were explained about the study and the questionnaire used in the study. Individual explanation of the questionnaire was given to each and every participant and it was filled with the help of researcher. A self-structured questionnaire was also used to collect information related to occupation, education, associated risk factors such as drinking, smoking, literacy, utilized medical facility and about the other risk factors that cause maximum pain and disability such as squatting, lifting heavy weight, vibrational forces, bending and twisting.

SOURCE OF SAMPLE

Kaliawas village near SGT University

INCLUSION CRITERIA

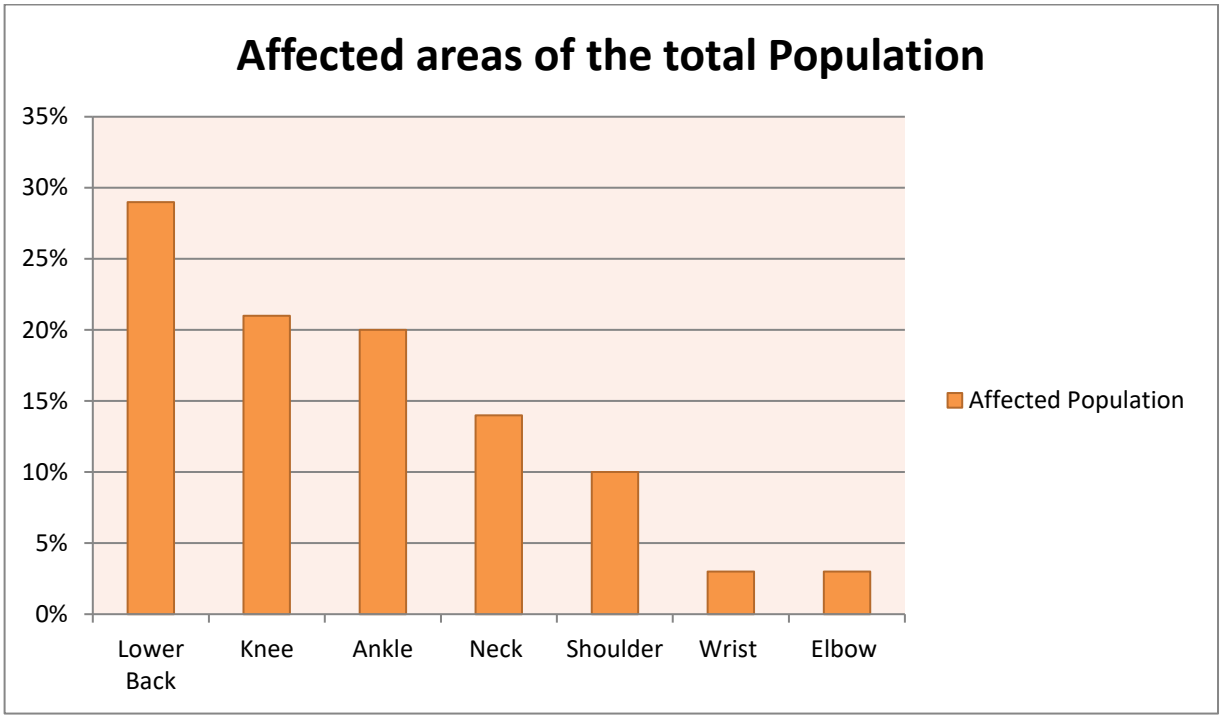
1. Men and women with Musculoskeletal disorder.
2. Age 30-70 years

EXCLUSION CRITERIA

1. Those who did not attended the camps,
2. Bed ridden subjects of the village,
3. Participants who attended the camps but with no MSD

Result

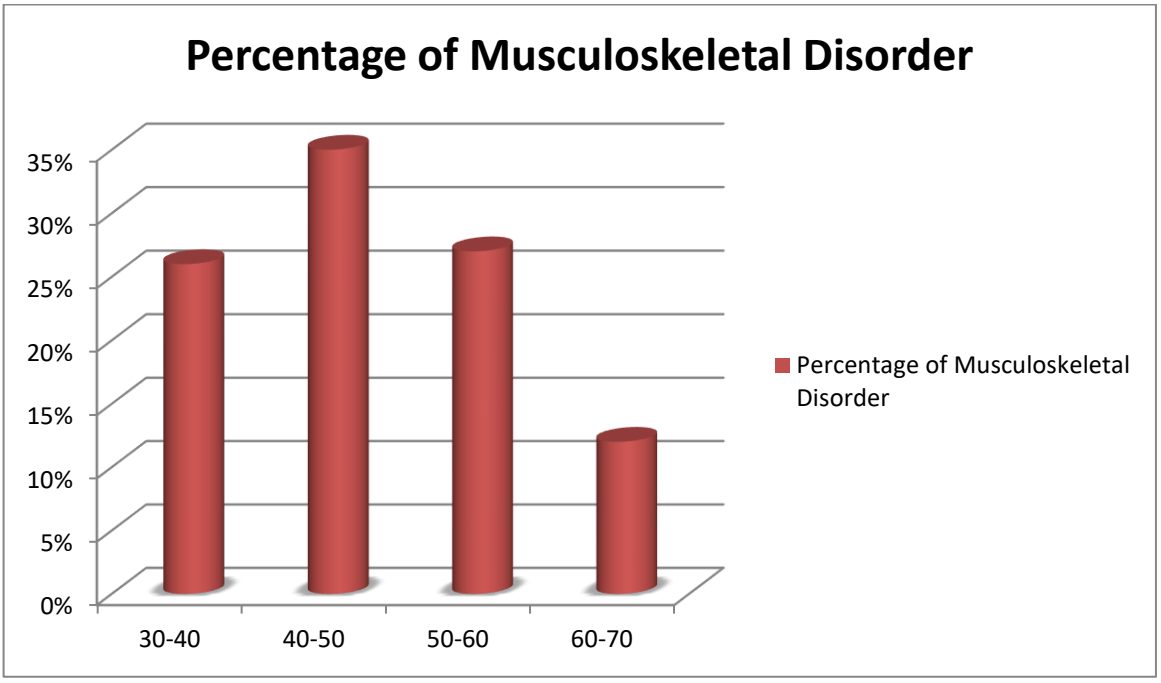
Age and gender wise distribution of MSD: The study was conducted in Kaliawas village to find out the prevalence of musculoskeletal problem and associated risk factors in rural population. Study was done on 300 participants out of whom 188 were diagnosed with musculoskeletal disorders, the prevalence being of 62%. The results of this study are illustrated in table1 and figure 1. The result demonstrate that the most commonly affected regions were lower back region(29%) followed by knee(21%) then ankle(20%), neck(14%), shoulder(10%), elbow (3%) and wrist(3%). There was an equal percentage of MSD among males (50%) and females (50%). A striking finding of this study was that 87 % of subjects with MSD were aged below 60 years. Age wise distribution of musculoskeletal disorders as illustrated in figure 2 demonstrates different percentage of MSDs among different age group-30-40 (26%),40-50 , (35%),50-60, (27%) and 60-70(12%). Results showed that musculoskeletal disorders were more prevalent in 40-50 age group participants.



Graph.1. Prevalence of total percentage of affected area in Kaliawas village

Table 1. Prevalence of MSD with age and gender wise distribution

Area of body	Gender	Percentage	30-40	40-50	50-60	Above 60
Neck (27) 14%	Female	77% (21)	23% (6)	44% (12)	-	11% (3)
	Male	23% (6)	11% (3)	12% (3)	-	-
Shoulder (19) 10%	Female	47% (9)	16% (3)	31% (6)	-	-
	Male	53% (10)	16% (3)	16% (3)	16% (3)	5% (1)
Elbow (6) 3%	Female	-	-	-	-	-
	Male	100% (6)	-	-	50% (3)	50% (3)
Wrist (6) 3%	Female	50% (3)	-	50% (3)	-	-
	Male	50% (3)	-	-	-	50% (3)
Back (54) 29%	Female	50% (27)	16.6% (9)	16.6% (9)	16.6% (9)	-
	Male	50% (27)	16% (9)	16% (9)	11% (6)	6% (3)
Knee (40) 21%	Female	48% (19)	23 % (9)	7% (3)	15% (6)	3% (1)
	Male	52% (21)	-	7% (3)	30% (12)	15% (6)
Ankle / Feet (36) 20%	Female	42% (15)	8.5% (3)	25% (9)	8.5% (3)	-
	Male	58% (21)	8.5% (3)	16% (6)	25% (9)	8.5% (3)



Graph 2: Percentage of age groups of the affected population

ASSOCIATED RISK FACTORS: In this study it was found that the risk factors such as prolonged exertion, awkward posture, twisting, excessive bending, monotonous work, lifting of heavy weights and the exposure to vibration force while driving tractors for long hours, seem to play a major role in the development of MSDs.

LEVEL OF LITERACY : India has 28.7 crore illiterates and had the largest number of adults without basic literacy skills in 2010-2011.India country literacy rate at 7.04% with male and female literacy level 82% and 65% respectively. Haryana state has 76.6% literacy rate, Gurugram district in which the study was conducted has a literacy rate of 84.7 %.[5]This study found that overall literacy rate was 68% with male literacy being 40% and female literacy being 28% (Table 2).

UTILITY OF MEDICAL CARE: In our study the utility of medical health care, as illustrated in table 2, it was found that 49% participants preferred treatment by Physician, 26% took physiotherapy and 25% preferred home remedies for their musculoskeletal problems.

Alcohol Consumption: There were 8% alcoholics in the population studied. The result of our study are similar with the findings of a study by Goswami, which was done in rural Faridabad among elderly subjects which found 16% of men and 8% of women were alcoholics.[6]Prevalence of alcohol consumption in India is around 21% among men and 2% among women. More than 11% of Indians were binge drinkers against global average of 16%.[7]

Tobacco consumption: Tobacco consumption is a serious public health problem in many countries including India because of its associated health hazards. Globally 47% of men and 12% of women smoke. Tobacco use alone is currently ranked fourth in the world for loss of life [23] which is very much preventable. Smoking causes 71% of lung cancer, 42% of chronic respiratory diseases and 10% of cardio vascular disease.[8] The result, however in our study found that 9.5% male and 1.5% female were smokers in Kaliawas village.

Discussion

India is an agricultural country with most of the male population engaged in the farming work and females are engaged in household work along with farming activities. They are exposed to many risk factors like extreme temperatures, dust and situations that involve excessive twisting and bending. This study aimed to explore self-reported musculoskeletal disorders and focused on rural population aged between 30-70 years of age. This study was undertaken to identify the prevalence

and risk factors of musculoskeletal disorders. Our result showed higher prevalence of different musculoskeletal disorders (62%) among rural men and women, with equal prevalence in both genders (50%). In this study, the prevalence of low back pain was 50% among women. The result is in accordance with the result of study.[9]In one of the study conducted at Iran was found that 79% of study participants were suffering from musculoskeletal disorders and were most common among housewives and low back ache (60%) was the most prevalent musculoskeletal disorder.[5]

In agreement with past studies we found considerable four most common musculoskeletal disorders affecting the farmers of rural Kanpur, in which low back ache(60%) was the most prevalent followed by knee (39%), shoulder (22%) and neck (10%).[10]Although in the present study it was observed that the rural population was suffering from various MSD's due to poor awkward posture, twisting, excessive bending, lifting of heavy weight like hay, water pots, etc. Squatting during the work is the major risk factors contributing to the development of musculoskeletal disorders in rural population.

For many years, it has been assumed that each physical risk factor in the working environment functioned as an independent factor and there is an association between physical risk factors at the workplace and MSDs.[11] The National institute of occupational safety and health (NIOSH) concluded that there is a large body of credible of epidemiological research that shows a consistent relationship between certain physical risk factors in work place and MSD.[11]

In our study it was found that 26% of the population had physiotherapy awareness. They all visited a nearby hospital which had a physiotherapy department for treatment of their problems and only 10% of them did exercises in form of walking and some yogasans.

LIMITATIONS

1. Small sample size
2. More sample size could be added with other study variables such as blood pressure, diabetes and obesity etc.
3. Risk factors evaluated were limited
4. All the information collected was subjective

Conclusion

There was a high prevalence of musculoskeletal disorder among rural population of Kaliawas with men and women equally affected (50%). The most common complaint were low backache followed by osteoarthritis, plantar fasciitis, cervical spondylitis etc. Squatting, bending, lifting heavy weight were found the risk factors associated with MSDs Lack of literacy belief in home remedies and non-availability could further limit the health measures for those with MSDs.

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