

Prevalence And Risk Factors Associated with Musculoskeletal Discomfort among Vegetable Street Vendors

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ABSTRACT

Background: The common health problem among workers is musculoskeletal disorders due to intensive manual work(1). Pain, stiffness, swelling are the symptoms of musculoskeletal disorders(1)..High energy expenditures, heavy spinal loading during lifting and carrying, highly repetitive movements and crawling, stooping and other difficult work postures are require at field work and for material handling(14).

Aim: To determine the prevalence and risk factors associated with musculoskeletal discomfort among vegetable street vendors.

Objectives: To find out prevalence of musculoskeletal discomfort in vegetable street vendors by using Nordic Musculoskeletal questionnaire.

To find out correlation between personal factors, working factors and musculoskeletal discomfort.

Materials and methodology: 125 Vegetable vendors were participated in this study. Age range between 18-60 years. Subjects having more than 5 years of experience are included.They were given consent form ,screening form and Nordic musculoskeletal questionnaire and the area of pain was marked by them on scale. The data was taken on excel sheet and data analysis was done then results were calculated.

Result: The prevalence of 69.60% was obtained in vegetable street vendors. The most body part involved are lower back 44.80% , ankle/feet 32% ,the least affected body parts are elbows and wrist/hands. The musculoskeletal discomfort is positively associated with gender, age and not associated with other factors such as BMI, work experience, working hours/day,working days/week, excessive repetition,sitting for long period at work,etc.

Conclusion: According to the present study there is a high prevalence of musculoskeletal disorders among vegetable street vendors in latur city. The commonly affected body region are lower back, ankle/feet and knees.

Keywords: Musculoskeletal discomfort, vegetable vendors, prevalence, association

INTRODUCTION

The condition that affect the joints, bones, and muscles are known as musculoskeletal disorders.¹ The common health problem among workers is musculoskeletal disorders due to intensive

manual work.⁽¹⁾ Severe pain and physical disability which affects millions of workers across the world.⁽¹⁾ Musculoskeletal disorders reduces work productivity, increases absence due to ill health, it also affects working life and results in chronic occupational disability.²

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Work related musculoskeletal disorders can be said to be disorders of the soft tissue and their surrounding structures.⁽³⁾ The movements in work activities causes painful disorders and symptoms related to musculoskeletal apparatus thus are named as work related musculoskeletal disorders⁽⁴⁾. Global burden of diseases , injuries and risk factors study (GBD) released in 2019 states that musculoskeletal disorders are among top 20 leading causes of disease burden for all ages and the lower back pain ranked 9th among 10 most important drivers of increasing burden.⁴

The largest contributors to the occupational disease burden are the work related musculoskeletal disorders and are mostly related to ergonomic factors found in workplace⁽⁵⁾. The WHO(World health organizations) states that musculoskeletal conditions are most common causes of disability limitations related to daily living and gainful employment.⁵

Street vendors are defined as the distributors of goods and services at affordable prices and those who provide consumers with retail options and form a vital part of market of a city⁽⁶⁾. Street vendor the term in English is frequently used interchangeably with “hawker” and “street trader”.⁶ The major difference between street vendors is they use off street markets which can be public or private⁽⁶⁾. On regular basis many vendors work from same site.⁶ The profits from vending is the primary source of household income for the vendors and their families.⁶

Street vending in India is a profession for many people as it requires low skills and small financial inputs.⁷ Vegetable vendors play an important role in supplying vegetables and fruits to the consumers they also play a vital role in economic upliftment of population involved in cultivation.⁸ So for the well being of society their health is major concern.⁸ For serving the society sellers are engaged in process of selling fruits and vegetables face following problems that is finance, transportation, anatomical and physiological,etc.⁸ Among this most harmful to health is anatomical problem, that is permanent damage of ligaments, bones and tendons due to repetitive work motion and awkward postural changes.⁸

There is a high risk of musculoskeletal injury in small scale fresh vegetable growers due to intensive manual work⁽⁹⁾. High energy expenditures, heavy spinal loading during lifting and carrying, highly repetitive movements and crawling, stooping and other difficult work postures are require at field work and for material handling.⁹

The factors contributing the occupational disorders are bad posture, repeated physical effort or psychological stresses.¹⁰ Low back pain is most predominant risk of work related musculoskeletal disorders due to working for long hours and strenuous activity.¹⁰ 14% of total urban informal employment in India constitute of street vendors.⁽¹¹⁾ The people with poor economy gets engaged in informal sector mainly in street vending.¹¹

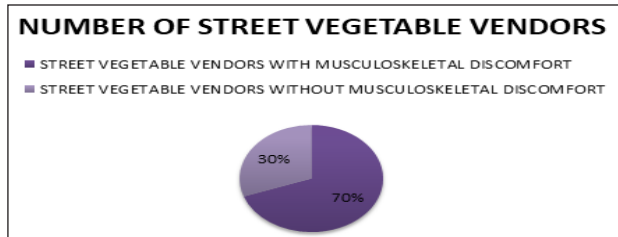
METHODOLOGY

- **Study design:** Cross-sectional study.
- **Sample size :** 125
- **Study set up:** In and around Latur
- **Target population :** Vegetable street vendors.
- **Study duration :** 6 months
- **Type of sampling:** Convenient sampling

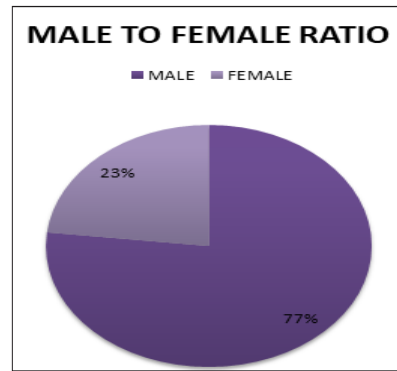
Ethical committee clearance was approved by the institutional ethical committee .125 participants were selected based on the inclusion and exclusion criteria. All the procedure was explained to them. The subjects were given the consent form. Personal factors and working factors was taken on screening form. Instructions regarding marking Nordic Musculoskeletal Discomfort questionnaire was explained to the subjects . The questionnaire was marked by the subjects. The data was collected and analysed. Final result was obtained.



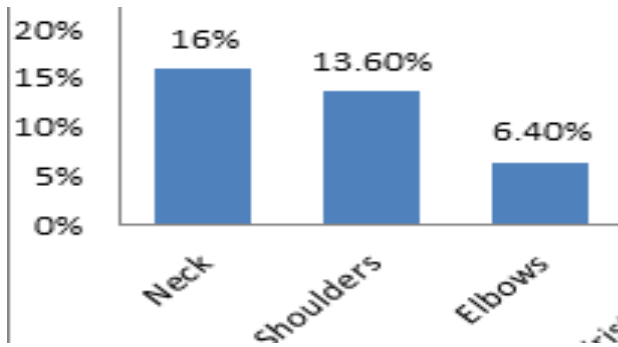
Result



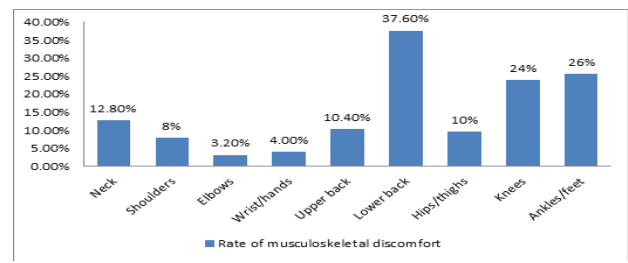
Graph 1: Prevalence of work related musculoskeletal discomfort in vegetable street vendors



Graph 2: Shows male to female ratio in street vegetable vendors



Graph 3: Areas affected in past 12 months



Graph 4: Areas affected in past 7 days.

Table 1: The association between personal factors ,working factors and musculoskeletal discomfort among vegetable street vendors.

Particular	Having Pain		No Pain		Odd Ratio	95%CI	Chi square p-value
	Frequency	Percent	Frequency	Percent			
1. Gender							
Male	59	67.8	37	97.4	0.06	0.01-0.44	0.001*
Female	28	32.2	1	2.6			
2. Age							
<=35	36	41.3	23	60.5	0.46	0.21-2.72	0.036*
>35	51	58.7	15	39.5			
3. BMI							
<=24.9	59	67.8	32	84.2	0.40	0.15-2.77	0.058
>=25	28	32.2	6	15.8			
4.W eight of vegetable							
<=30	57	65.5	24	63.1	1.11	0.50-3.61	0.799
>30	30	34.5	14	36.9			
5. Work experience							
<=15	60	69	29	76.3	0.69	0.29-3.22	0.403
>15	27	31	9	23.7			
6. Working days per week							
3-5 days	6	6.8	4	10.5	0.63	0.17-3.58	0.491
6-7 days	81	93.2	34	89.5			

7. Working hours per day							
<=10	34	39	19	50	0.64	0.30-3.04	0.255
>10	53	61	19	50			
8. Excessive repetition							
Fewer	19	21.8	12	31.6	0.61	0.26-3.07	0.246
Often	68	78.2	26	68.4			
9. Sitting for long period at work							
Fewer	36	41.4	19	50	0.71	0.33-3.14	0.371
Often	51	58.6	19	50			
10. Lifting or carrying weights							
Fewer	16	18.4	12	31.4	0.49	0.20-2.87	0.103
Often	71	81.6	26	68.6			
Note: OR-odds ratio, 95% CI - 95% confidence intervals (CI), Chi-square test (χ^2) and *Significant at p-value < 0.05							

RESULT

Incidence of Work related musculoskeletal discomfort in different body parts

Table 1 indicates street vegetable vendors with musculoskeletal disorders. The total prevalence of musculoskeletal discomfort among vegetable street vendors is 69.60% mainly involving lower back, ankle, feet, knees, upper back and neck.

Demographic characteristics analysis

A total of 96 male (76.80%) and 29 female (23.20%) were included and their age ranged from 18-60 years (mean 38.04±13.82 years). A total of 59 (47.2%) of the participants were 35 years old or younger and 66 (52.8%) were over 35 years old. The body mass index values ranged from 13kg/m² to 45kg/m² (mean 22.04±4.86 kg/m²).

The musculoskeletal discomfort were significantly associated with gender and age (Table 5) (P<0.05). The odds ratio shows that females have more musculoskeletal discomfort compared to males. The vegetable vendors over 35 years old have more musculoskeletal discomfort compared to 35 year old or younger. And musculoskeletal discomfort were not associated with body mass index values (P > 0.05).

Work related factor analysis

The working experience among vegetable street vendors ranged from 5 to 40 years

(mean 21.11±12.08 years). The weight of vegetables ranged from 5 to 60 kg the mean average is 31.36±18.45 kg. The working hours ranged from 5 to 16 hours/day, the mean average is 10.5±3.60 hrs/day. The working days ranged from 3-7 days/week, majority of vegetable street vendors 115 (92%) works for 6-7 days/week and 10 (8%) vegetable street vendors works for 3-5 days/week.

The majority of vegetable street vendors 94 (75.2%) were often/ always lifting or carrying weights. 94(75.2%) vegetable vendors often or always worked with excessive repetition. A total of 70(56%) of the vegetable street vendors worked often/ always sitting for a long time.

The other working factors such as weight of vegetable, excessive repetition, sitting for long period, work experience, working hours/day, and working days/week were not significantly associated with musculoskeletal discomfort, (P >0.05).

DISCUSSION

The study was done to observe prevalence and risk factors associated with musculoskeletal discomfort in vegetable street vendors. As per the data by using Nordic musculoskeletal questionnaire the study shows that the overall prevalence of work related musculoskeletal

discomfort is 69.60% in vegetable street vendors and the common body sites affected are lower back, ankles/feet, knees, upper back and neck. The total prevalence is consistent with reports from a study in Tehran (78.3 ± 6.8).²¹ Pain in different body parts occurs due to longer duration of work at awkward position like squatting posture, bending at back, sitting at low level, sitting directly on the floor with leg stretching, sitting on feet, bending at waist level, bending forward, bending at back while carrying load, carrying load on shoulder, twisting of body while picking up vegetables arranged at different levels.¹²

The previous study states that the prevalence of low back pain is highest in vegetable vendors.¹⁹ Working long hours and engaging in strenuous activities can significantly increase the risk of developing low back pain, a prevalent issue in work related musculoskeletal disorders.¹⁵ The WHO bulletin highlights that low back pain is linked to poor work postures, including bending of the trunk with heavy loads, simultaneous bending and twisting of the trunk, maintain a twisted posture for extended periods and repeatedly performing trunk movements.¹⁵

Gender was found significantly associated with musculoskeletal discomfort, with females reporting a higher prevalence compared to males. A study by Feng yang shows similar results⁽²²⁾. As female vendors have smaller body build so are less able to bear loads as compared to male.²²

Age was identified as another important factor associated with musculoskeletal discomfort. Older vegetable street vendors (>35years) reported a higher prevalence of discomfort compared to their younger (≤ 35) vegetable street vendor. A study by Yan Yang reported positive association between age and musculoskeletal discomfort among furniture manufacturing workers.⁴ Musculoskeletal physiology and structure may change with age leading to decline in physical fitness and endurance, other factors like career length could play a more influential role in causing work related musculoskeletal disorders.⁴

BMI as an indicator of body size and composition, did not show statistically significant association with musculoskeletal discomfort in this study.

Among the working factors examined, Work experience was found to have a no association with musculoskeletal discomfort. This is different from a study by Kanjanar Pintakham, et.al. which shows positive association between work experience and musculoskeletal discomfort.¹⁸

Other working factors, such working hours/day and working days/week did not show statistically significant associations with musculoskeletal discomfort in this study. This result is different from present study results, Obinna Chinedu Okezue, et.al. states that there is association between working hours and musculoskeletal disorder.²³ In vegetable street vendors the peak business hours are between 9 am to 12 noon, and has maximum selling and is minimum between 12 to 2 pm.²⁴ There is a substantial variation in terms of hours, days and months in which vendors sell. 6% of the street vendors demonstrates an inconsistent or variable selling schedule.²⁵

Sitting for long period at work shows no association with musculoskeletal discomfort. According to a recent systematic review, poor sitting posture and lack of daily physical activity could strongly predispose individuals to lower back pain when associated with sitting, not solely during prolonged sitting periods⁽²²⁾.

Excessive repetition shows no association with musculoskeletal discomfort this result is same as study by Obinna Chinedu Okezue, et.al.⁽²³⁾

CONCLUSION

According to the present study there is a high prevalence of musculoskeletal disorders among vegetable street vendors in latur city. The commonly affected body region are lower back, ankle/feet and knees. The moderate affected areas are neck, upperback shoulders and hips. The least affected areas are elbows and wrist. In this study we found that several factors like age, gender are associated with musculoskeletal discomfort. We also found that certain work related factors, such as lifting or carrying weight, working hours/day, working days/week, work experience, excessive repetition, sitting for long period, weight of vegetable were not associated with musculoskeletal discomfort.

Ethical clearance:-Taken from department of SVSS Latur College of physiotherapy

Source of funding -Self

Conflict of interest: The author declares no conflict of interest to this work. This research received no specific grant from any funding agency, commercial or not for profit sectors. Ethical clearance for this study was obtained from the Institutional Ethics Committee (IEC) and all participants provided written informed consent.

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