



RESEARCH ARTICLE

ASSESSMENT OF WORK-RELATED MUSCULOSKELETAL DISORDERS AMONG WORKERS IN  
HOSPITALITY AND TOURISM INDUSTRY

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ABSTRACT

Hospitality and tourism industry has emerged as one of the key drivers of growth among the services sector in India. Tourism in Uttarakhand is a potential game changer. It is a sun rise industry, an employment generator, a significant source of foreign exchange for the country and an economic activity that helps local and host communities. The hospitality and tourism industry is a major contributor to the economy of Uttarakhand. The sector also employs a high proportion of young workers and migrant workers. There are five main departments of hospitality and tourism industry i.e. front office, housekeeping, food production, food service and tours and travel. In order to achieve the objectives of the study descriptive cum experimental design was planned. The present study was carried out in Kumaun regions of Uttarakhand. Both purposive/convenient and snowball sampling techniques were used to select the study area and samples. A total of 200 workers were selected from kumaun regions of the Uttarakhand. There are various hospitality and tourism industry in uttarakhand but we selected almora, mukteshwar, binsar and lohaghat towns because of the need of the research. While comparing the data among different departments of hospitality industry, it was observed that among front office workers who were involved in official work, majority of the workers i.e. 80 per cent had reported pain/discomfort in shoulder, whereas workers of housekeeping department reported that problem occurred in elbow and upper back and in the food production department workers said that most affected body part were shoulders, neck, both wrist/hand and upper back. However, 50 per cent workers of tours and travel had reported that maximum pain/discomfort in both shoulders and wrists/hands and this may be due to lifting, loading and reloading etc. while on tour.

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INTRODUCTION

The Hospitality and tourism Industry is an integral source of revenue generation in Uttarakhand and has greater scope for absorbing large percentage of educated youth of the state. In Kumaun region, basically hospitality and tourism focuses on participating in a rural lifestyle which has significant scope of attracting rural and urban youth of the uttarakhand. Tourism can be a variant of hill, green and rural hill tourism and this again required attraction for young people (Borg and Kristensen, 2005). Tourism is not just about the facilities and attractions provided for visitors. It is about people and especially about the relationship between the customer and the individual providing service. Everybody employed in tourism

needs to have the knowledge, skills and attitudes to provide the standard of product and service that customers expect. Knowing about the tourism industry, its component parts and especially where you fit in is an important starting point to a successful career in tourism. Basically for all those who are away from their home, hospitality industry provides services. It may be described as the activities of tourists and those who cater for them. It is a highly diversified business with many component parts ranging from airlines to hotels. Tourism is concerned with providing travel and transport facilities, accommodation, food and drink, entertainment/recreation, information and assistance. Tourism attracts many tourists for leisure, rest and recreation. Employment in restaurants/resorts/ has been increasing continuously with years. On the other hand, there were signs of an increase in the final quarter of the year, when tourist arrivals grew by 2 per cent. According to Worker's Compensation Board (WCB), an increase in demand for rooms resulted in more construction of new resorts. Growth in the tourism sector increased the demand for employment.

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They require more workers during the summer season and mostly on weekends, where young workers are readily available to work. Although hotels are seen as places they can have comfort and enjoy, those places are an environment with full of real hazards and accidents.

There are some health hazards like musculoskeletal disorders, cumulative trauma disorders and repetitive motion injuries (RMIs) that exist in the hospitality and tourism industry. It is important to know about these health hazards and how to work safely in these environments. Within this industry you may be involved in a range of work activities such as food preparation, cooking, bed making, cleaning, food and beverage service, and operating office equipment. Space limitations require workers to use many uncomfortable postures like standing, walking, stooping, squatting, kneeling, stretching, reaching, bending, twisting and crouching. In addition, forceful movements while using awkward body positions include lifting mattresses, cleaning tiles, and vacuuming every shift. Housekeeping is a physically demanding and very tiring job. The Occupational Safety and Health Administration states that untrained workers are more susceptible to injuries. This happens when workers lack the knowledge and skills required to use equipment and supplies safely. The problem could be fatal in work environments that contain heavy-duty machinery and hazardous materials. Untrained workers cannot produce high-quality products. They also lack adequate knowledge and skills to provide satisfactory customer service. This combination results in dissatisfied customers. So for make better growth in hospitality and tourism industry it is important to trained the workers and to provide safe working environment while performing the task/activities. Therefore keeping in mind these facts the research study was planned with the following objective:-

1. To assess work- related musculoskeletal disorders (MSDs) among workers of different departments of hospitality and tourism industry.

## MATERIALS AND METHODS

In order to achieve the objectives of the study, descriptive cum experimental design was planned. The interview schedule was found to be an appropriate tool, which would adequately gather information pertaining to research work. The present study was carried out in Kumaun regions of Uttarakhand. Both purposive/convenient and snowball sampling techniques were used to select the study area and samples. Sample size was determined before the data collection. A total of 50 samples for controlled group were selected from kumaun regions of the Uttarakhand. Collected data was tabulated and analysis with descriptive as well as relational statistics.

## RESEARCH FINDINGS AND DISCUSSION

### Work-related musculoskeletal disorders

The work-related musculoskeletal problems and the perceived body discomfort of the workers were determined by body map and administering standardized Nordic questionnaire used tool Kuorinka *et al.* (1987). In it, the data of 50 workers were

collected. NORDIC questionnaire is a multiple page questionnaire and used for evaluation of musculoskeletal problems.

### Pain and Discomfort with the locomotive organ among workers

Table 1 clearly envisaged that maximum i.e. 30 per cent workers of tours and travel unit were having knowledge about the musculoskeletal pain/ discomfort which is prevalent among workers at domestic and commercial level. Nearly 56 per cent of the total workers stayed away from normal activities because of pain/discomfort and among all departments of hospitality and tourism industry. Maximum workers of food service and tours and travel units i.e. 70 per cent stayed away from normal activities because of pain/discomfort. Sixty per cent workers of food production department reported that they stayed away from normal activities because of pain/ discomfort followed by 50 per cent workers from front office department and least i.e. 30 per cent workers from housekeeping department of hospitality industry. Approximately 46 per cent of the total workers reported that they had to be absent of normal work activity due to pain/discomfort. Among all the departments maximum of food service unit workers i.e. 80 per cent prevented from normal work activity due to pain/discomfort followed by 60 per cent workers from housekeeping department and least i.e. 40 per cent workers from food production department. Regarding the activities causing pain and discomfort it was reported that maximum i.e. 68 per cent workers faced discomfort with carrying activity and minimum i.e. 2 per cent said that peripheral vision activity caused pain and discomfort. On the basis of comparison between different departments, it was found that cent per cent front office workers reported that talking and near vision activity caused pain and discomfort where as 80 per cent workers of housekeeping department said that stooping and carrying activities caused pain and discomfort. On the other hand, cent per cent workers of food production department reported that handling and fingering activities caused most pain and discomfort. Lifting, carrying, standing, walking and balancing activities affected cent percent workers of food service unit. At last cent per cent workers of tours and travel said that standing and walking activities mostly caused pain and discomfort.

### Perceived body discomfort

Workers were asked few questions about perceived pain/discomfort, was this with help of Nordic scale which lasted, for at least 24 hours. Pain was measured for past one month and for 7 days. Majority of the workers were feeling pain and discomfort in different body parts.

### A. Prevalence of musculoskeletal pain/discomfort among workers in last one month

From the table 3, it is clear that in totality most of the workers i.e. more than 86 percent had complained for shoulder pain followed by 84 per cent complained for lower/ upper back pain and nearly 25 per cent of workers were affected by elbow and wrist/hand pain in last one month.

Table 1. Pain and Discomfort with the locomotive organ among workers (N=50)

S.No.	Questions	Departments of Hospitality and Tourism Industry										Total (N=50)	
		A (n=10)		B (n=10)		C (n=10)		D (n=10)		E (n=10)		Yes	No
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
1.	Do you know about musculoskeletal pain/discomfort?	4 (40)	6 (60)	-	10 (100)	-	10 (100)	-	10 (100)	3 (30)	7 (70)	7 (14)	43 (86)
2.	Have you ever been prevented from normal work activities because of musculoskeletal pain/ discomfort?	-	10 (100)	6 (60)	4 (40)	4 (40)	6 (60)	8 (80)	2 (20)	5 (50)	5 (50)	23 (46)	27 (54)
3.	Do you stay away from your normal activities because of pain/discomfort?	5 (50)	5 (50)	3 (30)	7 (70)	7 (70)	3 (30)	6 (60)	4 (40)	7 (70)	3 (30)	28 (56)	22 (44)
4.	Activities cause the pain and discomfort:												
	A.Lifting	2 (20)	8 (80)	6 (60)	4 (40)	6 (60)	4 (40)	10 (100)	-	6 (60)	4 (40)	30 (60)	20 (40)
	B.Carrying	-	10 (100)	8 (80)	2 (20)	8 (80)	2 (20)	10 (100)	-	8 (80)	2 (20)	34 (68)	16 (32)
	C.Transporting	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	4 (40)	6 (60)	4 (8)	46 (92)
	D.Sitting	7 (70)	3 (30)	-	10 (100)	3 (30)	7 (70)	-	10 (100)	-	10 (100)	10 (20)	40 (80)
	E.Standing	6 (60)	4 (40)	4 (40)	6 (60)	10 (100)	-	10 (100)	-	6 (60)	4 (40)	36 (72)	14 (28)
	F.Walking	3 (30)	7 (70)	10 (100)	-	-	10 (100)	10 (100)	-	10 (100)	-	34 (68)	16 (32)
	G.Climbing	-	10 (100)	7 (70)	3 (30)	-	10 (100)	-	10 (100)	-	10 (100)	7 (14)	43 (86)
	H.Balancing	-	10 (100)	-	10 (100)	-	10 (100)	10 (100)	-	2 (20)	8 (80)	12 (24)	38 (76)
	I.Stooping	-	10 (100)	8 (80)	2 (20)	-	10 (100)	-	10 (100)	4 (40)	6 (60)	12 (24)	38 (76)
	J.Kneeling	-	10 (100)	5 (50)	5 (50)	-	10 (100)	-	10 (100)	-	10 (100)	5 (10)	45 (90)
	K.Crouching	-	10 (100)	4 (40)	6 (60)	3 (30)	7 (70)	-	10 (100)	-	10 (100)	7 (14)	43 (86)
	L.Crawling	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	50 (100)
	M.Foot use	-	10 (100)	6 (60)	4 (40)	-	10 (100)	8 (80)	2 (20)	7 (70)	3 (30)	21 (42)	29 (58)
	N.Reaching	-	10 (100)	4 (40)	6 (60)	4 (40)	6 (60)	-	10 (100)	4 (40)	6 (60)	12 (24)	38 (76)
	O.Handling	4 (40)	6 (60)	5 (50)	5 (50)	10 (100)	-	-	10 (100)	8 (80)	2 (20)	27 (54)	23 (46)
	P.Fingering	8 (80)	2 (20)	-	10 (100)	10 (100)	-	-	10 (100)	-	10 (100)	18 (36)	32 (64)
	Q.Feeling	-	10 (100)	-	10 (100)	10 (100)	-	7 (70)	3 (30)	-	10 (100)	17 (34)	33 (66)
	R.Talking	10 (100)	-	-	10 (100)	-	10 (100)	-	10 (100)	5 (50)	5 (50)	15 (30)	35 (70)
	S.Hearing	5 (50)	5 (50)	-	10 (100)	-	10 (100)	6 (60)	4 (40)	6 (60)	4 (40)	17 (34)	33 (66)
	T.Tasting	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	50 (100)
	U.Smelling	-	10 (100)	-	10 (100)	4 (40)	6 (60)	-	10 (100)	-	10 (100)	4 (8)	46 (92)
	V.Near vision	10 (100)	-	-	10 (100)	-	10 (100)	-	10 (100)	4 (40)	6 (60)	4 (8)	46 (92)
	W.Far vision	-	10 (100)	-	10 (100)	2 (20)	8 (80)	-	10 (100)	2 (20)	8 (80)	4 (8)	46 (92)
	X.Depth perception	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	50 (100)
	Y.Colour discrimination	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	-	50 (100)
	Z.Peripheral vision	-	10 (100)	-	10 (100)	-	10 (100)	-	10 (100)	2 (20)	8 (80)	2 (4)	48 (96)

While comparing the data among different departments of hospitality industry, it was observed that among front office workers who were involved in official work, majority of the

workers i.e. 80 per cent had reported pain/discomfort in shoulder, whereas workers of housekeeping department reported that problem occurred in elbow and upper back.

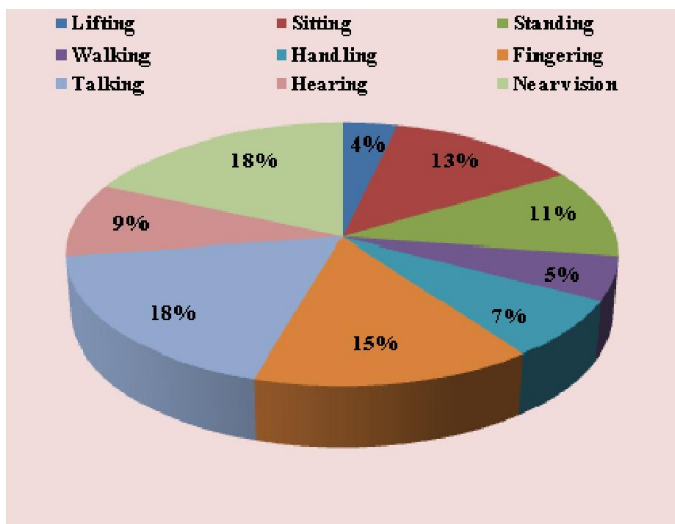


Fig 1 (a): Activities cause pain/ discomfort to the front office Workers

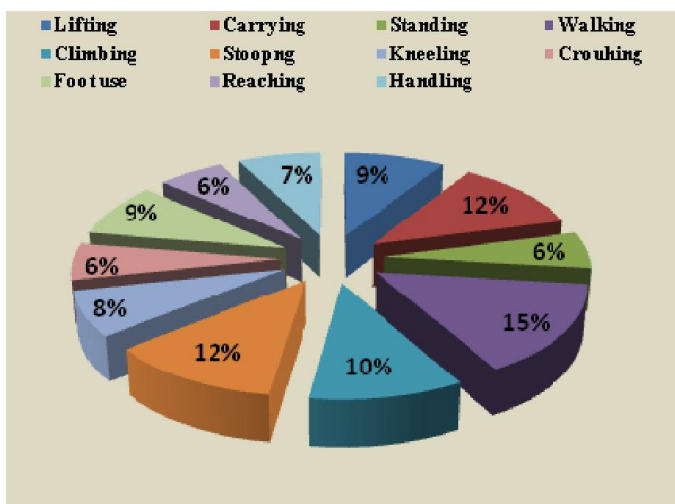


Fig 1. (b): Activities cause pain/ discomfort to the housekeepers

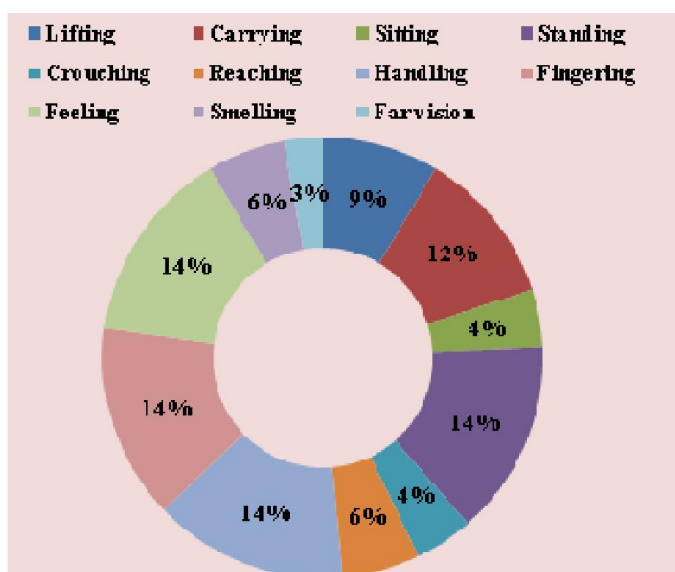


Fig 1.(c): Activities cause pain/ discomfort to the workers of food production

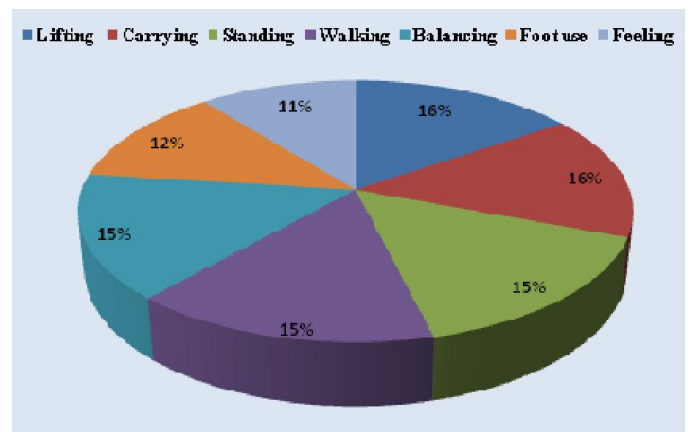


Fig 1 (d): Activities cause pain/ discomfort to the workers of food service

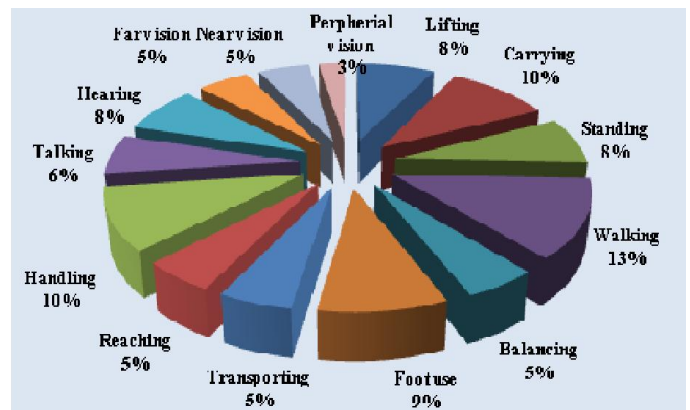


Fig 1 (e): Activities cause pain/ discomfort to the workers of tours and travel

However in the food production department workers said that most affected body part were shoulders, neck, both wrist/hand and upper back in last one month. Workers of food service unit reported that maximum pain/discomfort in both shoulder, upper back and lower back and the reason might be that these workers were involved in lifting, loading, carrying and walking activities which leads to the above reported problems. However, 50 per cent workers of tours and travel had reported that maximum pain/discomfort in both shoulders and wrists/hands and this may be due to lifting, loading and reloading etc. while on tour.

**B. Prevalence of musculoskeletal pain/discomfort among workers at any time during last 7 days**

The data about the pain and discomfort felt by workers during last 7 days is presented in table 4. On the whole, it was found that majority of the workers i.e. nearly 88 per cent had reported maximum pain/discomfort in lower back followed by 84 per cent revealed maximum pain/discomfort in wrist/hands and only 4 per cent of total workers had reported pain/discomfort in right elbow. While comparing the data of different departments of hospitality industry it was observed that cent per cent front office workers had reported pain/discomfort in both wrist/hands. In housekeeping department cent per cent of workers reported problem in neck and right shoulder.

Table 2. Prevalence of musculoskeletal pain/discomfort among workers in last one month (N=50)

Body part	Departments of Hospitality and Tourism Industry					Total (N=50)
	A (n=10)	B (n=10)	C (n=10)	D (n=10)	E (n=10)	
Neck	10 (100)	10 (100)	-	-	-	20 (40)
Shoulder						
• Right	-	-	-	-	-	-
• Left	-	-	-	-	-	-
• Both	8 (80)	7 (70)	10 (100)	10 (100)	8 (80)	43 (86)
Elbow						
• Right	6 (60)	-	5 (50)	-	-	11 (22)
• Left	-	-	-	-	-	-
• Both	4 (40)	10 (100)	5 (50)	-	7 (70)	26 (52)
Wrist/hands						
• Right	7 (70)	-	-	5 (50)	-	12 (24)
• Left	-	-	-	2 (20)	-	2 (4)
• Both	3 (30)	10 (100)	10 (100)	3 (30)	10 (100)	36 (72)
Upper back	7 (70)	9 (90)	10 (100)	6 (60)	10 (100)	42 (84)
Low back	-	10 (100)	-	8 (80)	7 (70)	25 (50)
Hips/thighs	-	-	8 (80)	10 (100)	-	18 (36)
Knees	-	10 (100)	5 (50)	10 (100)	10 (100)	35 (70)
Ankles/feet	-	7 (70)	4 (40)	10 (100)	10 (100)	31 (62)

\*Figure in parenthesis indicates the percentage values: \*\*Multiple answers.

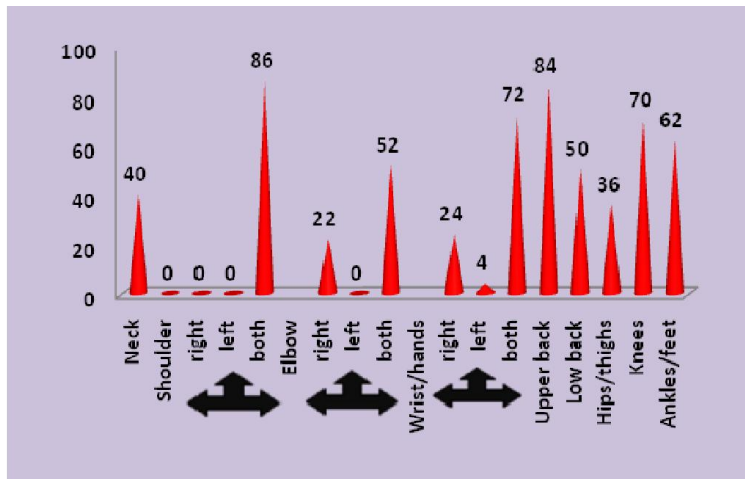


Fig. 2. Prevalence of musculoskeletal pain/discomfort among workers in last 12 months

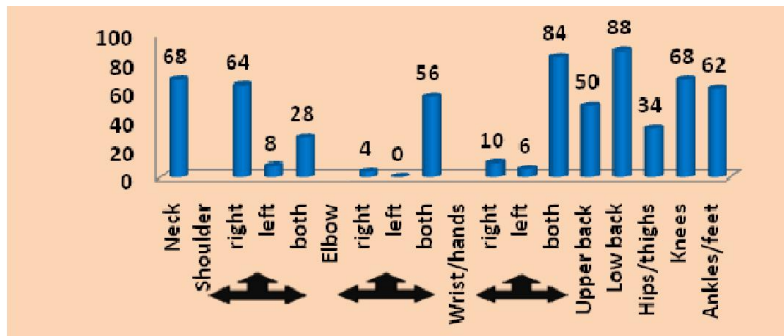


Fig. 3. Prevalence of musculoskeletal pain/discomfort among workers in last 12 months

**Table 3. Prevalence of musculoskeletal pain/discomfort among workers at any time during last 7 days (N=50)**

Body part	Departments of Hospitality and Tourism Industry					Total (N=50)
	A (n=10)	B (n=10)	C (n=10)	D (n=10)	E (n=10)	
Neck	8 (80)	10 (100)	5 (50)	4 (40)	7 (70)	34 (68)
Shoulder						
• Right	3 (30)	10 (100)	6 (60)	3 (30)	10 (100)	32 (64)
• Left	-	-	1 (10)	3 (30)	-	4 (8)
• Both	7 (70)	-	3 (30)	4 (40)	-	14 (28)
Elbow						
• Right	2 (20)	-	-	-	-	2 (4)
• Left	-	-	-	-	-	-
• Both	8 (80)	10 (100)	10 (100)	-	-	28 (56)
Wrist/hands						
• Right	-	-	-	-	5 (50)	5 (10)
• Left	-	3	-	-	-	3 (6)
• Both	10 (100)	7 (70)	10 (100)	10 (100)	5 (50)	42 (84)
Upper back	7 (70)	10 (100)	-	-	8 (80)	25 (50)
Low back	8 (80)	10 (100)	10 (100)	10 (100)	6 (60)	44 (88)
Hips/thighs	5 (50)	-	6 (60)	-	6 (60)	17 (34)
Knees	3 (30)	7 (70)	9 (90)	10 (100)	9 (90)	35 (68)
Ankles/feet	-	5 (50)	10 (100)	10 (100)	6 (60)	31 (62)

\*Figure in parenthesis indicates the percentage values: \*\*Multiple answers.

However in the food production department workers revealed that major affected body part were shoulders, neck, both wrist/hand and upper back in seven days. Whereas among the workers of food service department workers reported that maximum pain/discomfort is in both shoulders, upper back and lower back and the reason might be that these workers were involved in loading, lifting, walking and hearing activities which lead to the above reported problems. However 60 per cent of workers of tours and travel had reported maximum pain/discomfort in both shoulders and upper back and the reason may be excessive walk with load, carrying along with them.

## Conclusion

The Indian hospitality and tourism industry has emerged as one of the key drivers of growth among the services sector in India. Musculoskeletal Disorders are not usually caused by acute trauma, but occur slowly over time due to repetitive injuries to the soft tissues such as muscles, tendons, ligaments, joints, cartilage and nervous system (Bernard, 1997). Musculoskeletal Disorders can happen to anyone from restaurant workers and industrial employees to athletes, hobbyists, office workers etc. Work-Related Musculoskeletal Disorders (WMSDs) are musculoskeletal Disorders that are caused or made worse by work methods and environment (Bernard et al., 1993). It does occur when the physical capabilities of the worker do not match the physical requirements of the job. The work-related musculoskeletal problems and the perceived body discomfort of the workers

were determined by body map and administering standardized Nordic questionnaire tool. Maximum i.e. 30 per cent workers of tours and travel unit were having knowledge about the musculoskeletal pain/ discomfort which is prevalent among workers at domestic and commercial level. Information on perceived pain and discomfort was recorded with help of Nordic scale (for the 7 days, 30 days and 365 days). Majority of the workers were feeling pain and discomfort in different body parts.

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