

# Work related musculoskeletal discomfort in meat sellers - A study carried out in Tura, West Garo Hills, Meghalaya

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■ **ABSTRACT** : The study was conducted to know the work related musculoskeletal discomfort perceived by the Poultry, Mutton and Pork sellers. The findings of the study show that the sellers are found involved in various activities while selling poultry, mutton and pork and most of the activities are performed by cent per cent of the sellers. While performing these activities the sellers reported that they feel moderate to very severe pain in different body parts.

■ **KEY WORDS**: Postures, Body map, Musculoskeletal pain

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**P**oultry, Mutton and Pork sellers are one of the important groups of perishable goods seller, who are working towards regulating the whole process of supplying one of the favourite food among non-vegetarians. From buying of raw materials till selling of the poultry, mutton and pork the sellers perform various activities to make the raw material ready for use for the consumers. While doing so, they undergo various postural changes throughout the day. Various studies on musculoskeletal disorder reveal that musculoskeletal pain is always related to frequent change in posture, prolong use of same posture, awkward postures, exerted force, repeated motions, tight hand grip etc. Usually, it is observed that this group of sellers mostly uses awkward postures and repeated hand motions to perform the activities. Therefore, a study was conducted considering this important group of population who not only undergoes various awkward body postures while performing the task of selling mutton and pork but also handles heavy

weight and also had to perform many of the activities with high force. Thus, the present study was carried out with the following objectives:

- Activities performed by the sellers while selling poultry, mutton and pork;
- Musculoskeletal problems faced by the sellers

## ■ RESEARCH METHODS

The study was carried out by considering 50 sellers who are engaged in various activities related to selling of poultry, mutton and pork. The study was carried out considering the poultry, mutton and pork sellers of three daily markets under Tura Municipal Board, West Garo Hills, Meghalaya. Primary data was collected with the help of structured interview schedule. To identify the incidents of musculoskeletal discomforts during the activity along with questionnaire, body map (Corlett and Bishop, 1976), was also used which indicates different body parts *viz.*, upper body parts (neck, shoulder joint

etc.) and lower body parts (lower arms, low back, upper leg/ thighs etc.) for easy accessibility of the interviewee and the interviewer. To quantify the level of stress on muscle, score ranges from 0 to 5 was used viz., 0 – No pain, 1 – Very mild, 2 – Mild, 3– Moderate, 4 – Severe, 5 – Very severe. Mean and S.D. were analysed as per the requirement of the objectives. The data were presented in tabular form in terms of frequencies, percentages and percentage of mean score. Bar and pie diagrams are used for easy accessibility to the subject.

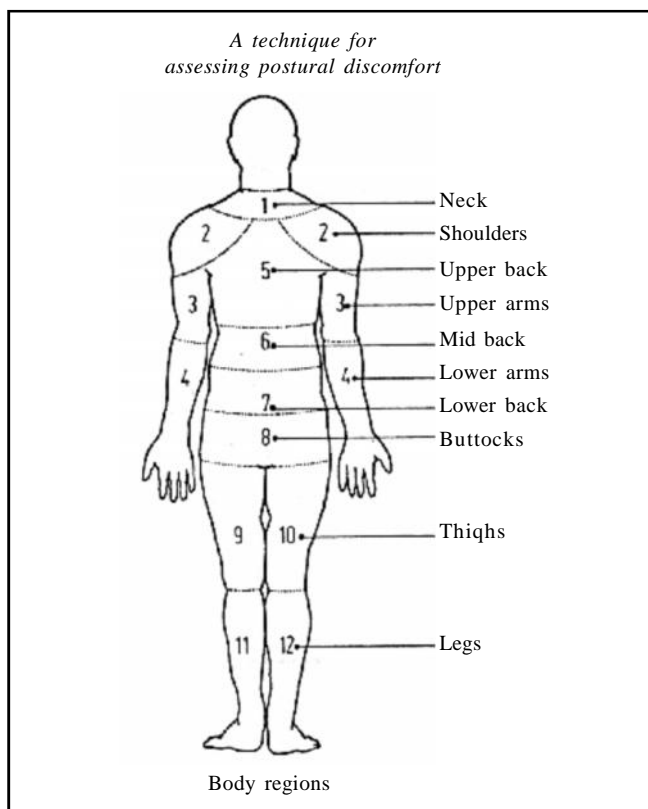


Fig. A : Body map

**RESEARCH FINDINGS AND DISCUSSION**

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

**Socio-economic background:**

The results of the study divulges that more than fifty per cent of the sellers (52%) belong to the age group of 18-35 years. 94 per cent of the sellers involved in poultry and mutton/pork selling are male. Majority (54%) belong to Christian religion. More than 90 per cent (98%)

of the sellers can read and write. 68 per cent of the sellers are found to be married. Data regarding type of family divulges that 60 per cent of the sellers belongs nuclear family and majority (58%) of the sellers have more than 7 members in their family. Data regarding occupation of the seller’s show that half (50%) of the respondents are involved in poultry selling. Monthly income shows majority of the sellers earn between Rs. 5000/- to 10,000/- in a month.

**Activities performed by mutton and pork sellers:**

Data regarding performance of activities by the sellers involved in mutton and pork selling shows that 20 per cent of the sellers perform the activity of collection of livestock for sale. None of the sellers are found to perform the activities of loading the livestock’s in the carrier vehicle and unloading the same from carrier vehicle. Collection of water and slaughtering of animals are found to be performed by 12 per cent and 24 per cent, respectively. The activities of removing skin and putting into fire (pig) are found to perform by 32 per cent of the sellers. Out of the total sellers only 44 per cent are found to perform the activity of cleaning of the internal organs. It is clear from the data presented in Table 1 that 88 per cent of the respondents carry the cleaned and ready to sale mutton and pork to the point of sale. Further, a look at Fig. 1 divulges that the activities like cleaning of area before arranging the items, sprinkling

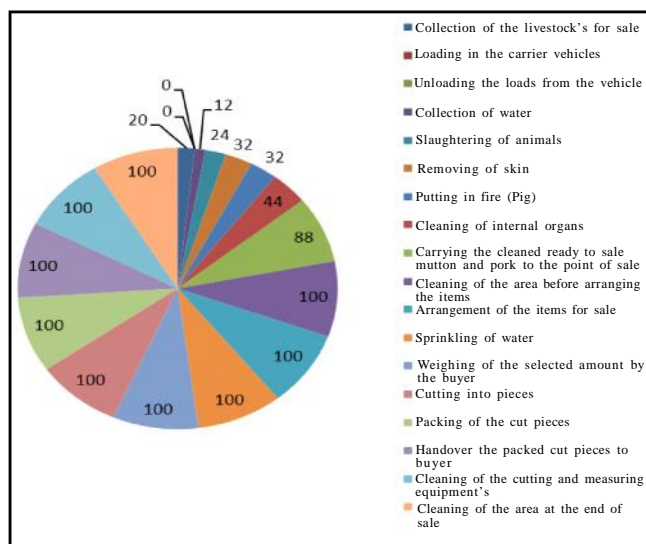


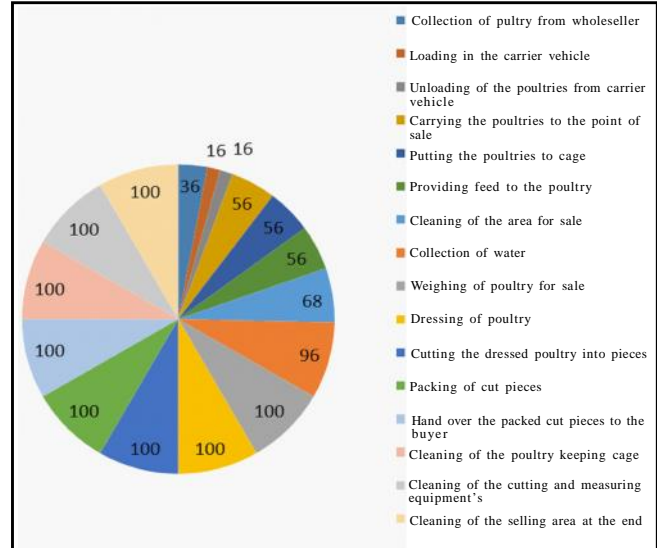
Fig. 1 : Pie-diagram showing distribution of respondents according to performance of various activities related to mutton/pork selling

of water, weighing of the selected amount by the buyer, cutting into pieces, packing of the cut pieces, handover the packed cut pieces to buyer, cleaning of the cutting and measuring equipment's and cleaning of the area at the end of sale are performed by all the sellers (100%).

Thus, the analysis of the data presented in the Fig. 1 makes it clear that respondents perform number of activities to complete the whole process of selling mutton and pork. Cent per cent of the respondents are found involve in most of the activities.

**Activities performed by the poultry sellers:**

A close perusal of the Fig. 2 regarding activities performed by the respondents while selling poultry, divulges that 36 per cent of the respondents perform the activity of collection of poultry from the whole seller. 16 per cent of the respondents are found to perform the activities of loading of the poultries in the carrier vehicle



**Fig. 2 :** Pie-diagram showing distribution of respondents according to performance of various activities related to poultry selling

Table 1 : Discomfort perceived by the sellers				
Sr. No.	Body parts	Mean Score ± SD	Percentage of mean of score	Overall discomfort
<b>Mutton and Pork Seller</b>				
1.	Neck	2.92±0.81	58.40	Moderate
2.	Shoulder	4.08±0.57	81.00	Very Severe
3.	Upper Arm	4.20±0.70	84.00	Very Severe
4.	Lower Arm	4.08±0.75	81.00	Very Severe
5.	Upper Back	3.20±1.00	64.00	Severe
6.	Mid Back	4.36±0.63	87.00	Very Severe
7.	Lower Back	4.60±0.57	92.00	Very Severe
8.	Buttocks	2.96±0.61	59.00	Moderate
9.	Right Thigh	2.84±0.80	56.80	Moderate
10.	Left Thigh	2.84±0.80	56.80	Moderate
11.	Right Leg	2.52±0.50	50.00	Moderate
12.	Left Leg	2.52±0.50	50.00	Moderate
<b>Poultry</b>				
1.	Neck	2.56 ±0.58	51.20	Moderate
2.	Shoulder	3.20±0.57	64.00	Severe
3.	Upper Arm	4.08±0.70	81.00	Very Severe
4.	Lower Arm	4.24±0.72	84.00	Very Severe
5.	Upper Back	3.48±0.50	69.00	Moderate
6.	Mid Back	3.20 ±0.40	64.00	Moderate
7.	Lower Back	3.76± 0.66	75.00	Severe
8.	Buttocks	2.96±0.67	59.00	Moderate
9.	Right Thigh	2.92±0.64	58.00	Moderate
10.	Left Thigh	2.92±0.64	58.00	Moderate
11.	Right Leg	3.16±0.62	63.00	Severe
12.	Left Leg	3.16±0.62	63.00	Severe

Overall Discomfort Score attained: Very mild = upto 20%, Mild = 20-40%, Moderate = 40 – 60%, Severe = 60 – 80%, Very Severe ≥80%





and unloading the same from the carrier vehicle. The activities like carrying of the poultries from the point of unloading to the point of sale, putting the poultries into the cage and providing feed to the poultries are found to perform by more than half (56%) of the respondents. The activity of cleaning the area for sale is found to perform by 68 per cent of the respondents. All most all the respondents (96%) perform the activity of collection of water required throughout the day. Further, study of the Fig. 2 makes it clear that all the respondents perform the activities like weighing of poultry for sale, dressing of poultry, cutting of the dressed poultry/poultries into pieces, packing of the cut pieces, hand over the packed cut pieces to the buyer, cleaning of the area where

poultries are kept, cleaning of the cutting and the measuring equipment's and cleaning of the selling area at the end.

Thus, from the findings presented in Fig. 2 it is apparent that the total numbers of the respondents are found to perform all most all the activities and most of the activities are performed by all the respondents. As there is variation between the types of activities, the respondents perform the activities by adopting different postures throughout the day to accomplish the job of selling poultry. The activities where the respondents' involvement is less are found to be helped by the paid labourers.

### Musculoskeletal pain faced by the sellers:

A close look at the Table 1 divulges that the sellers involved in the activities related to selling of mutton and pork felt very severe pain in lower back (92%), mid back (87%), upper arm (84%), shoulder (81%) and lower arm (81%). Sellers felt severe pain in upper back (64%). Further, study of the table also reveals that the respondents felt moderate pain in the different body parts namely neck (58.4%), buttocks (59%), right thigh (56.8%), left thigh (56.8%) and right leg (50%) and left leg (50%).

Thus, the data indicates that the pain level of mutton and pork sellers is very severe in shoulder, lower arm, upper arm, mid back, and lower back may be due to use of heavy hand tools and exerted force while performing the activities like slaughtering and cutting of bigger size animals. It was also observed that while performing the activities related to selling of mutton and pork the sellers are found to perform the activities with extended body parts from the normal alignment, besides that there is frequent and repetitive movement of the arms.

From the data presented in the Table 1 it can be concluded that the sellers involved in selling of mutton and pork are facing different level of discomfort while performing the day-to-day activities related to it. The sellers felt pain in different body parts due to repetitive movements of arms, exerted force, awkward postures (like bending, twisting, stooping etc.), use of heavy hand tools, tight gripping of tools etc.

Data presented in the Table 1 regarding musculoskeletal problems faced by the respondents involved in poultry selling reveals that the respondents felt very severe pain in lower arm (84%), upper arm (81%) and severe pain in lower back (75%), right and left leg (63%). The level of discomfort is found to be moderate in different body parts viz., upper back (69%), mid back (64%), buttocks (59%), right thigh (58%), left

thigh (58%) and neck (51.2%).

It is observed that the poultry sellers felt very severe pain in lower arm and upper arm; it may be due to force exerted in performance of activities like de-feathering of poultries, cutting of dressed poultry into pieces etc. These activities require tight holding and maximum force. The respondents also feel severe discomfort in shoulder level because the respondents adopt the stooping posture while doing the activity of de-feathering and cutting for longer duration. It was also studied that most of the time the respondents de-feather 5 to 7 poultry continuously followed by the activity of cutting into pieces. During survey it was also observed that these activities are mostly performed in standing position and hence they feel severe pain in the lower back and legs.

Thus, it can be concluded that respondents involved in poultry selling felt different level of discomfort because of use of different postures, repetitive movement of arms, force required, grasping, holding and adoption of same posture for long duration etc.

### Conclusion:

It can be concluded that the sellers face moderate to very severe pain in different parts while performing the numerous activities related to selling of poultry, mutton and pork. Mostly, they face very severe pain in shoulder, upper arm, lower arm, mid back and lower back. The level of discomfort found during the study calls for ergonomic intervention and designing of work station, equipments and tools to reduce musculoskeletal pain they perceive in order to eradicate musculoskeletal disorders prevalent among this group.

### ■ REFERENCES

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