

# Prevalence and Intensity of Neck Pain in Sewing Machine Operators

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## Highlights:

- Majority of sewing machine operators reported with neck pain.
- Mild neck pain was reported in majority of sewing machine operators.
- There was an association between neck pain and gender.

## Abstract:

During the past decades musculoskeletal disorders have been progressively common throughout the world.

## Objective:

To find association between neck pain and gender.

## Methodology:

Cross sectional descriptive study was conducted in Leather Coordinator Factory, Sahiwal and Ahmad Kurta Collection, Lahore over a period of 4 months. Only sewing machine operators aged between 20-60 years were included. Modified Nordic Musculoskeletal Pain Questionnaire was used to collect data and chi-square test was used to find association between the variables of hypothesis.

## Results:

Results revealed that among one hundred and ninety one (191) participants that were recruited for neck pain, fifty six percent (56%) participants were suffering from this ailment and forty four percent (44%) were not having pain in the neck region due to sewing. Eighty four percent (84%) participants were suffering from mild neck pain and (16%) moderate pain. Association was found between neck pain and gender of respondents (p-value=0.00) by applying Chi-square.

## Conclusions:

It was concluded that prevalence of neck pain

was 56% in sewing machine operators. 84% participants were suffering from mild pain. There was association present between neck pain and gender of the participants.

## Key words:

Neck pain, prevalence, sewing machine operators.

## Introduction:

Neck pain is a common musculoskeletal disorder. Prevalence of neck pain is higher in sewing machine operators due to repetition of similar repetitive movements.<sup>1</sup> During the past decades musculoskeletal disorders have been progressively common throughout the world. It is the one of the most common work related disorder in working individual.<sup>2</sup> Due to inactive and tiring lifestyle, there is a constant increase in severity, frequency and intensity of pain in neck that may cause stiffness and tension on areas of neck.<sup>3</sup> Neck pain has complex etiology and influenced by individual, physical and psychosocial factors.<sup>4</sup> Working in the profession of stitching for the time duration of greater than eight years possibly have some cumulative damaging effects in the neck region.<sup>5</sup> Occupation related musculoskeletal system disorders are highly prevalent among the persons associated with the profession of stitching. Prolonged working extent, working at lower levels of table, accurate hand work, these are all the risk factors causing neck pain in stitching machine operators. Female seamstress are exposed to greater continued static burden on neck and shoulder muscles on both left and right sides.<sup>6</sup> Trigger points in skeletal muscles of neck and shoulder can lead to referred pain in neck.<sup>7</sup> The prevalence of neck pain is higher in female sewing machine operators.<sup>8</sup> The Nordic

Musculoskeletal Pain Questionnaire specifically directed towards neck-shoulder complaints showed a prevalence rate throughout the last 12 months of 75% and through the last 7 days a rate of 51%. Daily issues were intimate with by 26%. Some 27% had issues resulting in restraints in working period and 37% in leisure.<sup>9</sup>

According to a study conducted in Turkey prevalence of neck pain in women was found 51% whereas they use Visual Analogue Scale (VAS) as measuring tool for the pain intensity.<sup>10</sup> A study conducted in 2008 work activity limitation was 13% because of neck pain. This was found that interventions aimed at modifying workstations and worker posture is not effective in reducing the incidence of neck pain in workers.<sup>11</sup> In a study conducted by Guez, Hildingsson *et al.*, prevalence was more in women (48%) than in men (38%).<sup>12</sup> In a study prevalence of neck pain was 29% in men and 40% in women.<sup>13</sup> According to study conducted in Hong Kong there was an association between neck pain and gender.<sup>14</sup> The purpose of this study was to assess the frequency of neck pain in sewing machine operators as there is scarcity of available data.

### Methodology:

Cross sectional descriptive study was carried out in Leather Coordinator Factory, Sahiwal and Ahmad Kurta Collection, Lahore over a period from December 2016 to January 2017. The sample for this study was taken from two hundred sewing machine workers of "leather coordinator" garment factory of Sahiwal. Total 191 sewing machine operators were recruited to the study on the basis of fulfillment of our inclusion and exclusion criteria. Primary outcome measure was neck pain. VAS was used as measuring tool for the measurement of intensity of neck pain. Secondary outcome measure was the assessment of activities that were limited in working environment and cause limitation in leisure activity. Modified Nordic Musculoskeletal Pain Questionnaire to collect the data, was used in current study. For the purpose of analysis and coding of data, SPSS 21 was used.

### Results:

Out of 191 subjects, 107 (56%) subjects were suffering from neck pain, whereas 84 (44%) subjects were not suffering from neck pain as shown in (Table 1).

	Frequency	Percentage (%)
Yes	107	56
No	84	44
Total	191	100

**Table 1:** Frequency of Neck Pain

According to results, 44% participants were suffering from neck pain for less than 24 hours, 54% 1-7 days, 1% 8-30 days and 5% every day (Table 2).

Duration	Frequency	Percentage (%)
<24 hours	47	44
1 - 7 Days	54	50
8 - 30 Days	1	1
Everyday	5	5
Total	107	100%

**Table 2:** Duration of Neck Pain

According to results, 90 participants had having mild pain on VAS that ranges between 1-2 points, 17 had moderate pain that interferes with tasks ranges between 2-5 points and none of the participants had severe pain ranges between 5-10 points (Table 3).

Grading	Frequency	Percentage (%)
Mild	90	84
Moderate	17	16
Severe	0	0
Total	107	100

**Table 3:** Visual Analogue Scale intensity of pain among participants

According to results p-value was 0.00 which showed there was an association between neck

pain and gender and it was more prevalent in male (Table 4).

Gender	Neck Pain		P-value
	No	Yes	
Female	22	53	0.00
Male	62	54	
Total	84	107	

**Table 4:** Gender and Neck Pain Cross Tabulation

### Discussion:

Outcomes of current study describes that the rate of prevalence for neck pain is 56%. A research conducted in Turkey also demonstrated higher prevalence rate of neck disorder in sewing machine operators.<sup>10</sup> In current study prevalence of neck pain in men is 47%, where as 71% in women. Higher prevalence of neck pain in females is also supported through a study conducted by Guez, Hildingsson *et al.*, In that study prevalence was 48% in women and 38% in men.<sup>12</sup> In the study 11% of participants limited their work due to the complaint of neck ache. Similar results were manifested by a study conducted in 2008 work activity limitation was 13% because of neck pain.<sup>11</sup> Results of study conducted Blader also indicate that participant's work was limited due to neck pain.<sup>9</sup> In our study there is association between neck pain and gender this association has also been found in a study conducted in Hong Kong.<sup>14</sup> In present study, the absenteeism from the work in sewing machine operators was in less percentage due to neck complaints. VAS is gold standard tool to measure pain intensity due with 95% sensitivity and 88% specificity.<sup>15-17</sup>

That VAS was used for measurement of pain intensity which had also been used in a study conducted in Turkey.<sup>18</sup> 84% patients reported with mild pain whereas 16% reported moderate pain. According to a study of Bangladesh 24% patients reported with mild pain

where as 1.3% reported with severe pain.<sup>19,20</sup>

### Conclusions:

This study concluded that majority of participants had mild neck pain and was more prevalent in males.

### Recommendations:

Postural awareness must be guided to sewing machine operators so that reduction of neck pain can be obtained.

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