

# Prevalence of Upper Cross Syndrome Among Unskilled Garment Industry Workers in Kolhapur District

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**Abstract—Introduction:**Upper Cross Syndrome is defined as problem involving an imbalance in muscle groups of shoulder girdle and cervical spine. In UCS tightness of upper trapezius and levator scapula on the dorsal side crosses with tightness of pectoralis major and minor. Weakness of deep cervical flexors, ventrally crosses with weakness of middle and lower trapezius.

This syndrome mainly arises as result of muscular imbalance due to poor posture increased tension between tonic and phasic muscles. Some postural patterning of forward rounded shoulders, increased kyphosis, forward head posture and loss of cervical lordosis is created by poor posture. These abnormalities tend to develop overall pattern changes in upper quarter of body.

Garment industry is considered to be second largest employment sector in India. Occupational health problems among workers are often ignored, work related musculoskeletal disorder accounts major of it. Work at a garment production unit represents a complex multifaceted physical work environment with interactions among the various dimension of workplace, inappropriate non- neutral awkward postures, static posture for long time, repeated movements in prolonged standing and sitting. Prolonged working hours, working at lower level of table, accurate hand work, these risk factors cause neck pain in garment industry workers. They experience muscle tightness, spasm, pain and swelling in affected area which leads to inability to continue their occupation so there is need to know whether garment industry workers have any component of muscular imbalance to prevent occupation hazards.

**Aim:**

To study the prevalence of upper cross syndrome among unskilled garment industry workers in Kolhapur district.

**Method:**

151 unskilled garment workers (age 30-50 with work experience of 3 years) were included in this study. The

symptoms of UCS were assessed using clinical examination, neck disability index scale, numeric pain rating scale and special tests such as Pectoralis major and minor tightness test, Lower trapezius weakness test, Upper trapezius tightness test, deep cervical neck flexors test. statistical analysis was recorded and the results were obtained

**Result**

An observational study was done through simple random sampling from 151 unskilled garment industry workers between the age of 30 to 50 in Kolhapur district from October 2023 to February 2024. This study showed 32.45% (49 workers) were affected by upper cross syndrome. Along with this 40.86% of female workers and 18.96% of male workers were affected by upper cross syndrome.

**Conclusion:**

The present study concludes that 32.45% (49 unskilled workers) were reported to have upper cross syndrome with more prevalence (40.86%) in female workers than male workers.

**Index Terms—**Upper Cross Syndrome, UCS, Garment industry, Neck disability index, Neck pain.

## I. INTRODUCTION

Upper Cross Syndrome is defined as problem involving an imbalance in muscle groups of shoulder girdle and cervical spine. In UCS tightness of upper trapezius and levator scapula on the dorsal side crosses with tightness of pectoralis major and minor. Weakness of deep cervical flexors, ventrally crosses with weakness of middle and lower trapezius.

This syndrome mainly arises as result of muscular imbalance due to poor posture increased tension between tonic and phasic muscles. Some postural patterning of forward rounded shoulders, increased

kyphosis, forward head posture and loss of cervical lordosis is created by poor posture. These abnormalities tend to develop overall pattern changes in upper quarter of body.

Common characteristics of upper crossed syndrome include:

- the head is consistently or often in a forward position
- inward curvature in the portion of the spine containing the neck (increased cervical lordosis)
- outward curvature in the part of the spine that includes the upper back, shoulders, and chest (increased thoracic kyphosis)
- elevated, protracted, or rounded shoulders, where the muscles are in a continuous state of being pulled or stretched forward
- the visible portion of the shoulder blade sits out instead of laying flat (scapula winging)

The deformed muscles associated with upper cross syndrome put stress on the surrounding muscles, tendons, bones, and joints, causing most people develop symptoms that include:

- headache
- neck pain
- strain in the back of the neck and often a weakness in the front
- chest pain and tightness
- pain in the upper back, especially the shoulders
- sore shoulder blades
- difficulty sitting, reading, and watching TV
- driving for more than a short period because of pain or muscle tightness or soreness
- restricted range of motion in the neck or shoulders.

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The commonest risk factor among these workers is

adaptation of awkward posture due to poorly designed seating devices that lack adjustable heights and back rest and repetitive activities of the limbs such as cutting, pedaling, ironing, packaging in extreme flexion of trunk and neck.

They spend their maximum time sitting on chair, floor performing repetitive activities with improper body postures. The posture they assume during work involves bending their neck forward, raising their elbows above or below shoulders, their wrist bent downward and inward and bent their back forward and this causes postural discomfort that increases with years of employment.

They experience muscle tightness, spasm, pain and swelling in affected area which leads to inability to continue their occupation so there is need to know whether garment industry workers have any component of muscular imbalance to prevent occupation hazards.

Thus, the purpose of study is to find out the prevalence of upper cross syndrome among unskilled garment industry workers in Kolhapur district.

## II. INCLUSION CRITERIA

- Subjects between age group 30-50Subjects of both genders
- Unskilled Garment workers
- Working experience of minimum 3 years
- Full time workers
- Subjects having neck pain
- Subjects willing to participate

## III. EXCLUSION CRITERIA

- Previous history of surgery / underlying pathology/inflammatory disease ofcervical spine
- Any upper quadrant malignancy
- Recent injury to neck

Statistical Analysis:

Prevalence is found by using the proportion of 49 participants having upper cross syndrome with total 151 participants and represented by using Pie Chart.

The various age, years of experience, duration of work, rating on neck disability scale are represented as in the form of Mean and SD. Gender wise prevalence is

represented by using bar diagram.  
 The statistical test is done using Z test.  
 All the statistical analysis is done in Microsoft Excel 2016

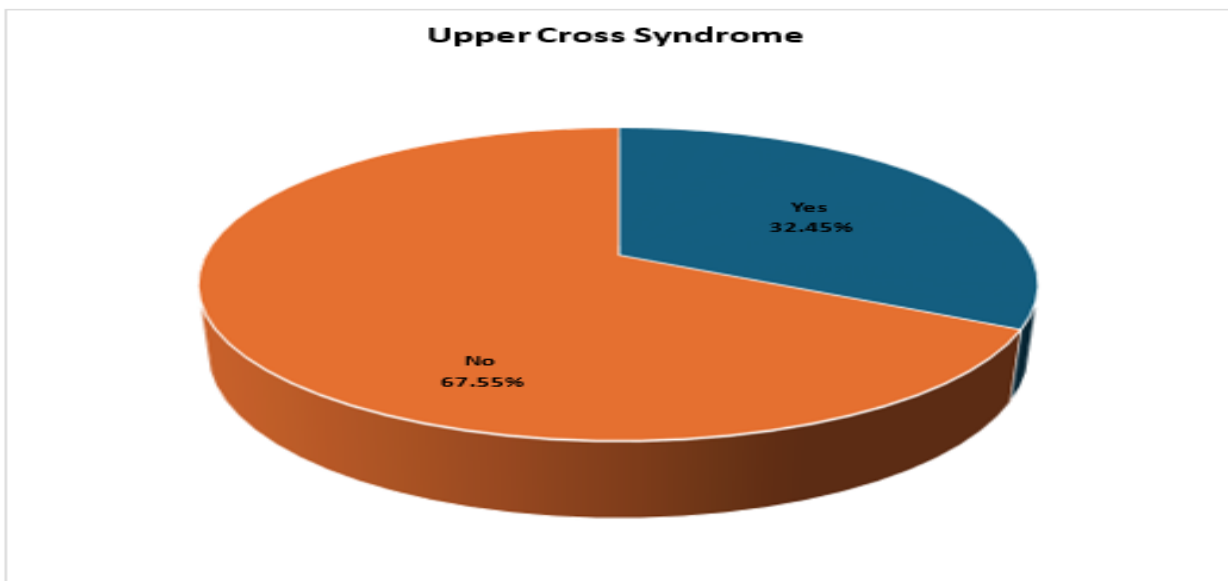
random sampling from 151 unskilled garment industry workers between the age of 30 to 50 in Kolhapur district from October 2023 to February 2024. This study showed 32.45% (49 workers) were affected by upper cross syndrome.

**Data Analysis:**

An observational study was done through simple

| Upper Cross Syndrome | No. of Participants | Percentage |
|----------------------|---------------------|------------|
| Yes                  | 49                  | 32.45%     |
| No                   | 102                 | 67.55%     |
| Total                | 151                 | 100.00%    |

Table no 1: Represents the prevalence of upper cross syndrome in unskilled garment industry workers



Ethical approval for the study was obtained from D.Y. Patil educational society and research institute kasba bawda, Kolhapur.

Demographic details like age, years of experience, duration of work, rating on neck disability scale was obtained from the participants. It was seen that out of a total 151 participants the The variable of average years of experience is represented as mean±SD; 5.59±

1.19

The variable of average duration of work (hrs.) is represented as mean±SD; 6.41± 0.81 The variable of Neck disability index score ( /50) is represented as mean±SD; 22.27± 1.00 The variable of Numeric Pain Rating score ( /10) is represented as mean±SD; 2.00± 0.47

| Variable                           | Mean  | SD   |
|------------------------------------|-------|------|
| Working Experience (years)         | 5.59  | 1.19 |
| Daily Working Hours                | 6.41  | 0.81 |
| Neck disability index score ( /50) | 22.27 | 1.00 |
| Numeric Pain Rating score ( /10)   | 2.00  | 0.47 |

Table no 2: Represents Variables in mean and standard deviation

Along with this 40.86% of female workers and 18.96% of male workers were affected by upper cross syndrome.

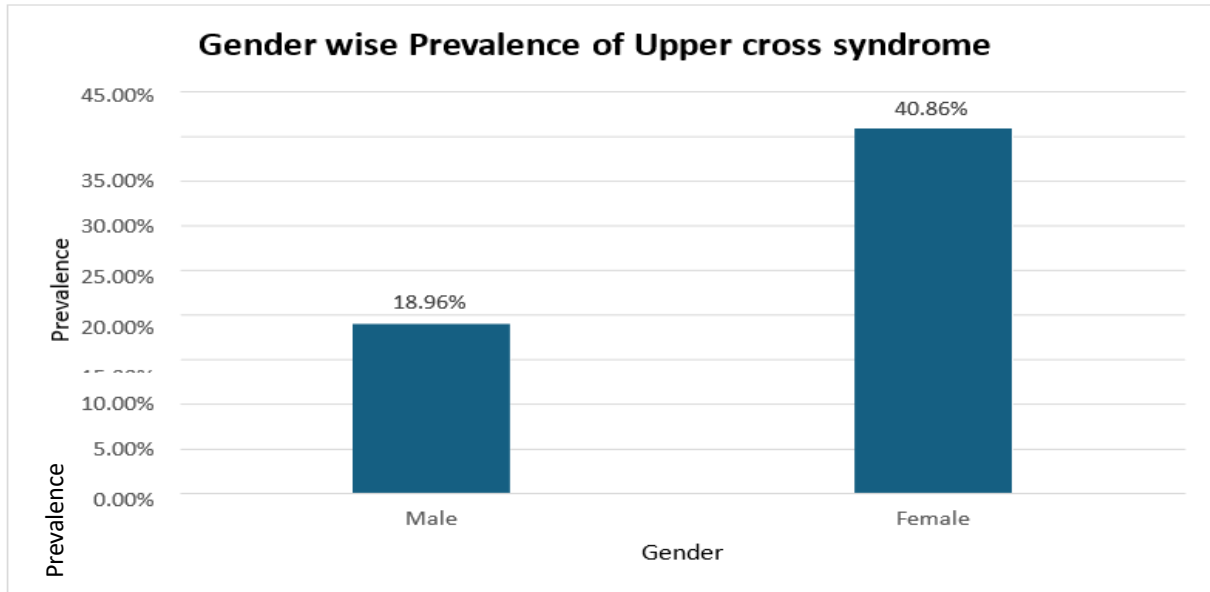
Female workers are significantly more affected than male workers by upper cross syndrome with

P value 0.00259.

| Gender | Prevalence of Upper cross syndrome | P value |
|--------|------------------------------------|---------|
| Male   | 18.96%                             | 0.00259 |
| Female | 40.86%                             |         |

P value < 0.01

Table no 3: Represents gender wise prevalence of upper cross syndrome in garment industry workers.



Graph no 1: Represents gender wise prevalence of upper cross syndrome

#### IV. DISCUSSION

The aim of this study is to find out the prevalence of Upper cross syndrome among unskilled garment industry workers in Kolhapur district.

Upper Cross Syndrome is defined as problem involving an imbalance in muscle groups of shoulder girdle and cervical spine. In UCS tightness of upper trapezius and levator scapula on the dorsal side crosses with tightness of pectoralis major and minor. Weakness of deep cervical flexors, ventrally crosses with weakness of middle and lower trapezius. This syndrome mainly arises as result of muscular imbalance due to poor posture increased tension between tonic and phasic muscles. Some postural patterning of forward rounded shoulders, increased kyphosis, forward head posture and loss of cervical lordosis is created by poor posture. These abnormalities tend to develop overall pattern changes in upper quarter of body.

Work at a garment production unit represents a complex multifaceted physical work environment with interactions among the various dimension of workplace, inappropriate non- neutral awkward

postures, static posture for long time, repeated movements in prolonged standing and sitting. Prolonged working hours, working at lower level of table, accurate hand work, these risk factors cause neck pain in garment industry workers.

151 unskilled garment workers (age 30-50 with work experience of 3 years) were included in this study. The symptoms of UCS were assessed using clinical examination, neck disability index scale, numeric pain rating scale and special tests such as Pectoralis major and minor tightness test, Lower trapezius weakness test, upper trapezius tightness test, deep cervical neck flexors test. statistical analysis was recorded and the results were obtained.

In this study we have included unskilled garment industry workers in Kolhapur district with age between 30-50 having work experience of 3 years. Unskilled workers tend to develop early postural abnormalities due to lack of awareness and continuous similar type of work.

This study is perhaps the first study to find out the prevalence of upper cross syndrome in unskilled garment industry workers. Along with this we have

obtained gender wise prevalence of upper cross syndrome in male and female workers. It showed significantly more prevalence in females which needs to be study further.

This study can be insightful for further studies related to upper cross syndrome for setting up the effective exercise protocol and spreading the awareness among garment industry workers regarding to postural abnormalities and ergonomics at work environment.

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## V. CONCLUSION

The main aim of the study was to find out the prevalence of upper cross syndrome among unskilled garment industry workers in Kolhapur district. The present study concludes that 32.45% (49 unskilled workers) were reported to have upper cross syndrome with significantly more prevalence (40.86%) in female workers than male workers.

## VI. FUTURE SCOPE

This study can be considered to find out early intervention as a preventive measure for upper cross syndrome in garment industry workers.

In Future this study might help researchers to plan treatment protocol either conservative or surgical that will be suitable for the garment industry workers with upper cross syndrome.

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