



## **Assessment of exertion or stress among male and female tailors: an Ergonomic Study**

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### **ABSTRACT**

*Tailoring environment is considered as a stressful atmosphere that often put forth a negative effect on the tailor's performance, mental and physical health of the people. Stress has become an imperative issue in studiosphere as well as in our civilization. Pressure, strain, anxiety, constant worry, nervous tension, depression, social dysfunction, trauma and even suicidal intention are the common term that tailors is habitual to represent their stress. Stress has been widely recognized in the tailoring work. Therefore, study was conducted at Allahabad, Uttar Pradesh with the main objective to study to calculate the stress of various tailoring operations. Total 114 respondents were purposively selected for the collection of subjective data whereas 57 male tailors and 57 female tailors were randomly selected for the ergonomic assessment. The data was collected with the developed questionnaire along with Rate of perceived exertion Scale to observe exertion or stress of tailors. Furthermore, designing part of the material handling devices revealed that male and female were performing the tailoring task with various materials handling devices which were inappropriate and causing awkward body postures which lead to severe postural discomfort.*

**Key words:** Exertion, Postural discomfort, stress, anxiety.

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### **INTRODUCTION**

India has carved a name for itself as a hub for export oriented garment manufacturing center globally. India is now considered a major power among the world and is turning into a developed country from a developing country, but a large section of its population still belongs to the poorest of the poor. The textile sector of India is an unorganized sector, mostly run by private establishments. The textile industry is at the forefront of the globalization process, where multinational investors continuously shift production from one part of the world to another in search of low wages and even more competitive locations. Tailoring environment is considered as a stressful atmosphere that often put forth a negative effect on the tailor's performance, mental and physical health of the people. Stress has become an imperative issue in studiosphere as well as in our civilization. Pressure, strain, anxiety, constant worry, nervous tension, depression, social dysfunction, trauma and even suicidal intention are the common term that tailors is habitual to represent their stress. Stress has been widely recognized in the tailoring work. The crucial intention of this investigation is to explore the basic stress and stressors among the male and female tailors in world and the degree of stress that they feel with reference to non-academic level. Stress affects individuals at the emotional, physiological, and behavioural levels. When under stress, people tend to experience unpleasant emotions, including annoyance, anger, anxiety, fear, dejection, and grief (**Weiten, 1998**). Chronic and prolonged everyday stress contributes to psychological problems and mental disorders such as depression, schizophrenia and anxiety disorder. Observation of various tailor shops revealed that many of the units has poorly designed workstations, unsuitable furniture, lack of ventilation, inappropriate lighting, excessive noise and lack of personal protective equipment. People working in such poor or substandard environment are prone to occupational diseases. The physical characteristics of the job are an important risk factor for muscle pain and injury. The risks for tailors have been linked to conditions such as poor workstation design and chairs, and organizational factors such as the piecework system. For a fruitful nation, it is necessary to identify stressors and strains, level of stress and strategies to tackle these stress. It helps researchers to pay more concentrations to the stressors of stitching stress of tailors.

## MATERIAL AND METHODS

**Selection of respondents and location:** The study was conducted in Allahabad city of Uttar Pradesh. Total 57 male respondents and 57 female respondents in the age group of 20-50 years were purposive selected for the study and they were performing the tailoring operations for more than 8 hours per day which is not permissible.

**Assessment of exertion and stress of tailors:** The Ratings of Perceived Exertion (RPE) scale (**Borg, 1982**) is designed to obtain a quantitative measure of workers' perceptions about the task they are performing. This scale has numeric values corresponding to verbal anchors that give an indication of the perception of effort an individual invests in a task. The RPE scale is used to distinguish effort that is centrally (from the heart and lungs) or locally derived (from muscles and joints). In this study subjects were asked to report on their perception of muscular effort. These ratings pertained to whole body muscular effort and not a specific region and were taken after each task was completed. 'Central' RPE was not considered as the task was not expected to impose excessive physiological stress on the participants as it was a light task requiring minimal movement over short periods of time.

## RESULTS AND DISCUSSION

The work-related musculoskeletal problems and the body exertion perceived by the tailors were determined by administering of rate of perceived exertion scale questionnaire. All the selected tailors had given their responses, which were analyzed. Tailors were asked few questions about perceived exertion/ stress. Exertion of tailors was measured for the better performance in their work.

**Table-1: Distribution of respondents on the basis of self-reported prevalence of perceived exertion/ stress.**

Category	Cutting		Stitching		Hemming		Ironing	
	Male (n=57)	Female	Male	Female	Male	Female	Male	Female
Extremely Light	10 (17.54)	12 (21.05)	-	14 (24.56)	4 (7.01)	5 (8.77)	1 (1.75)	2 (3.50)
Very light	2 (3.50)	8 (14.03)	14 (24.56)	4 (7.01)	2 (3.50)	4 (7.01)	6 (10.52)	4 (7.01)
Light	4 (7.01)	10 (17.54)	12 (21.05)	13 (22.80)	2 (3.50)	6 (10.52)	9 (15.78)	3 (5.26)
Heavy	32 (56.14)	12 (21.05)	18 (31.57)	9 (15.78)	26 (45.61)	23 (45.61)	19 (33.33)	25 (43.85)
Very heavy	6 (10.52)	8 (14.03)	10 (17.54)	11 (19.29)	16 (28.07)	13 (22.80)	13 (22.80)	15 (26.31)
Extremely heavy	2 (3.50)	4 (7.01)	2 (3.50)	4 (7.01)	6 (10.52)	6 (10.52)	8 (14.03)	5 (8.77)
Absolute Maximum	1 (1.75)	3 (5.26)	1 (1.75)	2 (3.50)	1 (1.75)	-	1 (1.75)	3 (5.26)

During cutting activity, 17.54 percent male tailors perceived the task to be extremely light whereas 14.03 percent female tailors were found the task very light. In the category of light 7.01 percent male respondents was and total 10.52 percent male were found the task very heavy. Total 7.01 Percent female tailors reported that they perceived the task extremely heavy. Furthermore, total 1.75 percent male and 5.26 percent female's tailors perceived the cutting activity as which produce absolute maximum level of exertion. Majority of the male respondents (56.14 percent) reported that they found the task heavy whereas total 21.05 percent female respondents feel the task heavy to perform. Data regarding stitching activity expressed that total 24.56 percent male tailors perceived the task to be very light whereas 7.01 percent female tailors were found the task very light. In the category of light and heavy 21.05 percent and 31.57 percent male respondents were and total 17.54 percent male were found the task very heavy. Total 7.01 Percent female tailors reported that they perceived the task extremely heavy.

During hemming activity, very few numbers of male tailors (3.50 percent) perceived the task to be very light whereas 7.01 percent female tailors have reported the task very light. In the category of light and heavy 3.50 percent and 45.61 percent male respondents were and total 28.07 percent male were found the task very heavy. Total 15.78 Percent female tailors reported that they perceived the task easily.

Majority of the respondents, 33.33 percent male and 43.85 percent female respondents fall in the heavy category during ironing activity,. Total 10.52 percent male tailors perceived the task to be very light whereas 7.01 percent female tailors were found the task very light. In the category of light 15.78 percent male respondents were fall and total 22.80 percent male were found the task very heavy. Total 5.26 Percent female tailors reported that they perceived the absolute maximum level of exertion.

A study was conducted by Ranney *et al.* (1995) showed that 54 percent of the female workers with highly repetitive jobs had evidence of musculoskeletal disorders of upper limb, which was potentially work-related (Ranney, Wells and Moore, 1995).

The study reveals that the maximum female from exertion for cutting, stitching, hemming and ironing activity in extremely light category. Very heavy category and absolute maximum category and male exertion in heavy category of cutting, stitching, hemming and ironing. Exertion and observe stitching and ironing in very light category are observe in the result ironing in light category. Extremely heavy category hemming exertion are equal to male and female, ironing exertion are observed extremely heavy of the male tailors. Male and female tailors are interested in tailoring activities.

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