# Correlation of Pain and Kinesiophobia in Tailors with Neck Pain

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## ABSTRACT

**Background and Purpose:** As nowadays numerous brands of clothes are demanding more efforts in the tailoring industries workers/tailors tangled in tailoring activities involve many activities like cutting, drafting, embroidery and attaching saree fall may be at risk of developing neck pain. Working in such position for longer duration may develop chronic neck pain. Kinesiophobia is one of the most extreme forms of fear of pain due to movement or re injury. In re-injury in chronic cases due to pain, severity and cognitive responses to pain may be associated with functional impairment. Patients having kinesiophobia believe that some movement may cause re injury & additional pain therefore it is one of the risk factor for persistent pain. So the present study was done to find correlation between pain and kinesiophobia.

**Methodology:** 40 tailors with neck pain between 20-55 years of age from different areas of Ahmedabad were included who were induced in tailoring for minimum 4-6hrs daily. Subjects with neurological, psychological, orthopaedic and cardiac disorders as well as having limb length discrepancy were excluded. Kinesiophobia was examined by using TAMPA scale (TSK-11). Pain was examined by numerical pain rating scale.

**Results:** Statistical analysis showed that pain has significant moderate positive correlation with kinesiophobia in tailors of 20-55 years age.

**Conclusion:** The study concluded that there was moderate positive correlation between pain and kinesiophobia in tailors with neck pain.

*Keywords:* Neck pain, tailors, kinesiophobia.

## INTRODUCTION

Persons who are engaged in stitching are most prone to get musculoskeletal disorders. As they work for prolong time, work at lower level of table, need to work accurately these all factor cause neck pain in sewing machine workers (Zhang et al., 2011). [1] This job requires highly repetitive tasks performed in sitting posture in which upper back remains curved & head bent over the machine. The work also demands high demand of concentration and accuracy. They also need to perform high speed precision work which required sustained non neutral joint postures and highly repetitive movements. [2] Avoidance is a psychological term, but the term 'fear avoidance' applied to the field of pain first appeared in an article by Lethem et al. in 1983. (Vlaeyen JW and Linton SJ). [3] Kinesiophobia is one of the most extreme forms of fear of pain due to movement or re injury. In chronic cases due to pain severity & cognitive responses to pain may be associated with functional impairment. Patients having kinesiophobia believe that some movement may cause re injury & additional pain therefore it is one of the risk factor for persistent pain. [4-7] In particular fear avoidance model of V Laeyen et al offers a framework for conceptualizing the process of developing chronic

musculoskeletal pain.

When the activation of neck muscles is altered it leads to neck pain. Persons with neck pain show increased antagonist activity of their superficial neck muscles (Falla et al., 2004a; Fernández-de-las-Peñas et al., 2008). [8] In chronic cases neck pain can cause functional impairment and a person suffering from chronic pain may develop negative beliefs about their experience of pain & can get negative thoughts of them. [4]

The impairments subsequently influence interactions within the individual's environment. There is evidence demonstrating that pain catastrophizing and fear beliefs are associated with disability in a certain subgroups of pain patients (Lenz etal).When the stimulus, which precedes the noxious or painful experience, begins to predict the pain, avoidance learning begins. The fear-avoidance model postulates that higher fear of movement is associated with the development of avoidance behavior, eventually leading to more disability and physical deconditioning (ie, likely due to inactivity or disuse). [14] Once established, avoidance behavior is extremely resistant to extinction (Rachlin, 1980). Because of successful avoidance prevents the person from coming into contact with the actual (non-harmful) consequences of the threatening situation. Moreover, fear will return whenever the avoidance behavior cannot be carried out. [9]

## METHODOLOGY

Institutional ethical committee approved my study before the commencement. The tailors were explained about the purpose & procedure of the study in their vernacular language. After that obtaining written and verbal permission from various areas of Ahmedabad were recruited for study. Tailors with age between 20-55 years of age were included and who worked for minimum 4-6 hours daily. Subjects with neurological, psychological, orthopaedic and cardiac disorders as well as having limb length discrepancy were excluded. A written

consent was signed by the tailors. Random samples of 40 tailors were included and pain and kinesiophobia was assessed. Tailors were asked to plot pain on Numeric Pain Rating Scale. These questionnaires contained demographic characteristics, pain intensity level (Numerical Rating Scale - NRS) from 0 (no pain) to 10 (maximum pain), type of pain (at rest, on movement, constant), and were asked to fill TAMPA scale for kinesiophobia. The information regarding demographic data, working hours and working experience were recorded.

## MEASURES:

### Pain measurement:

The NRS is segmented numeric version of visual analog scale (VAS). [9] It is one of the valid and reliable tools which was used to measure pain intensity. The NRS is a single 11 point numeric scale ranged from 0(no pain) to 10(highest pain intensity) points. Subjects were asked to plot subjective pain intensity of neck pain on the scale composed of graphic representation with 11 spaces. This scale was valid and reliable to evaluate subjective pain intensity in adults and older adults. [9,10] High convergent validity (0.79–0.95) was shown with respect to the VAS (Visual Analogue Scale). [11] Scoring: The number which the respondent indicates on the scale to rate their pain intensity is recorded. Scores ranges from 0-10. Score interpretation: Higher scores indicate greater pain intensity. [9] Instructions: the patient is asked any of the following questions: what number on 0 to 10 scale would you give your neck pain when it is worst that it gets and the best that it gets? [12]

### TSK-11:

The TSK-11 was self-reported by all study's subjects in order to detail kinesiophobia symptoms total scores, activity avoidance and harm domains scores of kinesiophobia, and levels fear of movement or kinesiophobia. [10,11] Kinesiophobia was considered as an adaptive response to the threat, which might consequently generate maladaptive or avoidance behaviors with an increase of fear

and/or pain as well as activities limitation or fear of movement. [13,14] Future disability of a musculoskeletal condition might be predicted by fear or movement or kinesiophobia. [15] This scale has been composed of total kinesiophobia symptoms score and two domains, including activity avoidance and harm under kinesiophobia. This scale was scored using 4 points Likert-type scale, indicating higher scores as an increase of fear of pain, movement, or damage. In addition, TSK-11 total scores were categorized into kinesiophobia levels of fear of movement, including no fear of movement (0–17 points), slight fear of movement (18–24 points), Int. J. Environ. Res. Public Health 2020, 17, 626 4 of 13 moderate fear of movement (25–31 points), severe fear of movement (32–38 points), and maximum fear of movement (39–44 points). [13,14]

**STATISCAL ANALYSIS:** The data was analyzed by using SPSS version 16

## RESULT

Spearman correlation test was applied and r value was found to be 0.48. The normality of data was tested by Shapiro Wilk test but data was not normally distributed. P value was found to be <0.05 .
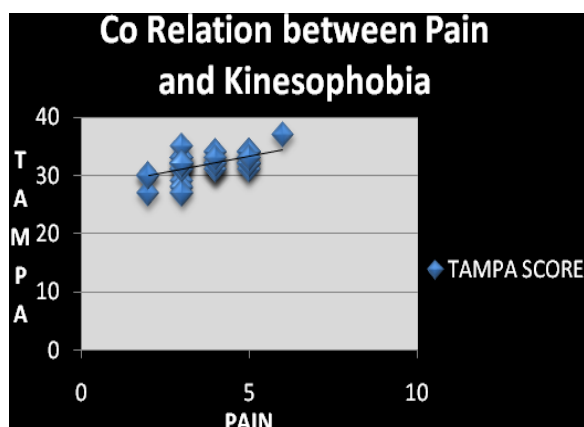


**Fig 1: Correlation between Kinesiophobia (TAMPA score) and pain (NPRS).**

## DISCUSSION

Study was performed to review and compare the characteristics of pain and kinesiophobia in tailors with neck pain. Kinesiophobia was defined by Kori et al. as excessive, irrational, and debilitating fear of physical movement that limits physical activity, and may be result of a painful injury. [16] Patients with kinesiophobia believe that physical movement will cause additional pain. [3,17,18] Many studies have examined fear of movement-related pain/re-injury in patients with low back and neck pain. Feleus et al. used TSK in their research on patients with neck and shoulder pain and reported that there was a strong relationship between kinesiophobia and musculoskeletal disorders. [19] Vangronsveld et al. found a relationship between kinesiophobia (based on TSK) and thus the severity of pain, difficulty in concentrating, and falling asleep was observed. [20] Studies that assessed patients with chronic low back and neck pain reported that pain and disability scores increased due to the fear of movement-related pain increased. [17-22] Wilgen et al. [18] used the TSK and Pain Disability Index to review fear of movement and disability in patients with low back pain. Their findings showed that there was a significant relationship between kinesiophobia, leg pain, and disability. [18] A relationship between kinesiophobia, disability, and quality of life in patients with chronic low back pain was also reported by Thomas et al. [21] An injury elicits an uniform response like muscle tension and sympathetic activation including fear and anxiety. An external stimulus may, through conditioning, elicit an identical response. Conditioning may happen through direct experience, or by information (vicarious learning) or could also be observation (modeling). [5] Although the severity of pain was moderate and similar with the low back and neck pain groups, kinesiophobia was more severe within the low back pain group. The decreased physical activity levels within the low back pain group derived from quality of life assessment also support this movement-related fear; patients with lumbar problems are thought to limit physical activities that need great muscle effort like walking due to kinesiophobia. [22] The correlation of neck pain and

kinesiophobia in tailors was assessed using the TAMPA scale (kinesiophobia) and NPRS scale (pain) in tailors .A sample size of 40 and age group from 20-55 years were included. The data was collected and statistically analyzed using the spearman correlation and the r value(r value=0.48)

The present study done indicates that there's moderate direct positive correlation between kinesiophobia (TAMPA score) and pain (NPRS score) in tailors. Studies that assessed tailors with neck pain reported that pain scores increases because the fear of movement-related pain increased. According to our findings, the severity of pain and kinesiophobia was also moderate in tailors group.

## CONCLUSION

Results of this study concluded that there was moderate significant direct positive correlation between pain and kinesiophobia. These result states that pain is directly associated with kinesiophobia.

**Clinical Implication:**

Pain can cause other musculoskeletal disorders and may thus increase kinesiophobia also. So various ergonomic advices are often taught which may reduce pain and thus reduce kinesiophobia which may improve working capacity and quality.

## ACKNOWLEDGEMENTS

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