Prevalence of de-Quervain’s Tenosynovitis in Tailors of Multan (Punjab)

Dr. Rabia Shaheen Khan, Babar Ali, Zulaikha Saif, Faisal Ishfaq, Athar Saeed, Sheeza Ali Rubab & Shahbaz Khizar
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1*Dr Rabia Shaheen Khan, 2Babar Ali, 3Zulaikha Saif, 4Faisal Ishfaq, 5Athar Saeed, 6Sheeza Ali Rubab & 7Shahbaz Khizar

Abstract

Purpose: De Quervain's Tenosynovitis is inflammation of extensor pollicis brevis and abductor pollicis longus tendons that run from the side of the wrist to the base of the thumb. To see the frequency of De Quervain’s Tenosynovitis and work related risk factors in tailors of Multan, Pakistan

Methodology: It was a cross-sectional study. Sample size of the research was 246. Study was conducted at the city of Pakistan, Multan. Inclusion criteria of the study were tailors of age between twenty to fifty years having experience of more than 3 years. Data was collected to the selected population, through convenient sampling technique. Duration of the study was 8 months. Outcome measures of the study were Finkelstein test, Visual analogue scale and a structured questionnaire. The collected data was analyzed by using SPSS version 25.

Findings: Out of 246 participants, 72.3% were males and 27.6% were females. Prevalence of De Quervain's Tenosynovitis was found to be 64% in tailors of Multan through Finkelstein test. 25.6% of the participants had moderate, while 22.3% had extreme discomfort in lower back. 35.3% reported to have mild discomfort in arms. 52.4% had mild to moderate discomfort in wrist or hand. 19.91% reported not to have an enough space for work. 44.30% did not have adjustable chairs. 69.91% reported to have no back rest while sewing, 63% reported unavailability of foot rest and 64.63% had no arm rest while sewing.

Recommendations: De Quervain’s Tenosynovitis is prevalent in tailors of Multan, Pakistan. Work-related discomfort was found in various regions of body including eyes, neck, shoulders, arms, wrist and hand. Chairs with no adjustable height, unavailability of arm and foot rest and no back support were associated work related risk factors in tailors.

Keywords: De-Quervain’s Tenosynovitis, Prevalence, Tailors
1.0 INTRODUCTION

De Quervain's Tenosynovitis is inflammation of extensor pollicis brevis and abductor pollicis longus tendons that run from the side of the wrist to the base of the thumb (1). De-quervain is thought to be caused by anatomical variations, hormonal effects, rheumatic diseases, trauma, or medications (2). Recurrent stress from wrist ulnar deviation and thumb abduction, as well as an increased anatomical angle of the tendon, are characteristics of De Quervain Tenosynovitis. De Tenosynovitis Quervain's disease is a condition that affects people who repeatedly practice hand and wrist workouts, causing damage and chronic pain (3).

De Quervain tenosynovitis affects women more frequently than men, with 1.3% of female cases and 0.5% of male cases. While performing daily activities, it is a little uncomfortable. Quervain tenosynovitis pain is most common in people in their 40s and 50s (4). People are more likely to develop it if they have previously had medial or lateral epicondylitis. New mothers and childcare providers are frequently experienced bilaterally, but after child lifting, spontaneous resolution is less likely (5). A positive Finkelstein's test (which reproduces pain at the radial styloid) and the presence of a tender nodule over a radial styloid are usually used to make the diagnosis. A positive test results in pain over the abductor pollicis longus and extensor pollicis brevis tendons at the wrist, indicating para-tendonitis of these two tendons (6).

Non-invasive treatments such as immobilisation of the wrist and hand in a cast or injection of corticosteroids and local anaesthesia into the first dorsal compartment have been routinely used to treat DQT. Furthermore, a variety of therapeutic techniques, ranging from splinting to surgical release, are used to address this illness (7). The majority of the subjects are given corticosteroid injections, however the effects of the splint with and without steroids are unclear. Ultrasound-guided injections are also useful for the problem and have no adverse effects (8).

Musculoskeletal disorders (MSDs) are among the most frequent workplace health concerns. It is well documented that ergonomic risk factors such as repetition, Work-related musculoskeletal illnesses (WMSDs) are caused by poor posture and unacceptable levels of contact stress and force (WMSDs) (9).

M. Ramdan et al. undertook a cross-sectional study in 2022 on 60 motorcycle repair technicians in the Indonesian city of Samarinda with the goal of identifying De Quervain's disease (DQD) prevalence and risk variables. A Finkelsteins test was used to determine DQD. Direct interview was used to collect the data related mechanic's age, education background, working duration, working time each day, and frequency of repetitive motion. The study revealed that De Quervain’s Disease prevalence was 63.3%. It is strongly related to age, working duration, educational background, working time each day, and frequency of repetitive motion (10). According to Habib's findings in Bangladesh, sewing machine operators are exposed to elevated risk factors for these disorders. Sewing and mending various fabrics, blankets, and cloth items are part of the technique. Sewing machine operators regularly use their hands to handle and manage the equipment, and they repeat the same actions for long periods of time (11).

Cutting, sewing, assembling, pressing, and finishing are just a few of the extremely repetitive tasks that are involved in tailoring. There are also a number of other tasks that call for working for a long period of time while adopting a variety of strange positions and motions. Movements requiring intense physical effort over an extended period of time, as well as a sustained movement of the wrist and hand, are indicators of work-related issues (12).

Several studies have shown that tailors suffer from a variety of musculoskeletal problems that affect various parts of the body. However, there are very limited research in the literature that have investigated the prevalence of De-Quervain's Tenosynovitis in tailors especially in multan, therefore
this study was carried out to see the frequency of De-Quervain Tenosynovitis and work related risk factors in tailors of Multan, Pakistan.

2.0 METHODOLOGY

It was a cross-sectional study. Sample size of the research was 246 that was calculated by online epitool software. Study was conducted at the city of Pakistan, Multan. Population of the study was tailors of Multan. Inclusion criteria of the study were tailors of age between twenty to fifty years having experience of more than 3 years. Both genders were included in the study. Participants with any structural deformity of hand, history of fracture or recent surgery of upper extremity, history of malignancies and people with carpal tunnel syndrome were excluded from the study.

Data was collected to the selected population, through convenient sampling technique. Duration of the study was 8 months. Outcome measures of the study were Finkelstein test, Visual analogue scale and a structured questionnaire. All participants were guided about the research process and purpose of this research prior to the data collection. An informed consent form was signed by all participants. Then therapist performed Finkelstein test on all individuals and filled the questionnaires by asking questions to the study participants.

To diagnose De Quervain's syndrome, the Finkelstein test was employed. Finkelstein's test reliability in determining the presence or absence of pain demonstrated a moderate agreement (Kappa=0.41). Inter-rater reliability exhibited a moderate percentage of agreement (Kappa=0.41) when assessing the presence or absence of pain, and a medium percentage of agreement (Kappa result=0.21) when pain was quantified using VAS, with statistically significant (p<0.05) findings (13). To administer the test, the patient sat comfortably and relaxed on the examining table. The patient’s hand was then inspected in the air, while the other hand rested directly near the body. The patient is then asked to create a fist around a thumb and then perform an ulnar deviation to stretch the muscles of the first extensor compartment. If the patient complained of discomfort or pain in the first extensor compartment of the wrist, the test was considered positive (14).

Visual analogue scale was used to check the work related level of pain or discomfort in various regions of the body. The consistency and accuracy of VAS is quite good. Vertical VAS and horizontal visual analogue scale are two terms used to describe the continuous scale that is of 100mm having intensity of pain ranging from nil to extreme. Vertical and horizontal VAS have a strong association. However, the horizontal VAS score is somewhat lower than the vertical VAS score (15).

All ethical concerns were taken into account. The study received the ethical approval from institutional review board of “KAIMS International Institute Multan”. The participation in the research was entirely voluntary. The privacy and dignity of all participants was prioritized. All the collected data were kept confidential.

The collected data was analyzed and interpreted by using SPSS version 25.

3.0 FINDINGS

Demographic statistics revealed that 72.3% were males and 27.6% were females. Age was divided into three categories, age distribution showed that 35.3% were from the age of 20 to 30 years, 39.4% were from the age of 30 to 40 years and 25.2% participants were within the age limit of 40 to 50 years (Table 1).

Table 1: Demographic Statistic

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>35.3%</td>
</tr>
<tr>
<td>30-40</td>
<td>39.4%</td>
</tr>
<tr>
<td>40-50</td>
<td>25.2%</td>
</tr>
</tbody>
</table>
Finkelstein Test was performed on all selected participants to see the presence of de-Quarvain Tenosynovitis. Test was positive on 64% of the patients and 36% patients showed negative results (Figure 1).

Table 2 showed the frequency and percentage of work related discomfort to various parts of the body in tailors. 18.2% of the participants had mild, 30.0% of the participants reported to have a moderate strain on eyes while sewing and 4.4% claimed to have an extreme discomfort on eyes. 25.6% of the patients reported mild, 27.2% had moderate, 18.6% had severe and only 4.0% reported to have extreme discomfort in neck region. On asking about shoulder pain, 21.5% reported to have no pain or discomfort while all other claimed to have discomfort in shoulder region ranging from mild to extreme. 44.3% participants had no pain in elbow while 28.04% reported mild discomfort in elbow region. 30.8% of the participants reported moderate discomfort in upper back region. On asking about low back pain majority (25.6%) had moderate, while 22.3% had extreme pain or discomfort in lower back. Most of the tailors (42.6%) claimed to have no pain in arms, while 35.3% had mild discomfort. 26.4% had mild discomfort in wrist or hand, 26.0% had moderate pain, while 2.03% reported extreme discomfort in hand and wrist.

**Table 2: Work Related Discomfort**

<table>
<thead>
<tr>
<th>Discomfort</th>
<th>No discomfort</th>
<th>Mild Discomfort</th>
<th>Moderate Discomfort</th>
<th>Severe Discomfort</th>
<th>Extreme Discomfort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td>76(30.8%)</td>
<td>45(18.2%)</td>
<td>74(30.0%)</td>
<td>40(16.2%)</td>
<td>11(4.4%)</td>
</tr>
<tr>
<td>Neck</td>
<td>60(24.3%)</td>
<td>63(25.6%)</td>
<td>67(27.2%)</td>
<td>46(18.6%)</td>
<td>10(4.0%)</td>
</tr>
<tr>
<td>Shoulder</td>
<td>53(21.5%)</td>
<td>61(24.7%)</td>
<td>72(28.2%)</td>
<td>46(18.6%)</td>
<td>14(5.6%)</td>
</tr>
<tr>
<td>Elbow</td>
<td>109(44.3%)</td>
<td>69(28.04%)</td>
<td>59(23.9%)</td>
<td>6(2.4%)</td>
<td>3(1.2%)</td>
</tr>
<tr>
<td>Upper back</td>
<td>61(24.7%)</td>
<td>59(23.9%)</td>
<td>76(30.8%)</td>
<td>40(16.2%)</td>
<td>10(4.0%)</td>
</tr>
<tr>
<td>Low back</td>
<td>46(18.6%)</td>
<td>37(15.0%)</td>
<td>63(25.6%)</td>
<td>45(18.2%)</td>
<td>55(22.3%)</td>
</tr>
<tr>
<td>Arm</td>
<td>105(42.6%)</td>
<td>87(35.3%)</td>
<td>38(15.4%)</td>
<td>12(4.8%)</td>
<td>4(1.6%)</td>
</tr>
<tr>
<td>Wrist/Hand</td>
<td>99(40.2%)</td>
<td>65(26.4%)</td>
<td>64(26.0%)</td>
<td>13(5.2%)</td>
<td>5(2.03%)</td>
</tr>
</tbody>
</table>
Table 3 showed the frequency and percentages of risk factor that can cause work related musculoskeletal problems in tailors. 19.91% reported not to have an enough space for work. 44.30% did not have adjustable chairs. 69.91% reported to have no back rest while sewing, 63% reported unavailability of foot rest and 64.63% had no arm rest while sewing.

Table 3: Work Related Risk Factors

<table>
<thead>
<tr>
<th>Sufficient space</th>
<th>Yes</th>
<th>197(80.08%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>49(19.91%)</td>
<td></td>
</tr>
<tr>
<td>Adjustable seat</td>
<td>Yes</td>
<td>137(55.69%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>109(44.30%)</td>
</tr>
<tr>
<td>Back rest</td>
<td>Yes</td>
<td>74(30.08%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>172(69.91%)</td>
</tr>
<tr>
<td>Foot rest</td>
<td>Yes</td>
<td>91(36.99%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>155(63.0%)</td>
</tr>
<tr>
<td>Arm rest</td>
<td>Yes</td>
<td>87(35.36%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>159(64.63%)</td>
</tr>
</tbody>
</table>

Discussion

De Quervain's Tenosynovitis is inflammation of extensor pollicis brevis and abductor pollicis longus tendons that run from the side of the wrist to the base of the thumb (1). The purpose of the research was to see the frequency of De-Quervain Tenosynovitis and work related risk factors in tailors of Multan, Pakistan.

The results of the recent study showed that Finkelstein Test was found to be positive in 64% of the patients and 36% patients showed negative results. In support to these results a study was carried out by P. Maurya et al. to detect the presence of De-Quervain's Tenosynovitis in tailors employing the Finkelstein test. De-Quervain's Tenosynovitis was discovered in 75% of the tailors out of 100 (12). In recent study prevalence of De Quervain's Tenosynovitis was found to be 64% in tailors of Multan. In line with this a research by N. Jannat et al. that employed the franklein test to examine the prevalence of de quervains syndrome among tailors and barbers reported that De Quervain's tenosynovitis had been present in 80% of the study population (9).

In current study, results revealed that 27.2% of the tailors had moderate, 18.6% had severe and 4.0% reported to have extreme discomfort in neck region. 78.5% of the participants claimed to have discomfort in shoulder region ranging from mild to extreme. 28.04% reported mild discomfort in elbow region. 30.8% of the participants reported moderate discomfort in upper back region. On asking about low back pain majority (25.6%) had moderate, while 22.3% had extreme pain or discomfort in lower back. 35.3% had mild discomfort in arms. 52.4% had mild to moderate discomfort in wrist or hand, while 2.03% reported extreme discomfort in hand and wrist. A study by Akodu Ak et al., reported that musculoskeletal problems were shown to be 92.0% prevalent throughout a 12-month period. The low back was the most usually affected body area (78.6%) (16). According to a research by Brohi et al., of the 200 subjects, 91% exhibited WMSD symptoms in the previous 12 months. The majority of individuals (41.5%) reported having had lower back pain and discomfort in the previous 12 months (17).

A study by Akodu Ak et al., reported that Prolonged sitting (99.4%), sitting on a high chair (76.5%), sitting without a back rest (71.5%), and sitting on a low chair (24.0%) were the four major job risk variables found in the study (16). In current study several risk factor was found that can cause work related musculoskeletal problems in tailors. 19.91% reported not to have an enough space for work. 44.30% did not have adjustable chairs. 69.91% reported to have no back rest while sewing, 63% reported unavailability of foot rest and 64.63% had no arm rest while sewing. Another study by Aghili MM et al. evaluated the musculoskeletal diseases in sewing machine workers at an Iranian shoe
manufacturing center. Study reported that occurrence of symptoms in shoulder, cervical, back, upper and lower limb are due to poor work posture of tailor (18).

4.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concluded that, De Quervain’s Tenosynovitis is prevalent in tailors of Multan, Pakistan. Work-related discomfort was found in various regions of body including eyes, neck, shoulders, arms, wrist and hand. Chairs with no adjustable height, unavailability of arm and foot rest and no back support were associated work related risk factors in tailors.

Limitations

- Study was only limited to tailors of Multan.
- The cross-sectional methodology prevents following changes over time, limiting understanding of long-term prevalence and risk factors.
- The study could not account for all possible contributing variables in the individuals, such as prior wrist-related disorders, general health concerns, or mechanical factors.

Recommendation

- Further research is recommended with larger sample size in other cities of Pakistan.
- A longitudinal design should be considered in future research to gain a more comprehensive understanding of causal relationships.
- It is recommended to promote the ergonomic modification in the setups of tailors, adjustable chairs can help to reduce back pain and promote a more stable body posture. Taking breaks in between work can help in reducing continuous stress thus reducing discomfort in different body regions.
- Further researches can be done to determine the role of workspace organization in reducing body discomforts among tailors. More researches can be done to compare the level of discomforts in male and female tailors.

Conflict of Interest

None

Funding

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REFERENCES


