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PREVALENCE OF DE QUERVAIN'S DISEASE AND RELATED PAIN AND FUNCTIONAL IMPAIRMENT AMONG TAILORS

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Article Info

Abstract

BACKGROUND De Quervain's disease, is a painful condition where the tendons that control your thumb get inflamed and trapped. The tendons include the extensor pollicis brevis and abductor pollicis longus. The pain is increased by thumb abduction, grasping, and ulnar deviation. This study aims to determine the prevalence of DQT among tailors and to assess the associated pain and level of functional impairment affecting their work-related activities.

OBJECTIVE: The study determined the prevalence of DQD and related pain and functional impairment among tailors.

METHODOLOGY: The cross-sectional study was conducted among 175 tailors age range 25-45 from tailors, under non-probability convenience sampling consideration the inclusion and exclusion criteria. Tailors 1 year working experience at least 6-8 hours duration per day include. Data were collected face to face survey through socio-demographic. Patient-Rated Wrist Evaluation (PRWE) questionnaire. Finkelstein test was used to determine the presence of DQD.

RESULT: The results show a high prevalence of DQT (77.1%), along a strong association with significant pain and disability. Participants with a positive Finkelstein test had much higher scores for pain (21.04), functional impairment (22.23), usual activity (15.95), and overall PRWE (59.15). These findings indicate a clear link between DQT and Functional impairment among tailors, leading to acceptance of the H_O ($p < 0.001$). Rejecting of the alternative hypothesis (H_1).

CONCLUSION: De Quervain's tenosynovitis is highly prevalent with p-value (<0.001) among tailors and is strongly linked with significant pain and functional limitations that negatively affect both work performance and daily activities.

Keywords: *De Quervain disease, Finkelstein test, pain, Functional Status, Tendons, and Tailors.*

INTRODUCTION:

Occupational musculoskeletal disorders are a growing global public health concern, affecting millions of workers across various occupations and contributing significantly to illness and reduced productivity [1]. Amongst all musculoskeletal disorders, De Quervain's tenosynovitis (DQT) has become a major disorder affecting workers in occupations that require repetitive movements in the hands and wrists [2]. DQT is characterized by inflammation and stenosis in the first dorsal compartment of the wrist, including the tendons of the abductor pollicis longus and extensor pollicis brevis tendons, resulting in pain, swelling, and restricted movement in the radial aspect of the wrist and thumb base [2].

The pathophysiology of DQT includes myxoid degeneration, fibrous tissue formation, and increased vascularity in the tendon sheath, rather than inflammation, making it a chronic and progressive condition in the absence of treatment [3].

Diagnosis is usually concluded by a positive Finkelstein's test (which causes a reproduction of pain at the radial styloid), as well as the presence of a tender nodule over a radial styloid. It is a most standard finding. A positive test is indicated by pain over the abductor pollicis longus and extensor pollicis brevis tendons at the wrist and is indicative of a Para tendonitis of these two tendons [3].

Abduction of the thumb, hand clutching, and ulnar deviation of the wrist worsen the main symptom discomfort. The main signs of this disorder include a reduced range of motion of the thumb's carpometacarpal joint during thumb abduction, as well as discomfort localized to the region of the styloid process of the radius. The posterior part of the thumb and index finger numbs when the nerve that covers the tendon sheath is irritated. "Work-related musculoskeletal diseases (WRMSD) are musculoskeletal disorders that are aggravated or caused by increased work hours and the work environment in which they are carried out [4]. musculoskeletal disorder caused mainly by repetitive movements, poor posture, static work, physical work, frequent bending twisting, vibration, handling, and improper ergonomic cause different (WRMSD) [5].

The profession of tailoring is an especially susceptible occupational category for the development of De Quervain's tenosynovitis, considering the biomechanical demands associated with the profession. Tailors perform activities requiring prolonged repetitive movements of the wrists, forceful gripping actions with needles or scissors, prolonged thumb abduction during fabric manipulation, and awkward postures during sewing activities [6]. These occupational activities precisely correspond with the risk factors for the development of DQT, which include repetitive hand movements, forceful pinching, ulnar deviation of the wrists, and prolonged static postures [7]. The cumulative stress theory is a theoretical basis for understanding the pathogenesis of tendon degeneration due to repetitive micro trauma from occupational activities, thereby causing the manifestations of tenosynovitis [8].

Recent epidemiological studies have shown alarming prevalence rates of De Quervain's tenosynovitis among the tailoring populations of different geographical regions. A cross-sectional study from Bangladesh reported that the occurrence of DQT is 75% among tailors, which is considered to be the highest prevalence rate [8].

The risk factors for DQD have been established in various groups. For the working population in France, repetitive motions, forceful manual exertion, and awkward wrist postures during work have been significant risk factors. For the general population of women in Taiwan, chronic disease and the use of hormone antagonists in the past three years have been associated with DQT. The general working population is also at risk of DQT due to repetitive motions, forceful manual efforts, and ergonomically stressful manual work. For cell phone users, repetitive text messaging is significantly associated with DQT.

A similar study from Pakistan, reported that the prevalence of DQT is 64% among tailors. The participants reported significant discomfort in different body regions, i.e., lower back, arms, and wrist [9]. Another similar study from the female tailoring populations of District Wazirabad reported that the prevalence of DQT is 43%, with unilateral involvement in 33% and bilateral involvement in 10% of the participants [10].

These studies clearly indicate that the prevalence of DQT is consistently high among different populations, thereby highlighting the universal occupational hazard associated with tailoring activities [11].

The level of pain experienced by the participants ranged from moderate to severe, which impacted their daily activities and productivity. This study indicates that the working environment and the absence of ergonomic awareness are the main causes of the extent of hand, neck and shoulder disorders among tailors [14].

The Ergonomic risk factors associated with work-related upper limb disorders (WRULDs) include poor working postures, repetitive work, fast rates of movement, forceful work, exposure to vibration, and contact stress. Such work activities that include high rates of repetition with high levels of force have been known to cause micro-trauma to body tissues, thereby leading to localized inflammation in response to tissue damage. Such conditions have been known to affect functional capacity at work or during other activities, thereby having a general impact on quality of life. The degree of pain experienced by the participants ranged from moderate to severe. Such conditions affected their activities. This study shows that the working conditions and lack of ergonomic knowledge among individuals in the workplace are responsible for the degree of disorders experienced in the hands, neck, and shoulders among tailors. The functional consequences of DQT include reduced grip power, reduced pinch power, reduced range of motion, and reduced ability to make delicate movements, which are essential for the profession of tailoring [15]. There are many studies conducted to prove that there are several musculoskeletal diseases affecting various parts of the body in tailors. But there is no study conducted in the literature on De Quervain's tenosynovitis and functional impairment in tailors. Hence, the present study was carried out[15].

METHODOLOGY

The study followed a cross-sectional design to estimate the prevalence of De Quervain's disease the study was conducted at the different tailors' shops, tailors house, and training centers both male and female age between (24-45) and were willing participant. Data was collected in 6 months. 175 tailors were recruited in study through non probability convenience sampling technique. Data were collected through face-to-face interviews, where a structured questionnaire was administered to collect information on demographics,

functional impairment and wrist-related disability, the Patient-Rated Wrist Evaluation (PRWE) questionnaire was administered. A clinical assessment was conducted to verify De Quervain's disease, along with a Finkelstein's test. People who were working 1 year experience in tailoring, individuals with at least 6-8 hours of work duration include. Individual with ant DM, neurological condition, and other MSK related conditions. Individual with Less than 1 year experience exclude from the study. Data were entered and analyzed using SPSS version 26.

RESULTS

Table: 01. Descriptive statistics showing respondents' daily working hours and years of professional experience.

	No. of working hours per day	Years of experience
Valid	175	175
Mean	9.82	9.84
Std. deviation	3.239	6.380

Table 1 shows that respondents worked an average of 9.82 hours per day (SD = 3.24, with working hours ranging from 2 to 15 hours. Their mean professional experience was 9.84 years (SD = 6.38), ranging from 1 to 30 years.

Table 2: Count of gender-wise Population: Showing break-up of gender wise Distribution of the respondent's gender wise population.

	Male	Female	Total
Frequency	95	80	175
Percent	54.3%	45.7%	100.0%

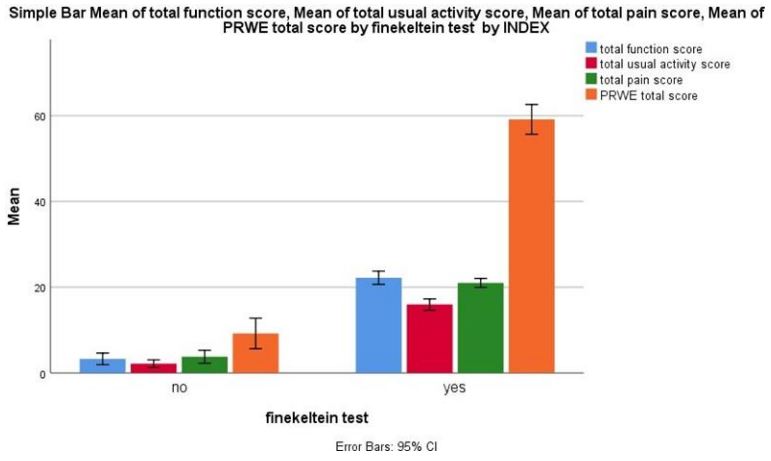
Table 2 showing that 175 tailors surveyed, 95 (54.3%) were male and 80 (45.7%) were female. The results show that males slightly outnumbered females in the profession. Overall, the sample had a relatively balanced gender distribution, ensuring representation of both genders.

Table 3: Descriptive analysis of the study variables.

Variables	Finkelstein test	N	Mean	Std. deviation	P-value
Total pain score	No	40	3.78	4.693	<0.001
	Yes	135	21.04	6.158	
Total function score	No	40	3.28	4.273	<0.001
	Yes	135	22.23	9.021	
Total usual activity score	No	40	2.15	2.806	<0.001
	Yes	135	15.95	7.633	
PRWE total score	No	40	9.2000	11.15210	<0.001
	Yes	135	59.1493	20.30390	

Table 3 showing the tailors with a positive Finkelstein test showed much higher pain scores (21.04 vs 3.78), indicating strong wrist and thumb pain. They also had greater functional impairment (22.23 vs 3.28) and daily activity limitations (15.95 vs 2.15) compared to negatives. Overall, their PRWE score was 59.15 vs 9.20, proving significant disability and poor wrist health.

Chart 1: Showing the mean total function scores using a simple bar chart.



The error bar graph compares the mean of total function, usual activity, pain and PRWE scores based on Finkelstein test results among tailors. Participants with a positive test showed much higher mean scores in all domain than those with a negative test. The PRWE total score showed the largest difference, indicating the greater pain and disability in affected individuals. The narrow 95% confidence intervals suggest consistent results across the sample. Overall, the findings show a strong association between De Quervain's disease and pain-related functional impairment in tailors.

DISCUSSION

This research examined the prevalence of De Quervain's Tenosynovitis (DQT) and its relationship with pain and functional limitations among 175 working tailors aged 25 to 45 years. The results show a high prevalence of DQT (77.1%), along a strong association with significant pain and disability. Participants with a positive Finkelstein test had much higher scores for pain (21.04 vs 3.78), functional impairment (22.23 vs 3.28), activity limitations (15.95 vs 2.15), and overall PRWE

59.15 vs 9.20) compared to those with a negative test (all $p < 0.001$). These findings indicate a clear link between DQT and Functional impairment among tailors, leading to acceptance of the null hypothesis (HO) and rejecting of the alternative hypothesis (H1).

The present studies was conducted to determine the prevalence of De Quervain's disease and its linked pain and functional impairment among tailors. Tailoring is an occupation that requires prolonged repetitive hand movements, continuous wrist motion, forceful gripping, and extended working hours, all of which increase the risk of developing musculoskeletal disorders. The findings of this study support the growing evidence that repetitive occupational activities significantly contribute to the development of De Quervain's disease and related functional limitations.

The prevalence of De Quervain's disease observed in this study is consistent with recent research showing that jobs involving repetitive hand use are major risk factors for upper limb disorders. Mohammadian (2024) also reported a high rate of musculoskeletal problems among sewing machine operators, linking them to repetitive movements, poor posture, and long working hours. Likewise, the tailors in this study regularly perform repetitive sewing, cutting, and fabric handling tasks, which likely contribute to tendon irritation and inflammation in the wrist.

Age was identified as an important factor associated with De Quervain's disease. Older participants appeared to demonstrate a greater frequency of symptoms, which may be attributed to cumulative exposure to repetitive occupational activities and Age-related degenerative changes in tendons. Similar findings have been reported in occupational studies where increasing age was associated with a higher prevalence of musculoskeletal disorders. Longer occupational experience among older workers may result in repeated mechanical stress on the wrist and thumb tendons, thereby increasing susceptibility to De Quervain's disease.

Gender differences were also seen in the occurrence of De Quervain's disease. Previous research has shown that females are more commonly affected, possibly due to anatomical and hormonal factors as well as greater exposure to certain occupational tasks. Irfan et al. (2023) reported a notable prevalence of De Quervain's tenosynovitis among clinical physical therapists, linking it to repetitive hand intensive work. Likewise, Zulfiqar et al. (2025) found that female participants were more often affected and experienced higher levels of functional limitation due to problems. The results of the present study align with these findings, indicating that gender may play a role in the risk of developing De Quervain's disease.

Working hours were strongly linked with the prevalence of De Quervain's disease in this study. Participants who worked for longer durations each day demonstrated a greater likelihood of experiencing wrist pain and functional impairment. This finding is consistent with Mohammadian (2024), who reported that prolonged work exposure among sewing machine operators was associated with a higher prevalence of musculoskeletal complaints. Likewise, Jamro et al. (2018) identified long working hours as a significant occupational risk factor among tailors with musculoskeletal disorders. Extended working hours increase repetitive tendon loading and reduce opportunities for tissue recovery, thereby contributing to the development of overuse injuries.

Repetitive hand use emerged as one of the key occupational factors linked to De Quervain's disease. Tailors frequently engage in tasks such as stitching, cutting, gripping, and operating sewing machines, all of which place constant strain on the wrist and thumb tendons. Similar results were reported by Sarfraz et al. (2025), who found a significant relationship between repetitive thumb movements during

Mobile texting and the development of De Quervain's tenosynovitis in university students. Although the settings are different, both studies highlight repetitive hand activity as a major cause of tendon-related disorders. This consistency shows that repetitive hand use is an important and modifiable risk factor.

Functional impairment was measured using the Patient-Rated Wrist Evaluation (PRWE), which assesses wrist pain and disability. Participants with De Quervain's disease showed higher levels of pain and poorer functional ability compared to those without the condition. These results are supported by Zulfiqar et al. (2025), who also found a strong association between De Quervain's tenosynovitis, wrist pain, and reduced functional status among physical therapists. Pain and tendon inflammation can reduce grip strength, hand coordination, and overall work efficiency. Consequently, affected tailors may face lower productivity and difficulty in carrying out daily occupational tasks.

Overall, the findings of this study align with recent evidence showing that repetitive hand movements, long working hours, increasing age, and occupational exposure are key factors in the development of De Quervain's disease. Comparisons with studies involving sewing machine operators, physical therapists, and university students also show that repetitive wrist and thumb activity is a common risk factor across different groups. In addition, the clear link between De Quervain's disease, pain, and functional impairment highlights the importance of ergonomic workplace improvements, regular rest periods, and preventive exercise programs to reduce musculoskeletal problems and improve health outcomes among tailors

Limitations

This study had some limitation, including a small sample size and the use non-probability convenience sampling, cross sectional study design prevents the establishment of causal relationships, as observed associations may be affected by reverse causation or unmeasured confounding factors. In addition, the use of the findings beyond the studied tailors and may introduce selection bias. The Finkelstein test, was used as the primary diagnostic tool and may produce false positive or false negative results compared to more clear methods such as imaging or surgical confirmation. Self-reported measures like PRWE. Some relevant confounders, including comorbid musculoskeletal or systemic conditions, detailed ergonomic exposures, and psychosocial factors, were not fully controlled , and the exclusion of pregnant participants and individuals with DM. lastly, work duration and symptom history were based on self-reported, single time point data, and cumulative lifetime occupational exposure was not objectively assessed.

Recommendations

The study presents several important recommendations. Beginning with the clinical practice, routine screening for De Quervain's disease should be introduced in primary care and physiotherapy setting serving tailors, using tools such as the Finkelstein test and PRWE to identify those who need early intervention. Workplace improvements are also essential, including ergonomically designed tools like padded or angled scissors, adjustable workstations, task rotation, to reduce repetitive stress on the thumb and wrist. For rehabilitation, conservative management should focus on short-term immobilization with a thumb Spica splint, followed by progressive strengthening, stretching, and education on activity modification, while corticosteroid injections or ultrasound-guided procedures may be considered when necessary, and surgery reserved for resistant cases. In addition, awareness programs should educate tailors on joint protection, early symptom recognition, and timely healthcare seeking.

CONCLUSION

De Quervain's tenosynovitis is highly prevalent (77.1%) among tailors and is strongly linked with significant pain and functional limitations that negatively affect both work performance and daily activities. These findings meet the study's objective of assessing the prevalence of DQT and its associated impairment in tailors, while also addressing a gap in the literature, as no previous study has thoroughly examined both aspects together in this group. The results highlight the need for targeted screening, ergonomic improvements in the workplace, and timely conservative treatment to reduce the burden of the condition. Overall, DQT is not just a medical issue or a clinical diagnosis but a broader public health concern that requires coordinated efforts from healthcare providers, occupational health experts, policymakers, and the tailoring community to improve quality of life, productivity and overall well-being.

Authors' Contributions:
SS: conception, study design, data collection and acquisition, manuscript writing**.**
RAH: Research supervision, data interpretation, formatting and quality assurance.
OA: Administrative support, Final manuscript approval.
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