

ORIGINAL ARTICLE

Work-Related Risk Factors for Lateral Epicondylitis in Chef in LahoreFAREEHA AMJAD¹, MEHAK MATLOOB², NOOR UL NISA JAVED³, ADNAN HASHIM⁴, AMMARA CHAUDHRY⁵, BISMA ZAFAR⁶, KANZA KHAN⁷¹Associate Professor, Riphah International University Lahore^{2,4,6,7}Former Student, University Institute of Physical Therapy, The University of Lahore³Physiotherapist, Sports and Spine professional DHA Lahore⁵Demonstrator, University College of Medicine and Dentistry, The University of LahoreCorrespondence to: Name: Adnan Hashim, Email: adnanhashim199@gmail.com, Contact: 03004022024**ABSTRACT****Background:** Numerous cross-sectional epidemiological studies on the incidence of workplace epicondylitis have generally, but not always, revealed a higher risk of the ailment in relation with strenuous manual tasks.**Methods:** A cross-sectional study was conducted in Lahore. The data was acquired from chefs who worked in different restaurants. The research used a Patient-Rated Tennis Elbow Evaluation as its survey method (PRTEE). Participants also received a consent form and a questionnaire. A different T-test was applied. In order to analyse the data, SPSS version 25 was used.**Results:** Among the 136 participants, 29 (21.3%) were women, and 107 (78.7%) were men. The frequency and proportion of participants' dominant hands are shown on this graph: 48/136 (35.3%) and 88/136 (64.7%) of the 136 people had left hands. 32/136 (23.5) of the participants reported their level of discomfort while at rest, while 52/136 (38.2) reported mild pain and 20/136 (14.7) reported severe pain. While making repetitive arm motions, 161/136 (11.8) respondents reported no pain, 50/136 (36.8) minor discomfort, 59/136 (43.4) moderate discomfort, and 11/136 (8.1) severe discomfort. Only six out of 136 respondents (4.4%) said they weren't uncomfortable, as opposed to the 53 (39.0%), 57 (41.9%), and 20 (14.7%) who claimed carrying a plastic bag caused them slight to severe pain. According to this graph, participants who experienced the least amount of pain reported no pain in 32/136 (23.5) cases, mild discomfort in 7/136 (5.1) cases, moderate pain in 66/136 (48.5) cases, and severe pain in 38/136 (27.9) cases. Using a doorknob or key caused 90/136 (66.2%) people no pain, 22/136 (16.2%) moderate pain, 22/136 (16.2% discomfort), and 7/136 (5.1%) severe pain, according to this graph. This study was conducted to create the awareness in chef to avoid from risk factors of epicondylitis.**Conclusion:** As a result, it was established that chefs experienced pain on the lateral side of either their dominant right hand or left hand for a variety of reasons. Repetitive motions, recreational activities, and housework are all causes. On the lateral side of their right hand, which is more frequent in women, they experience a small stiffness.**Keywords:** Patients' Evaluation of Tennis Elbow, Lateral Epicondylitis, and Myotendinosis (PRTEE).**INTRODUCTION**

Upper extremity-related work-related problems and disability affect working persons in significant numbers. Elbow pain and related concerns were commonly recognized to be quite likely the most well-known troubles of the arm in everyone. When the extensor muscles are overused, the ligament insertion can become inflamed or disturbed, resulting in lateral epicondylitis.¹ Lateral Epicondylitis was frequently confused for "tennis elbow," non-competitors were frequently impacted as well. Doctors must be trained to recognize and treat Lateral Epicondylitis because it affects everyone. Physicians should look for a history of difficult jobs involving physical activity or patient postures. Both men and women are equally affected by LE, and people in their fourth and fifth decades of life are most frequently affected.² Numerous studies have looked at the relationship between lateral epicondylitis incidence and the physical demands of the profession. Longer periods of time working in physically demanding jobs, forceful work tasks, the combination of forceful and repetitive upper extremity activities, and the combination of either forceful or repetitive activities with extremely non-neutral posture of the hands and arms have all been linked to lateral epicondylitis.³ Work-related risk factors for epicondylitis included strong exercises, high force combined with high repetition, or uncomfortable posture. There aren't as many studies on work-related psychosocial factors as there are on physical load factors, but those that do exist do not consistently show the same results. Needless therapy, corticosteroid injections, and topically applied non-steroidal anti-inflammatory drugs all have immediate advantages.⁴ The lateral epicondyle of the humerus and the extending tendons in the dorsal lower arm are both affected by the painful condition known as tennis elbow. In over 90% of instances, the extensor carpi radialis brevis muscle impinged on the tendon. If the judgement was less certain, additional testing might be necessary. The fact that the disorder was common while people were still quite active has made it a substantial source of (usually delayed) non-appearance. Tennis elbow therefore has a large financial effect.⁵ Tendinitis was once thought to be a kind of

lateral epicondylitis, which manifests as tendon inflammation. It does not, however, include inflammatory cells like neutrophils and macrophages, according to histological research. The illness was now understood to be a tendinosis, which is categorized as a degenerative process. Cross-linking and collagen deposition frequently increase in a tendon under stress. A micro tear happens when a tendon is stretched further than it can endure, and tendinosis develops as a result of the tendon experiencing numerous micro rips. Such small microtrauma led to several histological phases that are clearly identifiable.⁶ It is possible to distinguish between sidelong epicondylitis, often known as tennis elbow, and average epicondylitis, which is commonly referred to as golfers' elbow. Both lateral and medial epicondylitis, which are brought on by overusing the extensor and flexor muscles, result in inflammation or irritation of the tendon insertion. In experts whose jobs required repeated motion, the prevalence of lateral epicondylitis and average epicondylitis changed from 1.3 to 12.2% and from 0.2 to 3.8%, respectively. Shiri et al. assert that work-related physical factors that increase the risk of developing lateral and medial epicondylitis include exercises requiring strong hand grips, carrying objects weighing more than 5 kg, performing repeated actions of the hands or wrists, and utilizing vibrating equipment.⁷ Degenerative alterations and ongoing rips in the extensor carpi radialis brevis root were present along with the disease. Numerous demographic groups, including those who are in the employment, have been studied to determine the prevalence of lateral epicondylitis. In the working population, we aimed to determine the prevalence and risk factors for lateral epicondylitis.⁸ Pain in the lateral region of the elbow was a characteristic feature of tennis elbow. When the hand and forearm are used frequently, the pain gets worse. The lateral humeral epicondyle exhibits both immediate and enduring discomfort, according to a clinical evaluation.⁹ Numerous studies from different countries have revealed that vibration-exposed workers are far more prone than controls to suffer from musculoskeletal issues. The prevalence of carpal tunnel syndrome, severe upper appendage discomfort, and

muscular-ligament issues was higher among ranger service employees. While using swing power tools, the contrasted and controlling areas of the hand, arm, shoulder, and wrist will ache and become stiff.¹⁰ More people experience age-related symptoms, which usually defy clinical classification. Even while "non-specific" arm pain was common, about 1-3% of elderly adults could have rare clinical diseases such epicondylitis and carpal tunnel syndrome. The ailment was frequently related to the employment. Work-related problems with the upper limbs are a severe problem globally, but industrialized countries are particularly affected. A few audits, union articles, reports, and books are recent works on the subject. They also provide findings from various studies on how these problems relate to biomechanical and psychosocial aspects of personal and professional life. There are still some subjects, nevertheless, where there is a knowledge gap.¹¹ The ECRB, which attaches close to the base of the third metacarpal bone, takes up the deep and anterior section of this typical ligament. During elbow flexion and extension, the underside of the ECRB brushes against the lateral edge of the capitellum. It's possible that this contact's regular abrasion and wear contribute to the pathophysiology of epicondylitis.¹² Patients with epicondylitis are frequently diagnosed at medical offices and workplace-related healthcare institutions. The following handicap may be substantial and call for physically demanding actions with the hands. Although it is a fatal illness from both a human and financial standpoint, little is known about its pathology, and theories on its etiology have been challenged. Non-steroidal anti-inflammatory medications, ultrasound, laser, stretching, and strengthening exercises, as well as local steroid injections, were often used as conservative therapies for tennis elbow in patients.¹³ non-steroidal anti-inflammatory medications, ultrasound, laser, stretching, strengthening, and even local steroid injections were often used as conservative therapies for tennis elbow. Elbows that didn't get better after receiving conservative treatment needed surgery. But neither surgical nor non-surgical treatment has resulted in reliable or alluring outcomes.¹⁴ The symptoms of lateral epicondylitis (LE), a common illness, include soreness on the outside of the elbow, a weakened grip, and a worsening of upper-extremity weakness. The cause of the elbow pain and tenderness was a musculoskeletal illness brought on by repetitive microtrauma from overusing the upper extremity. It was also referred to as "tennis elbow" and occurred in 5%–10% of tennis players. The annual incidence of the population varied from 1% to 3%, and those over 35 were more frequently affected. Clinical features that set it apart from other conditions include pain that radiates from the lateral side of the elbow to the forearm, a weakening of the grip caused by soreness and pain with compression in the lateral epicondyle, and a tendency to affect the dominant hand more frequently.^{15,16} Numerous studies have linked the prevalence of lateral epicondylitis to physically demanding work activities, particularly high force combined with high repetition, awkward posture, and high physical exertion combined with specific elbow movements, so these associations between occupational physical factors and lateral epicondylitis prevalence are well established. A number of psychological and psychosocial workplace elements have also been suggested as having an effect on lateral epicondylitis.¹⁷

Objective: To identify the lateral epicondylitis occupational risk factor for the Lahore chef.

MATERIALS AND METHODS

Study Design: Cross-sectional study
Setting: Data was collected from chef of different restaurants.
Duration of study: Study was completed within 6 months after the approval of the synopsis
Sample size: 136
Sample Technique: Non-Probability, Purposive sampling was used to collect data.
 Sample selection criteria:

- Inclusion Criteria:**
- Age between 25 to 50 years

- Pain over lateral side of elbow
- 8-12 working hours
- Gender (Male, Female)

Exclusion Criteria:

- Cervical radiculopathy
- Stroke
- Previous surgery
- Inflammatory joint



METHODOLOGY

A cross-sectional analysis of the working population was conducted. 136 people in the working population made up the study's sample. In order to evaluate lateral epicondylitis, a comprehensive, valid, and reliable questionnaire that has passed pre-testing was used. The questionnaire enquired about the respondents' ancestry as well as their daily routines, functional restrictions, and arm pain. Men and women who took part in the study worked 8 to 12 hours per week.

Data Analysis: After gaining written consent, a Tennis Elbow Evaluation questionnaire was used to gather basic demographic information (PRTEE). The dominant hand, sex, and employment were among these specifics. SPSS was used for the analysis (version25). In order to assess the risk factor for lateral epicondylitis, an independent t-test was used. To create bar charts for qualitative data, frequency and a percentage were subtracted. The mean and standard deviation of the quantitative data type were examined.

RESULTS

Out of total 136, 107/136 (78.7%) were males and 29/136 (21.3%) were females. The frequency/percentage of dominant hand of participants, 48/136 (35.3%) were left hand and 88/136 (64.7%) were right hand. 32/136(23.5) participants had no pain, 32/136(23.5) had Mild pain, 52/136(38.2) had Moderate pain and 20/136(14.7) had severe pain while at rest. 161/136(11.8) participants had no pain, 50/136(36.8) had Mild pain, 59/136(43.4) had Moderate pain and 11/136(8.1) had severe pain while doing repetitive arm movement. 6/136(4.4) participants had no pain, 53/136(39.0) had Mild pain, 57/136(41.9) had Moderate pain and 20/136(14.7) had severe pain while Carrying plastic bag.

Table 1: At rest

When you are at rest		
	Frequency	Percentage
No Pain	32	23.5
Mild Pain	32	23.5
Moderate Pain	52	38.2
Severe Pain	20	14.7
Total	136	100.0

Description: This table reveals that while at rest, 20/136 (14.7) participants experienced severe pain, 52/136 (38.2) subjects reported moderate pain, and 32/136 (23.5) subjects reported no pain.

Table 2: When doing a task with repetitive arm movement

When doing a task with repetitive arm movement		
	Frequency	Percentage
No Pain	16	11.8
Mild Pain	50	36.8
Moderate Pain	59	43.4
Severe Pain	11	8.1
Total	136	100.0

Description: According to this table, 11/136 (8.1) participants experienced severe discomfort, followed by 59/136 (43.4) moderate discomfort and 50/136 (36.8) mild discomfort when making repetitive arm motions.

Table 3: When carrying a heavy plastic bag

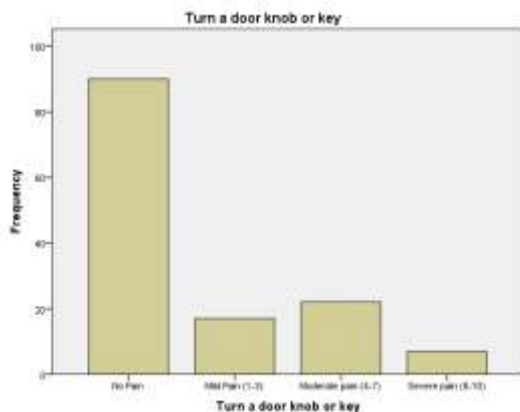
When carrying a heavy plastic bag		
	Frequency	Percentage
No Pain	6	4.4
Mild Pain	53	39.0
Moderate Pain	57	41.9
Severe Pain	20	14.7
Total	136	100.0

Description: According to these findings, only 6/136 (4.4) participants who were carrying plastic bags reported any difficulties, but moderate to severe discomfort was reported by 57/136 (41.9), 20/136 (14.7), and 53/136 (39.0).

Figure 1: When your pain was at its least



Figure 2: When turn a door knob or key



DISCUSSION

There were 29/136 (21.3%) female participants and 107/136 (78.7%) male participants in the current study. 48/136 (35.3%) of the patients were left-handed, while 88/136 (64.7%) of the subjects were right-handed. Additionally, 20/136 (14.7) people reported

experiencing severe pain when resting, whereas 32/136 (23.5) people reported light pain, 52/136 (38.2) people reported moderate discomfort, and 32/136 (23.5) people reported no pain while resting.

An earlier study provided evidence in favor of the hypothesis that nursery school chefs were more prone to epicondylitis than other professionals who performed less strenuous hand and arm jobs. Epicondylitis risk factors included mechanical susceptibility and psychosocial elements, among others. In addition, according to Takeuchi et al., 3.5% of office workers and 8.6% of cooks said they had persistent right arm pain in the month prior to the poll. According to Oze's research, 13% to 20% of school lunch supervisors also frequently reported having pain in their right arm the month before the evaluation.¹²

An independent sample t-test was used in the current investigation to examine the pain ratio in the left and right hands. According to the findings, there was no statistically significant difference in the mean pain level in the affected arm (t= -1.80, p=0.074). The mean functional disability score showed a statistically significant difference (t= -2.24, p=0.027*). The mean value of the typical Activities showed a statistically significant difference (t= -2.28, p=0.024*). While engaging in recreational sports or activities, participants 40/136 (29.4) reported no pain, 35/136 (25.7) reported minimal discomfort, 37/136 (27.2) reported moderate discomfort, and 24/136 (17.6) reported severe discomfort.

A recent study found that because of their hard yet repetitious work, cooks frequently suffered from epicondylitis. The recent study discovered that the prevalence of epicondylitis peaked between the ages of 20 and 35, as opposed to earlier research that suggested it peaked between the ages of 35 and 54. According to an arbitrary study, 5.2% of the functioning population had LE. According to earlier studies, LE in the dominant hand was much more normal than the usual epicondylitis. On average, 51.7% of chefs experienced epicondylitis.¹⁶

Compared to 50/136 (36.8%), 59/136 (43.4%), and 11/136 (8.1%) who felt substantial pain when performing repetitive motions, 16/136 (11.8%) of the individuals in the current study reported no discomfort. with a plastic bag in hand There was no discomfort for 6/136 (4.4) participants, light pain for 53/136 (39.0), moderate pain for 57/136 (41.9), and severe pain for 20/136 (14.7). When their agony was at its lowest, the individuals' pain scores were as follows: No pain was reported by 32/136 (23.5) respondents, mild discomfort by 7/136 (5.1), moderate discomfort by 66/136 (48.5), and severe discomfort by 38/136 (27.9) respondents.

In prior studies, it was discovered that there was a significant association between occupation and epicondylitis. It was found that repetitive elbow bending for more than 60 minutes per day is highly intrinsically related to lateral and medial epicondylitis after correcting for variables including age, sexual orientation, and mental health. As 5% of those with epicondylitis reported taking a long absence as a result, and the median projected duration of sick leave was 29 days out of the most recent year, this investigation also provides an evaluation of the effects of epicondylitis on the workplace.⁸

In the current study, the pain ratio in the left and right hands was compared using an independent sample t-test. The results show that the mean pain level in the affected arm did not differ in a way that was statistically significant (t=0.396, p=0.693). There was no statistically significant difference in the mean functional disability score (t=0.648, p=0.518). Regular Activities' mean value did not statistically significantly change (t=0.676, p=0.500). In addition, 11/136 (8.1) individuals reported having no pain when carrying out everyday activities, followed by 48/136 (35.3), 60/136 (44.1), and 17/136 (12.5) individuals who reported having really painful symptoms.

The prevalence of lateral epicondylitis in a sizable workforce has been estimated by prior studies. The significance of physical work-related risk factors for the onset of lateral epicondylitis was

further emphasized by these investigations, particularly for repetitive and physically taxing elbow exercises. Numerous studies' findings indicate a clear connection between the beginning of lateral epicondylitis and recurrent self-evaluations of considerable contact.

CONCLUSION

As a result, it was established that chefs experienced pain on the lateral side of either their dominant right hand or left hand for a variety of reasons. Repetitive motions, recreational activities, and housework are all causes. On the lateral side of their right hand, which is more frequent in women, they experience a small stiffness.

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