



Original Article

Prevalence of Carpal Tunnel Syndrome among Butchers in Pakistan

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ARTICLE INFO

Key Words:

CTS (Carpal Tunnel Syndrome), VAS (Visual Analogue Scale)

How to Cite:

Hayder, A. ., Fatimah, A. ., Uzair Asghar, H. M., Maqbool, S. ., Shad, M. ., Zaheer, B. ., Siddiqui, O. . & Hussain, A. . (2022). Prevalence Of Carpal Tunnel Syndrome Among Butchers In Pakistan: Carpel Tunnel Syndrome among Butchers. Pakistan BioMedical Journal, 5(7).

<https://doi.org/10.54393/pbmj.v5i7.676>

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Received Date: 12th July, 2022

Acceptance Date: 20th July, 2022

Published Date: 31st July, 2022

ABSTRACT

Carpal Tunnel Syndrome (CTS) is an ailment in which median nerve is trapped in carpal tunnel and as a result a person feels tingling, numbness, and weakness in the wrist joint. It is most caused when excessive pressure is applied on the wrist joint. Most of the professionals go through this condition because of the nature of their work. Hairdresser, dentists, and labourers are commonly affected by this condition. **Objective:** This study determines the prevalence of CTS among butchers in Pakistan. **Methods:** Butchers from different cities of Pakistan were selected to check out the prevalence of CTS. 400 butchers from different cities of Pakistan were selected. Observational study design was carried out and convenient sampling was used to collect the data. The butchers having the age of 20 to 40 years were included with having an experience of 3 years or more. All the butchers should use the manual instruments during the processing of meat. They were told about the purpose of our research and a consent form, personally designed CTS diagnosis questionnaire, Visual Analog Scale (VAS) and Boston Carpal Tunnel Syndrome Questionnaire (BCTSQ) were filled by them. Functional limitations and symptoms severity of butchers with CTS were also assessed. **Results:** The prevalence of CTS among butchers in Pakistan was 10.3%. The butchers having age between 26-30 years had 46% cases of CTS among them. 21-25 years old butchers had 17% of affected butchers among them. According to experience, butchers having 3-5 years' experience was the most affected among them. 34% butchers of 3-5 years' experience were involved. There was moderate level of functional limitation in CTS affected butchers according to BCTSQ. Next thing was the symptom severity with moderate level of symptoms severity was present in butchers suffering from CTS. **Conclusion:** The prevalence of CTS among butchers in Pakistan was 10.3%. All the butchers suffering from CTS had moderate level of intensity of pain. There was a moderate level of functional limitation and symptoms severity related to CTS affected butchers.

INTRODUCTION

Wrist joint is a synovial joint of the upper extremity. It is an important joint in performing the activities of daily life. Wrist joint is made proximally by the distal end of radius and the articulating disk and distally by the proximal row of carpal bones excluding pisiform. Muscles that work on wrist joint are as Extensor Carpi Radialis Longus, Extensor Carpi Radialis Brevis, Flexor Carpi Radialis, Flexor Carpi

Ulnaris, and Palmaris Longus [1]. CTS is common among many professions because of the constant usage of wrist joint in the movement. If heavy force is applied on the wrist joint during the performance of activity, it can lead to CTS. Those professionals who suffer from CTS include hairdressers, cashiers, boat drivers, car drivers, household workers and dentists [2]. CTS is a condition in which there

is tingling, numbness and weakness in the hand. All this caused due to pressure on median nerve. Median nerve goes through the arm and passes through a passage called carpal tunnel. When pressure is applied on the nerve at this junction then the patient feels numbness and tingling in the hand. Median nerve is responsible for the movement and feeling of thumb and is also responsible for movement of hand except little finger [3]. In order to carry out diagnosis of CTS first of all doctor takes history of the patient. Through that he gets the idea what can be the possible disease. The next step is the performance of physical exams to check out the location and the position in which pain is present. In this way the physician removes the chances of arthritis and other conditions [4]. High BMI can be a reason due to which there can be CTS among people. Railway Workshop Kalka workers went through a complete examination in which they were assessed for CTS on the basis of their BMI [5]. Among those female dentists are at greater risk factor as compared to males. According to that study obese dentists are most commonly affected by CTS [6]. Ultrasound therapy is also useful in this case. If the main is not relieved by conservative and physical therapy treatment in 6 months, then the patient had to undergo surgical treatment. There are two methods used. First one is open surgery; surgeon makes a 2-inch opening that extends from wrist to palm. The second procedure is endoscopic surgery, two small cuts are made and camera is guided inside. After the process of surgery, ligament come backs together. Now there is more space available for median nerve to easily go through carpal tunnel [7]. As they daily face conditions which can lead to CTS like vibration, heat pressure and working period. So, after the study it was concluded that 82.2% prevalence of CTS among boat drivers [8]. It is thought that cashiers also perform such activity which can lead them to CTS. In order to find out, a study was conducted to evaluate thing but the results were surprising. Only 2% cashiers were affected by CTS [9]. Hairdressing is an occupation in which there is a great risk for the occurrence of CTS. In order to look into the issue, a research was conducted on 109 hair dressers. 22 were suffering from CTS. 10 had mild CTS, 7 had moderate, and 5 were severely affected by it. Those suffering from severe CTS had numbness and pain in both of their hands [10]. Certain study was conducted in which hairdressers were asked about musculoskeletal changes in their wrist joint. Other factors like condition of skin and respiratory issues were also looked into. The results showed that hairdressers are facing many health issues including skin disease, musculoskeletal complications, and other respiratory complexities [11]. Many personnel from hair dressing profession face pain in different body parts due to the nature of their work. Hair dressers complained pain in their

spine, shoulder, hands, wrists, and lower limb [12]. For the treatment of CTS, there are three methods; a) conservative, b) physical therapy, and c) surgical technique. Conservative method consists of usage of ice pad, heat pads, wrist bands, sensory gloves, and medication. In conservative management braces and gloves are also used in order to reduce movement on joint. For this purpose, we use wrist band and sensory gloves. They reduce the flexion and extension on the wrist joint [13]. Conservative management was conducted on 37 patients for one year. After one year there was great improvement in the patients. There were symptoms of pain reduction, symptoms reduction, and better electronurography score. A conservative management helped many patients to get them fit without the application of surgery or other processes [14]. There were some studies that corticosteroid injections can be used to treat CTS conservatively. In order to verify this further study was carried out and the results showed that corticosteroid injections are also used in conservative treatment but the results are inconclusive [15]. Physical therapy treatment is also beneficial for the treatment of CTS. The patient is advised stretching and strengthening exercises so that there is reduction in the pain as well increase in movement. Recent studies show that if conservative management is carried out with physiotherapy intervention it will be more beneficial for the treatment of CTS and patient will be safe from surgery [16]. Surgical procedure is performed if the symptoms persist for more than 6 months. Before starting the surgery, the patient should be prepared pre operatively so that the process of healing takes place smoothly [17].

METHODS

This research was to contemplate the prevalence of CTS Amongst Butchers in Pakistan by Students from University of Management and Technology (UMT), Lahore. Survey method was adopted in this research. A survey was conducted amongst Butchers to gather the information regarding CTS. This is a quantitative study comprising of local Butcher population. Sample size was 400 local Butchers using manually operating instruments. For inclusion and exclusion criteria, all butchers working in meat shops between the age of 20 to 40 years, utilizing manual instruments to process meat were included and Butchers with age less than 20 years and more than 40 years with at least 3 years of experience, using automatic meat processing instruments, along with individuals suffering from congenital abnormalities, systemic diseases, and rheumatoid arthritis were all excluded. The data collection tool was a survey. A Personally Designed CTS Diagnosis Questionnaire was used to collect data for the prevalence of CTS amongst Butchers in Pakistan. To

access the severity of pain, VAS was used. In butchers suffering from CTS, BCTSQ was used to find symptoms severity and functional limitations among affected Butchers. The questionnaire collected demographic data and helped to diagnose CTS. The Study was completed one month after the synopsis's approval.

RESULTS

Table 1 shows the demographics of the participants involved. Total 400 patients were included in this study. The gender distribution was 400 (100%), males only. 80.2% of butchers were married while only 20.0% butchers were single. 79% of butchers were right handed and only 21% were left handed. The results showed that only 10.3% butchers had CTS in Pakistan.

Gender	400 (100%)
Age	M21-25 (81), 26-30 (203), 31-35 (55), 36-40 (61)
Marital Status	20.0% (S),80.2% (M)
Working Hand	79% (R),21% (L)
CTS	41(Y),359(N)

Table 1: Descriptive statistical analysis (N=400); M (Males), S (Single), M (Married), R (Right), L (Left), CTS (Carpal Tunnel Syndrome), Y(Yes), N(No)

Figure 1 depicts the butchers suffering from CTS as assessed for functional limitation using BCTSQ. According to the results most of the butchers suffering from CTS had moderate functional limitations. 31 butchers had a moderate functional limitation, 6 butchers had mild functional limitations, and 4 of them were suffering from severe functional limitations.

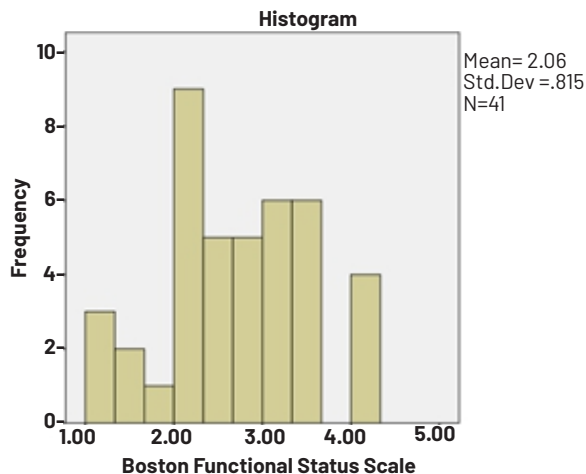


Figure 1: Boston Functional Status Scale

Figure 2 shows Boston CTS severity scale. The next part of BCTSQ was to check out the level of severity of symptoms of CTS. The results showed that 24 butchers were having moderate severity of symptoms, 16 butchers showed the severe symptoms, and 1 had mild severity of symptoms.

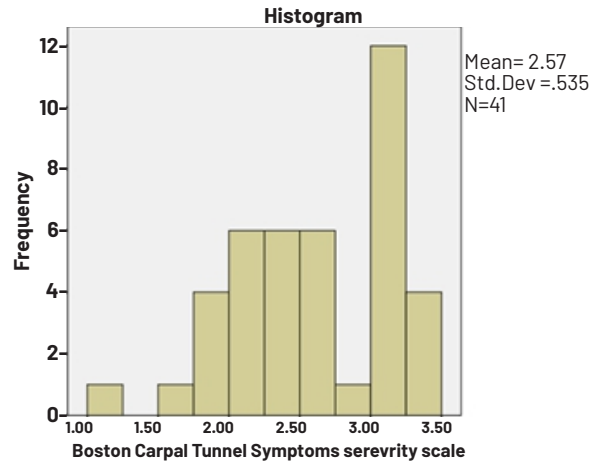


Figure 2: Boston CTS Severity Scale

Table 2 shows the VAS, assisting us to identify that 31 out of 41 butchers suffering from CTS had moderate pain. Only 8 butchers had severe pain and 2 butchers had mild pain.

VAS scale	Frequency (%)	Valid Percent	Cumulative Percent
Mild	2 (0.5%)	4.9	4.9
Moderate	31 (7.8%)	75.6	80.5
Severe	8 (2.0%)	19.5	100.0
Total	41 (10.3%)	100.0	

Table 2: Visual Analogue scale VAS related to CTS

DISCUSSION

Carpal Tunnel Syndrome (CTS) is a disease which is related to wrist. There is a nerve entrapment in this condition. Median nerve is entrapped near carpal tunnel and it is caused due to repetitive movement of wrist. This disease is caused when excessive pressure is applied on the wrist. This condition leads to numbness, tingling and weakness in the wrist. Person is unable to perform their daily activities. Mostly people suffering from CTS belong to different profession. They perform such work during their duties due to which there is excessive pressure on the wrist and they get symptoms of CTS. Most commonly effected professionals are hair dressers, boat drivers, car drivers, and dentists. The positioning of their hand is such that it causes pressure on the wrist and as a result median nerve is affected. There is constant usage of hand in these professions [7]. So, according to our research 10% population of butchers in Pakistan is suffering from CTS. Hair dressers are such professionals who had to daily perform same routine all day. During their work they hold a pair of scissors and machines in such pattern in which there is a constant pressure on their wrist. They suffer from CTS and many leads towards chronic state. As a result, they have to leave this profession. We looked in butchers and there were cases of CTS among them. This disease is also affecting butchers at some level as well [17]. A study was conducted in King Fahad Hospital, Saudi Arabia in which

laboratory workers were studied. They use to perform repetitive movements in there working conditions. The prevalence among them was only 9.7%. We looked in butchers for the prevalence of CTS. The results showed that only 10.3% prevalence was present among butchers [18]. A study was conducted in turkey to check the prevalence of CTS among female hair dressers. They checked the prevalence as well as functional limitation and severity of symptoms among them. They compared the functional limitation and symptoms severity with unemployed CTS people. The rate was much higher in female hair dresser in both functional limitations and symptoms severity. We differentiated our study by checking the level of functional limitations and severity of symptoms only in butchers. We looked the intensity of both these things. They showed moderate functional limitations as well as symptoms severity [19]. Another study reveals the prevalence of CTS was high among using electro diagnostic tests. The prevalence was high up to 51%. In order to support electro diagnostic tests, Durkan's CCT was also conducted. Their results were considerably correlated with electro diagnostic tests results [20]. This study also looked at the perspective that how age is affecting the butchers suffering from CTS. The most affected butchers were from 26- to 30-year age group. Then we looked relation of working hours with CTS among butchers. The most affected category was the butchers who daily work for 10 hours straight. They have high prevalence of CTS among them.

CONCLUSION

The purpose of this research was to find out the prevalence of CTS among butchers. As previous studies showed us that this disease is very common among different professionals so our aim was to look out its prevalence among butchers. 10.3% butchers from our sample size was suffering from carpal tunnel syndrome. This was the number of butchers suffering from CTS. 41 out of 400 butchers were facing this disease.

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