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Research Article

Frequency of Carpal Tunnel Syndrome in Male Computer Users

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Abstract

Objective: Objective of the study was to found the Prevalence of Carpal Tunnel Syndrome in Male Computer Users.

Methodology: This study was conducted in Male computer users in different banks of Lahore. All the data which was used in the present study were collected from primary resources by questionnaires. The sample size of this study was 150. Convenient sampling technique was used in this study. "Dartmouth-Hitchcock Medical Centre (DHMC) Carpal Tunnel Syndrome Questionnaire" was used for data collection.

Results: 97.3% respondents were daily computer users with experience of 4 to 8 years. It was found that 76 computer users had prevalence of Carpal Tunnel Syndrome which was 51%. Further 101 computer users faced difficulty in picking small objects like keys and pens. 47 respondents had no difficulty in writing which was 31.3% of total, 55 respondents had mild difficulty, 31 respondents faced moderate difficulty and 11 respondents had severe difficulty in writing and 6 respondents were not able to do their work due to pain.

Conclusion: In professional life computer users frequently use computers for 6 to 9 hours daily. They keep on focusing on their jobs ignoring the negative effects on their health. This study includes people who are using computers from the last four to eight years. Further it was found that 51% Prevalence of Carpal Tunnel Syndrome existed in Male Computer Users. The prevalence of Carpal Tunnel Syndrome was found by taking average values of both "Tingling and Hand or Wrist Pain.

Keywords: *Prevalence of Carpal Tunnel Syndrome; Difficulty in Bathing; Buttoning of Cloth; Holding Book*

Introduction

Carpal tunnel syndrome (CTS) was a condition that occurs when the median nerve was squeezed or tightened in the wrist [1]. It was a widespread condition affecting 1 to 2% of the population. Carpal tunnel syndrome was more common among people aged 30 to 60 [2]. Women were affected 5 times more often than men [3].

The hand and wrist consist of bones, muscles, joints, nerves and a carpal tunnel that work together to ensure the normal functioning of the hand. The bones consist of a distal radius, a distal ulna, cartilage, metacarpus and phalanges. The nerves that supply the hands and

wrists include the median nerve, the ulnar nerve and the superficial radial nerve. The carpal tunnel was located at the base of the wrist and was home to the median nerve and 9 flexor tendons, two carpal bones and a retinaculum of flexors [4,5].

The frequency and prevalence of Carpal tunnel syndrome in working people supports the contention that Carpal tunnel syndrome was business-related. A study by Roquelaure examined the relationship between employment status and Carpal tunnel syndrome incidence rate. Among the study participants were men and women aged 20 to 59 living in west-central France [7]. The researchers calculated the Carpal tunnel syndrome incidence rate by employment status. The results showed that Carpal tunnel syndrome average incidence rate was higher than that of the unemployed [8]. In addition, "the study showed that although some studies do not confirm the medical conditions known to increase the risk of Carpal tunnel syndrome in some patients, about 70% of male patients and 80% of men were also without them" [9]. The factors that play a traditional role in the development of carpal tunnel syndrome were alternative keyboard design. Bibliographic databases identified more than 400 research studies [10,12].

In 1992, made an early, repetitive and strong assessment that physical workload factors, probably concluded that at least 50% of all CTS cases in the major risk factors and populations exposed for CTS and the emergence of 90% can be attributed to the physical workload [20]. Recently, the timeline of the CTS exam was two in the 1990s, MEDLINE's biomedical databases and EMBASE was extended until January 2005 after doing research with systematic peer review studies [21]. For each study, 38 primary research reports scored 95% confidence interval ratios, a rare imminent ratio of relative disease risk was calculated at the same time as the measure. Relative risk ranged the use of the hand-held vibrating device, as associated with repetitive wrist movement and the duration of exposure was significantly higher RI were from 1 to 21. Previous researchers found logical evidence that usual, long-term utilize of portable vibrating tools increased the risk of CTS by > 2 pints.

Objective of the Study

Objective of the study was to found the frequency of Carpal Tunnel Syndrome in Male Computer Users.

Methodology

The Cross-sectional study was conducted in various banks of Lahore. All the data, which was used in the present study, are collected primary resources by questionnaires. The sample size of this study is 150. "Dartmouth-Hitchcock Medical Centre (DHMC) Carpal Tunnel Syndrome Questionnaire" was used for data collection. Statistical Package for Social Science (SPSS) 16.00 was used to analyse the frequency distributions and data analysis.

Sample size formula

$$n = \frac{z^2_{\alpha/2} p(1-p)}{d^2}$$

- a= Level of significance at 5%
- Z= 1.90value from standard normal distribution corresponding to desired confidence level.
- P= 0.60 prevalence rate of test score
- d= 0.05(5% absolute precision).

$$n = \frac{(1.96)2\ \frac{0.05}{2}\ 0.60(1-0.06)}{0.05}$$

Sample size

n = 150.

Inclusion criteria

- Only men are included.
- Only those respondents which have the age of 20 years to 40.
- Those respondents who have pain in their wrist or hand.
- Those respondents who work 5 to 10 hours daily.

Exclusion criteria

- Men who are injured from hand or wrist.
- Only those respondents which have the age of less than 20 or more than 40.
- Those respondents who have no pain in their wrist or hand.
- Those respondents who work less than 5 hours daily

Results

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 30	87	58.0	58.0	58.0
	31 - 40	63	42.0	42.0	100.0
	Total	150	100.0	100.0	

Table 1: *Age.*

87 respondents were from the age group of 20 - 30 which was 58% of total and 63 respondents were from the age group of 31 - 40 which was 42% of total which was also shown in graphs.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Flexed	39	26.0	26.0	26.0
	Extended	37	24.7	24.7	50.7
	Neutral	74	49.3	49.3	100.0
	Total	150	100.0	100.0	

Table 2: *Hand position.*

39 respondents had flexed hand position which was 26% of total, 37 respondents had extended hand position which was 24% of total, 74 respondents had neutral hand position which was 49% of total.

	Frequency of no Prevalence	Frequency of Prevalence
Tingling	71	79
Hand or Wrist Pain	76	74
Averagely Value	73	76
Percentage	49%	51%
Prevalence Found		51%

Table 3: *Prevalence according to hand or wrist pain, numbness and tingling results.*

The above mentioned table showed the prevalence of Carpal Tunnel Syndrome was found by taking average values of both "Tingling and Hand or Wrist Pain". 79 out of 50 computer users had prevalence of "Tingling" and the rest of 71 respondents had no prevalence. On the other hand, 74 out of 150 respondents had prevalence of "Hand or Wrist Pain". Rest of the 76 computer users had no pain. After that researcher took the average value of both prevalence and found that 76 computer users had prevalence of Carpal Tunnel Syndrome which was 51%.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Without difficulty	49	32.7	32.7	32.7
	Little difficulty	53	35.3	35.3	68.0
	Moderate difficulty	26	17.3	17.3	85.3
	Very difficult	18	12.0	12.0	97.3
	Extra difficult	4	2.7	2.7	100.0
	Total	150	100.0	100.0	

Table 4: *Do you have difficulty with the grasping and use of small objects such as keys or pens? 49 respondents used small objects without difficulty, 53 respondents felt little difficulty, 26 respondents felt moderate difficulty in using small objects and 18 respondents faced very difficult and 4 respondents had extra difficulty which was 2.7% of total which was also shown in graphs.*

Conclusion

In professional life computer users frequently use computers for 6 to 9 hours daily. In this way they ignore all effects of such activity on their life. In this study most of the computer users were 4 to 8 years' experience. Further it was found that 51% Prevalence of Carpal Tunnel Syndrome existed in Male Computer Users. The prevalence of Carpal Tunnel Syndrome was found by taking average values of both "Tingling and Hand or Wrist Pain. When the computer users involved with this disease their daily life is much affected. More than 45% computers users felt difficulty in carrying keys or pens, writing, clothing, bathing, dressing, reading,

Limitations

Sample size was very small.

This study had lots of limitations:

- Main limitation of the study was its study design which was cross sectional.
- Another limitation was its majority due to non-probability sample use.

- This study was only conducted in Male computer users.
- Study was conducted in Lahore.
- Due to shortage of time the collected data may be less than the expected sample size.

Recommendation

- There must be awareness about this disease and causes and effects.
- Avoiding overuse of the wrist and hand by computer users can minimise this effect on Carpal Tunnel Syndrome.
- There must be some rest during their working hours on computer usage.
- If there is any pain in wrist or hand, computer users must consult with some physiotherapist to discover that the reason of pain.

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