

PREVALENCE OF CARPAL TUNNEL SYNDROME AMONG DENTISTS OF FAISALABAD

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Abstract: Dentists in their practice are daily exposed to work-related vibrations. The important cause of work disability is carpal tunnel syndrome. The study aimed to determine the prevalence of carpal tunnel syndrome among dental practitioners. In this cross-sectional study data from 100 dentists was collected using a convenient sampling technique. Prior to data collection consent form was sent to the respective dental section of government hospitals of Faisalabad. The dentists who met the inclusion criterion were invited to participate in the study. The diagnosis was made according to clinical tests of Phalen and Tinel. Age, sex, years of experience, working hours per week, and the type of procedure were then considered as dependent variables. Overall, the prevalence rate of 60 % of carpal tunnel syndrome among old-aged dentists was observed. This study concluded that the risk of carpal tunnel syndrome increases with age. It also concluded that a 60% prevalence rate was found in dentists. Older dentists of age 35-50 years were included in more risk groups than younger 20-25 years.

Keywords: Carpal tunnel syndrome, Phalen's sign, Tinel's sign, endodontic file.

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INTRODUCTION

Carpal tunnel syndrome is a condition that constitutes numbness pain and paresthesia in the hand or wrist and occurs because of multiple comorbidities. It can originate from several possible causes like increased workload, occupation-related, poor ergonomic status, workplace environment, and working with some different instruments like vibratory tools and short diameter instruments. The prevalence of CTS was highest among dentist personnel than the dentist assistants. Dentist who practiced for more than 10 years was having more symptoms than those having less experience. (1-6)

Moreover, gloves restrict movement as muscles do more effort to perform tasks and it'll lead to hand fatigue and CTS as the Dental hygienist continuously and forcefully grips instruments during teeth scaling to make a contact with teeth (7-9).

The carpal tunnel is a canal located in the palmar aspect of the wrist. It constitutes a flexor.

retinaculum sheath and nine tendons. The sensory supply of the lateral three fingers and lateral half of the ring finger provides by the median nerve so that symptoms of CTS appear when it is compressed. carpal tunnel syndrome is assessed by Phalen's and Tinel's tests (10,11).

Carpal tunnel syndrome is the most common median neuropathy that affects the general population of approximately 3-6 %. (12). Approximately, 70 percent of dentists reported musculoskeletal pain including neck, back, and shoulder each year. Among all the musculoskeletal syndrome carpal tunnel syndrome prevalence has been reported to be highest among dental hygienists. The prevalence of CTS ranges from 6 to 8 percent in previous studies. CTS ranked first in all occupations according to an evaluation of bureau of labor statistics data in the proportion of cases of CTS per1000 employees(13-15).

MATERIALS AND METHODS

DATA COLLECTION TOOL

Tinel's sign test and Phalen's sign test were used to diagnose and confirmation of carpal tunnel syndrome symptoms. Both tests are used to check the compromised median nerve.

STUDY DESIGN

It was a cross-sectional study design.

SAMPLE SIZE

A sample size of 100 was selected and approved by an expert statistician, and 100 dentists participated according to inclusion and exclusion criteria.

SAMPLING TECHNIQUE

The sample was selected by using a simple random sampling technique.

STUDY SETTING

This study was conducted at government hospitals of Faisalabad to enroll dentists for the current research study fulfilling the exclusion and inclusion criteria.

SELECTION AND DESCRIPTION OF PARTICIPANTS

This study was undertaken in government hospitals of Faisalabad to check the prevalence of carpal tunnel syndrome among dentists. Before collecting the data, informed consent was sent to the dental ward of all government hospitals in order to get approval from their respective In charge of the dental ward and to get a better understanding of our research project. The actual study's aim was to check the causative factors related to age. Dentists who reported carpal tunnel symptoms were evaluated by using diagnostic tests i.e., Phalen's sign test was confirmed using.

Tinel's sign test.

INCLUSION CRITERIA

Dentists have clinically suspected CTS, pain, and paresthesia in the median nerve innervation. Dentists with CTS greater than 3 months which gave no response to 2 weeks of oral NSAID. Data

was collected from the dentists in hospitals in Faisalabad only. The Medical Superintendent (MS) of respective hospitals approved the permission letters issued by the Directorate of Medical Sciences, GCUF.

EXCLUSION CRITERIA

Dentists having diseases that could mimic CTS (e.g., cervical radiculopathy or severe thenar muscle atrophy) and dentists with pregnancy were not included in this study. Even after the basic information regarding research was provided to dentists who did not give consent, and who were not willing to participate, were excluded from this study. Dentists with congestive heart failure were not included in this study. Dentists having wrist fractures were excluded.

RESULTS

FREQUENCY DISTRIBUTION OF AGE

Results show that 31 % of dentists that were enrolled in the study were between 25 to 35 years of age group and 69% of dentists were between 35 to 50 years of age. Total of 100 dentists.

FREQUENCY DISTRIBUTION OF GENDER

Results show that 48% of dentists were male, and 52 % of dentists were female who was enrolled in the study. Thus, it indicated that more females than males participated.

DISCUSSION

The analysis and results of this study concluded that dentists who had a working experience of at least 2 years and above, showed symptoms of carpal tunnel syndrome which are numbness and tingling sensation in the distribution of the median nerve. Dentists' age was a major contributing factor in causing CTS. The results were in favor of senior dentists, because the dentists whose age was more than 30 years, were complaining more about wrist pain(16-20).

Our study results supported the previous study in which repetitive movements of the hand and wrist caused CTS symptoms. Those whose work status involved such wrist movements as, dentistry, golfing, knitting, and gardening were found more prone to CTS (21-23). Comparable to the results of other studies, the present 60% prevalence rate was found associated with the study that reported a 64% prevalence rate (24) and another study showed 75.1% of dentists having hand and wrist pain in their study (25). Duration of working hours and dentists who treated a greater number of patients in previous studies showed a highly significant association with the prevalence of hand and wrist pain. The prevalence of probable CTS in our study was higher than in previous studies like Haman et al (2001) showed that the prevalence of carpal tunnel syndrome was

only 2.9 % among dentists and Haghighi et al (2012) also reported much less prevalence like 16% in Isfahanian (Iran) dentists and their diagnosis was also based on Phalen's and Tinel's sign test. Puriene et al (2008) reported a high prevalence rate of CTS than our study and showed that 83.1% prevalence was noted among Lithuanian dentists (26-28). This study's results were also like our present study that the prevalence rate of carpal tunnel syndrome was high among dental practitioner than the general population.

CONCLUSION

This study concluded that the risk of carpal tunnel syndrome increases with age. It also concluded that a 60% prevalence rate was found in dentists. Older dentists of age 35-50 years were included in more risk groups than younger ones.

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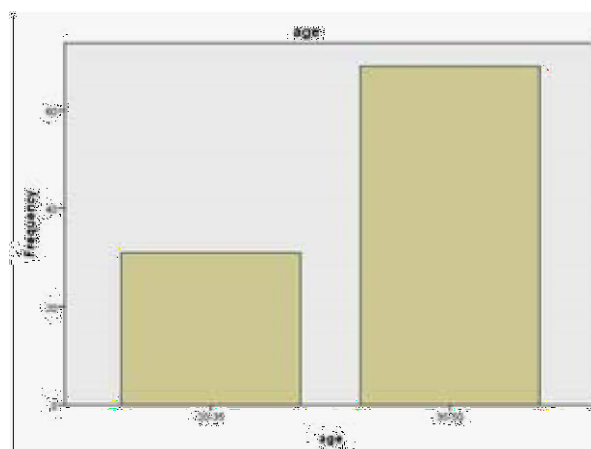
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Table.01: Frequency and percentage of age distribution

Age	Frequency	Percentage
25-35	31	31
35-50	69	69

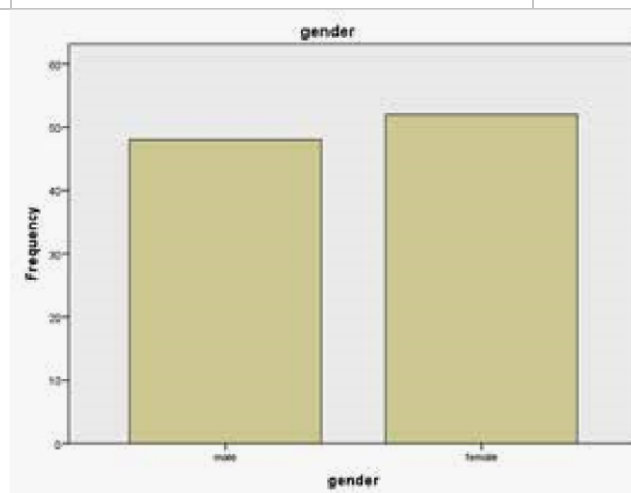
Total	100	100
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Graph.01: Frequency and percentage of age distribution

Table.02: Frequency distribution and percentage according Gender

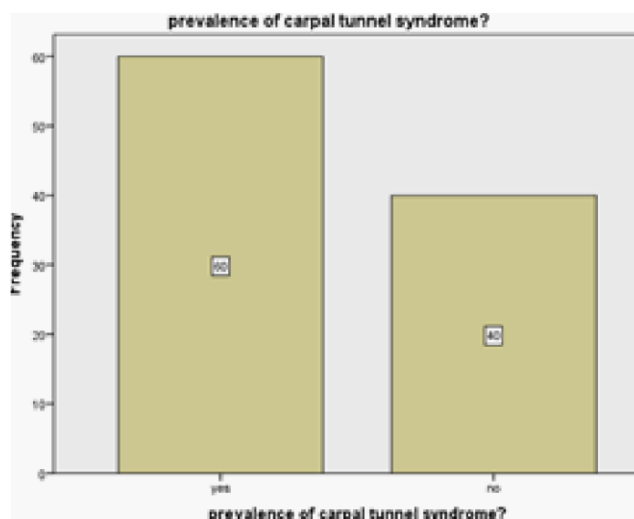
Gender	Frequency	Percentage
Male	48	48
Female	52	52
Total	100	100



Graph.02: Frequency distribution and percentage according to Gender

Frequency distribution of prevalence of carpal tunnel syndrome

The study results showed the prevalence of 60 dentists having prevalence of carpal tunnel syndrome.



Graph.03: Frequency distribution of prevalence of carpal tunnel syndrome