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Prevalence of Trigger Finger among Instrumental Musicians of Lahore, Pakistan

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ABSTRACT

Trigger finger is also known as stenosing tenosynovitis. It is a troublesome anomaly that is experienced by most of the musicians and is characterized by catching, popping and locking of the affected finger/fingers. The causes of this anomaly are repetitive hand movements and holding heavy musical instruments. **Objective:** the basic aim of this study is to determine the prevalence of trigger finger in instrumental musicians. **Methods:** A cross sectional study design and convenient sampling technique was used to collect the data. A data of 320 musicians was collected through a self-administered questionnaire, who were lying in the inclusion criteria of the study. **Results:** In this study the results concluded that the frequency of trigger finger in instrumental musicians is 2.2%. Total 320 instrumental musicians participated in the study and out of it 292 (91.3%) were male and 28 (8.8%) were female. Minimum age was 20 and maximum age was 59 years. 283 (88.4%) were in the age range from 20-29, 25 (7.8%) participants were in the age range of 30-39 years, 10 (3.1%) participants were in the range of 40-49 years and 2 (0.6%) participants were in the range of 50-59 years. **Conclusions:** The present study concluded that frequency of trigger finger in musicians was very low as 2.2%. The study also determined that occurrence of trigger finger in musicians relies on repetitive hand movements and holding heavy musical instruments.

INTRODUCTION

The disease trigger finger procures its name from the excruciating popping or clicking sound elicited by flexion and extension of the involved digit. Described by Notta in 1850 it is caused by a difference in diameter of a flexor ligament and its retinacula sheath because of thickening and narrowing of the sheath. It is also known as stenosing tenosynovitis. A few reasons for trigger finger have been proposed, however the exact etiology has not been clarified. Mostly, repetitive finger movements and local injury are conceivable outcomes with such stress and degenerative power additionally representing an increased frequency of trigger finger in the dominant hand. There are reports connecting trigger finger to occupations requiring extensive grasping and hand flexion, for example, utilization of shears or hand held instruments. The underlying complaint related with trigger finger might be of a painless clicking with digital manipulation. On the further advancement of the condition can make the catching or

popping to become excruciating with both flexion and extension, and be related as happening at either the metacarpophalangeal (MCP) or PIP joints. The classic presentation of popping and locking of a trigger finger is typically all that is needed for diagnosis; however, with acute onset of symptoms patients may present with pain and swelling over the involved flexor sheath with avoidance of finger motion. The work of professional musicians exposes them to a range of physical and psychological risk factors, which, in other occupations, have been linked with occurrence of musculoskeletal disorders (MSDs). These include static loading of muscles, repetition, precision grip and psychosocial work pressures. The instruments are the tools of the instrumental performer, while the concert hall or club provides the setting. Both are set in stone by tradition and are resistant to change when work-related issues occur. As a result, in the event of the start of a musculoskeletal condition, the musician's work-related

behaviors, namely his or her performance and practice habits, are modifiable. Because of the amount and type of motor skills necessary, regular performance and practice with a musical instrument demands the player to become practically a "upper extremity athlete". Professional musicians must perform rapid, repetitive motions with considerable strength and precision, and the movements necessary do not always correlate to the types of rotational and angular movements called "physiological" or "natural." These motions create an ideal environment for tendonitis or muscle injury to develop. Tenosynovitis and tendinitis are endemic among musicians and guitarists and essentially influence the wrist of the non-predominant hand. Recovery of the instrumental artist with an occupationally related musculoskeletal issue is an interesting issue. The aim of this paper is to create awareness about the commonness of trigger finger in musicians so that their work related behaviors and practice habits can be changed or modified in order to prevent injury and in case of initial phases of injury the physical therapist must be able to diagnose correctly.

METHODS

A cross sectional study design is used to conduct the study. The sample size consists of 320 musicians. Conveniently approachable samples were taken in the study. Data was collected from professional musicians in the walled city of Lahore and Alhamra Cultural Complex and Alhamra Arts Council. Data was collected in almost 8 months after the approval of the synopsis. Sample size was calculated through an Epitool Calculator. Data is collected from both males and females. The age limit is from 20 years of age to 69 years. Time span since the musician is playing the instrument is chosen to be at least 2 weeks on the instrument. All the instrument players are included, i.e. string players, percussionists and brass & wind players. Professionals who were off the instrument and Professionals who were experiencing symptoms for less than 2 weeks are not included. In the study the data is collected using a self-administered questionnaire. Data is collected from 320 professional musicians and music trainees. Information about the questionnaire and study was given to the participants and their consent was taken through a consent form sanctioned by authorities of institutions where the participants belonged to. For the statistical analysis of the data SPSS version 20 was used. Study results of qualitative variables are expressed in the form of tables and charts. Statistical analysis is done with P-value set as $p < 0.05$ and by using Pearson's chi square-test.

RESULTS

In this study the results concluded that the frequency of trigger

finger in instrumental musicians is 2.2%. Total 320 instrumental musicians participated in the study and out of it 292 (91.3%) were male and 28 (8.8%) were female. Minimum age was 20 and maximum age was 59 years. 200 (62.5%) participants were string player, 102 (31.9%) were percussionists and 18 (5.6%) participants were brass and wind players. The most important sign of trigger finger is the locking of fingers in bent position and most of times trigger finger is diagnosed on the basis of this sign. Out of 320 participants 7 (2.2%) participants complained of their fingers getting locked in bent position while 313 (97.8%) participants were normal as given in Table-1. Making fist might be difficult for patients with trigger finger but it's not common in all the patients with trigger finger so only 5 (1.6%) participants felt difficulty in making fist while 315 (98.4%) were able to easily make fist. In the affected participants left hand is involved in 7 (2.2%) participants and right hand of only 1 (0.3%) participants was involved while 312 (97.5%) were normal as shown in Table-1. A cross tabulation was done between trigger finger and age. According to the calculations there is significant association between age and trigger finger because the p-value is 0.000 which is less than 0.05, and most of the participants with trigger finger were lying in the age range of 20-19 years and it's given in Table-2. A cross tabulation between instrument and trigger finger was done. The p-value found to be 0.073 that is greater than 0.05, and it shows that there is no significant association between instruments and trigger finger, all the participants are equally prone to this condition as shown in Table-3. Another cross tabulation was done between gender and trigger finger and the p-value found to be 0.600 that is greater than 0.05, which means there is no significant association between gender and trigger finger as given in Table-4

Characteristics	
Age	Frequency (%)
20-29	283(88.4%)
30-39	25(7.8%)
40-49	10(3.1%)
50-59	2(0.6%)
Gender	Frequency (%)
Males	292(91.3%)
Females	28(8.8%)
Instrument Family	Frequency (%)
String Instrumentalists	200(62.5%)
Percussionists	102(31.9%)
Brass & Woodwind Players	18(5.6%)
Trigger Finger symptoms	Frequency (%)
Symptoms present	7(2.2%)
Symptoms not present	313(97.8%)
Hand affected	Frequency (%)
Right hand	1(0.3%)
Left hand	7(2.2%)
None	312(97.5%)
Total	n=320

Table 1: Basic and demographic characteristics of participants

Age	Trigger Finger present	Trigger finger not present	Total	p-value
20-29	4	279	283	.000
30-39	1	24	25	
40-49	1	9	10	
50-59	1	1	2	
Total	7	313	320	

Table 2: Cross Tabulation between Age and Trigger Finger

Instrument	Trigger Finger present	Trigger finger not present	Total	p-value
String	2	198	200	0.73
Percussion	5	97	102	
Brass & wind	0	18	18	
Total	7	313	320	

Table 3: Cross Tabulation between Instrument and Trigger Finger

Gender	Trigger Finger present	Trigger finger not present	Total	p-value
Male	6	286	292	0.600
Female	1	27	28	
Total	7	313	320	

Table 4: Cross Tabulation between Gender and Trigger Finger

DISCUSSION

The present cross sectional investigation decided a frequency of trigger finger in instrumental performers by characterizing the instrumentalists in various classifications on the premise of the sort of instrument they play. The goal of the present examination was to decide the frequency of trigger finger in populace of artists of Lahore, Pakistan. A cross sectional examination was made and 320 people took an interest, out of which 292 (91.3%) were males and 28 (8.8%) were females. As per this poll overview just 7 (2.2%) performers experienced trigger finger. The present investigation demonstrated that trigger finger relies upon various playing related factors including diverse manifestations and exasperating factors. A study is conducted by Han-Sung Lee et al to determine the prevalence of work-related musculoskeletal disorders in musicians 12% of subjects of 507 subjects were experiencing muscle-tendon syndrome as a result of carrying heavy musical instruments and repetitive movements of finger. The present study suggests the same. To play musical instrument, repetitive hand movements is a requirement and all the instruments i.e. string instruments (like guitar, sitar, rubab) and percussion instruments (like drum, tumbak, djembe, ukulele) are played by repetitive strumming and tapping respectively. On the same note a systematic review of literature was conducted by Paula ECG Nielsen et al. to find out occupational musculoskeletal disorders in arms and hands. In her study she found that repetitive hand movements can result in injuries of the tendons that includes trigger finger and people who are performing

tasks that involve excessive repetitive movements are at higher risk of getting trigger finger than those who are performing tasks that involve less repetitive movements of hands. The present study suggests that there is no significant association between types of instrument and trigger finger, all categories of instrumentalists are equally prone to have trigger finger. On the contrary a study conducted by Lili Allsop and Tim Ackland emphasized that professional pianists are at higher risk of getting musculoskeletal problems as compare to non-professional pianists. And playing instruments for longer duration can cause musculoskeletal disorders while in the present study there is no association between duration of playing the instruments and occurrence of trigger finger. Another study showed that affected musicians more percussionists experienced trigger finger than string players. In contrast a study conducted by author suggests that guitarists are more exposed to trigger finger than other instrument players. In the present study it was suggested that a proper warm up exercises before playing the instrument and stretching exercises after the performance can reduce the risk of getting trigger finger. A retrospective review by Katherine Butler and Ian Winspur reported that instrumentalists who had trigger finger were successfully returned to normal professional playing after corrective surgery of trigger finger. To the best of learning for the author, past investigations explained distinctive parts of trigger finger, its causes, treatment and prevention but the present study was conducted to determine the prevalence of trigger finger in instrumental musicians.

CONCLUSIONS

This study focuses mainly on the prevalence of trigger finger in instrumental musicians in order to keep the musicians from losing their career. Although the frequency of trigger finger is not very high in the given population and is found to be only 2.2%, present study concluded that vigorous and repetitive hand and finger movement is the major cause of trigger finger in instrumental musicians

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