

FREQUENCY OF THUMB PAIN AMONG MOBILE PHONE USER STUDENTS

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ABSTRACT

Background: Prolonged and frequent use of mobile phone leads to pain in thumb and hand. Primary prevention strategies have largely been confined to reducing the mobile phone use as it will prevent the repetitive microtrauma. **Objective:** To assess the frequency and nature of thumb pain among mobile phone user students of Sheikh Khalifa Institute of Allied Health Sciences, Sheikh Zayed Medical College, Rahim Yar Khan. **Methodology:** A cross sectional study was conducted in students of Sheikh Khalifa Institute of Allied Health Sciences, Rahim Yar Khan from 1st October to 31st December 2017. The study subjects were mobile phone user students with ages ranging from 18 to 25 years. Data was collected through non-randomized convenient sampling technique. A performa was designed and 110 study subjects were interviewed regarding the frequency of thumb pain among mobile phone users, after taking their verbal consent. All the data collected was analysed on SPSS version 20.0. **Results:** From the data of 110 mobile phone users, it was observed that 40% subjects had thumb pain and 60% had no pain. Results showed that only 16.4% were male and 83.6% females. It was noted 91.8% were right handed and 8.2% were left handed. **Conclusion:** It was concluded that thumb pain is common among students mostly caused by overuse of thumb in mobile phone users. Frequent use of mobile phone for different activities for prolonged periods of time leads to pain and inflammation in thumb and hand.

Key words: Thumb pain, Mobile phone, Students, Frequency.

INTRODUCTION

Hand is the most important part of body required for the performance of daily life activities.¹ Thumb pain leads to great limitations in performing everyday activities. In past few years thumb pain prevalence has been increased to many folds especially among adolescents and young adults.² It can be due to some pathologic condition i.e. De Quervain's tenosynovitis, trauma or overuse injuries.³ Fibromyalgia, osteoarthritis, rheumatoid arthritis etc other causes of thumb pain.^{3,4}

The literature review reveals the precise etiology of thumb pain due to de quervain's tenosynovitis which includes an acute trauma or an extreme, unaccustomed new exercise. However, more commonly, it may be the result of repetitive micro trauma.^{1,2} Thus, adults who use hands and thumb in repetitive manner are at greater risk of developing de quervain's tenosynovitis.³

In case of de quervain's tenosynovitis, Finkelstein test is positive.³ De quervain's tenosynovitis is triggered by stenosing inflammation of the tendon sheath in the first dorsal compartment of wrist.⁴ Thumb pain due to overuse is the most common cause these days. The reason is easy access and violent use of electronics, mobiles and internet. Games and overuse of internet leads youngsters to thumb and hand pain due to overuse of these.^{5,6}

Cellular telephone use has increased exponentially, with 3.3 billion service contracts

active worldwide or about one for every two people on the planet.⁴ Risk factors of thumb pain can be divided into modifiable and non modifiable factors.^{2,3} Trauma, overuse, work related factors, psychological causes, frequent falls leading to fractures, systemic diseases, sedentary lifestyle, poor nutrition are modifiable risk factors. Non modifiable risk factors are age, gender, ethnicity and postmenopausal women.⁵ Modifiable risk factors can be corrected by improving nutrition, active lifestyle, proper conditioning and exercises, psychological and pharmacological treatment, physiotherapy; all depending upon the underlying cause. Non modifiable risk factors can only be compensated and not cured.⁵

Diagnosis of any representing symptom can be made through a systematic process starting from, presenting complaint, past medical history, social history, family history, systematic review, review of past medical papers if present, review of x-ray if conducted. Objective examination is the next step.⁴ Imaging techniques can be used for further details and diagnosis confirmation. It includes x rays, CT scan, MRI, nerve conduction tests, heat and cold test, capillary refill time test, EMG, blood tests to detect any infection or heamophilic disease.^{4,5}

Prevention includes refrain from pain provoking activities, reduce the mobile phone use, proper alignment, use proper alignment of thumb while operating a device, exercise properly, ROM

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exercises, maintain flexibility, maintain ROM and flexibility of entire limb.⁶ Treatment options to relieve thumb pain include the pharmacological treatment, physical therapy, psychotherapy, and functional training.^{7,8} Physical therapy includes the heat/ice therapy, thumb immobilization, chiropractic treatment, electric nerve stimulation, stretching exercises, strengthening exercises, ROM exercises, general fitness training, mobilization, manipulation and exercises. Stimulations are applied for strengthening. NSAIDs are given for pain relief.^{7,8,9} The objective of the study was to determine the frequency and nature of thumb pain among mobile phone user students of Sheikh Khalifa Institute of Allied Sciences, Sheikh Zayed Medical College, Rahim Yar Khan.

METHODOLOGY

Study design: Cross sectional study. **Setting:** Sheikh Khalifa Institute of Allied Health and Sciences, Sheikh Zayed Medical College, Rahim Yar Khan. **Study Subjects:** The students of Sheikh Khalifa Institute of Allied Health and Sciences, Sheikh Zayed Medical College, Rahim Yar Khan from 1st year to final year. **Duration of study:** The duration of study was from 1st October to 31st December 2017. **Sample size:** Sample size in this study was 110 mobile phone user students, both male and female.

Sample selection criteria: The sample selection criteria was as follows:

Exclusion criteria:

- Students using mobile phone for more than 2 hours a day
- Age between 18 and 28 years
- Subjects who gave informed verbal consent

Exclusion criteria:

- History of systemic condition like rheumatoid arthritis

Ethical approval was sought by Institutional Review Board and informed verbal consent was taken from every study subject. A performa was developed pretested and used for data collection. The variables included were age, nature of pain, duration of pain, factor causing pain, type of cell phone being used, duration of mobile phone use and mobile phone activity. The performa was in simple tick box format. Close ended questions were asked by direct method and entered on performa. Each mobile phone user was approached personally and individually and

briefed about the procedure, taken into confidence for not disclosing information collected to anybody. The data collected was analysed using SPSS 20. The numerical variables were expressed as mean and standard deviation. Whereas categorical variables were presented in the form of frequency and percentages.

RESULTS

The descriptive study was conducted to assess the frequency and nature of thumb pain among mobile phone user students. Mean age of mobile phone user students with thumb pain was 20±2 years. Out of 110 study subjects, 16.4% were males and 83.6% were females, 91.8% were right handed and 8.2% were left handed.

Table I: Frequency and nature of pain among mobile phone users (n=110)

Variable	Frequency	Percentage
Frequency thumb pain		
Yes	47	40
No	63	60
Total	110	100
Type of phone		
Smart phone	97	88.2
Key pad phone	8	7.3
N/A	5	4.5
Total	110	100
Frequency of distribution of mobile phone activities		
Games	6	5.5
Texting	15	13.6
Internet	17	15.5
All	67	60.9
N/A	5	4.5
Total	110	100
Frequency of distribution of duration of cell phone use		
< 1 hour	10	9.1
2-4 hour	27	24.5
5-7 hour	45	40.9
8-10 hours	22	20
N/A	6	5.5
Total	110	100
Frequency of distribution of nature of pain		
Diffused	27	24.5
Centralized	17	15.5
N/A	66	60
Total	110	100
Frequency of distribution of pain with activity or rest		
Activity	38	34.5
At rest	2	1.8
Both	7	6.4
NA	63	57.3
Total	110	100

Table I shows that 47 (40%) of mobile phone users were having thumb pain and nature of pain was diffuse in 27 (24.5%) of users.

DISCUSSION

The current study was conducted to determine the frequency of thumb pain among mobile phone user students and 110 mobile phone users were included in study. The range of age of these subjects was from 18-25 years. Mean age of subjects was 20 and standard deviation of 2 years. Results showed that almost half 40% of the subjects were experiencing thumb pain because of cell phone usage.

Results showed that out of 110 study subjects, 16.4% were males and 83.6% females. Out of study subjects, 91.8% were right handed and 8.2% were left handed. Out of these 40% subjects were having thumb pain, 24.5% had diffused nature of pain and 15.5% had centralized pain. The result of present study is similar to a study by bilalumer et al in which they found out that 58.07% subjects, with mean age of 22.43 years using mobile phones had developed de quervais syndrome, which leads to thumb pain and inflammation.⁹ In current study, 34.5% subjects complained of thumb pain with activity, 1.8% had pain at rest and 6.4% had pain with both rest and activity. Another study conducted showed comparable findings that excessive mobile phone use led to thumb pain among 44.5% of young people.¹⁰ In another study, of Charu Eapen et al,⁴ results showed that Finkelstein test was positive in 40% of subject which showed thumb pain and inflammation. There is also comparable to current study.¹¹ There were 9.1% subjects who were using cell phones <1 hour, 24.5% using >1 hour, 40.9% using >3 hours, 20% using >10 hours and 5.5% not applicable. A research by Minkyung Lee et al on similar topic “effect of smart phone use on upper extremity muscle activity and pain threshold” shows the similar results of mobile phone use and frequency of pain.¹¹ In current study, 88.2% subjects were using smart phones while 7.3% were using keypad phones, and 5.5% were using phones mostly for games, 13.6% for texting, 15.5% for internet and 60.9% for all of these. Maryam Ali et al, conducted study on thumb and mobile phone association, there results showed that 42% subjects experienced thumb pain with mobile phone usage.¹²

CONCLUSION

It was concluded that thumb pain was common among mobile phone users. Frequent use of mobile phone for different activities for prolonged periods of time may lead to thumb pain especially among young adults.

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