

Prevalence of Tension Neck Syndrome in Frequent Computer Users

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A B S T R A C T

Background of The Study: Regular computer use exposes one to physical stress that can lead to bad posture and a variety of symptoms, the most well-known of which is tension neck syndrome. The purpose was to determine the frequency of tension neck syndrome among regular computer users, particularly in college students because of online coursework.

Objective: To find the influence of frequent use of computer in the occurrence of Tension Neck Syndrome in college students

Methods: A study was conducted among college students. Students are screened for the inclusion and exclusion criteria. The purpose of the study was explained to those who satisfy the inclusion criteria and questionnaires was provided

Results: Out of 110 students, 47% have mild to severe disability and no subjects with complete pain.

Conclusion: The prevalence of TNS in frequent computer users has been established in this study. This study shows the prevalence of Tension Neck Syndrome vary mild to severe among frequent computer using college students.

Keywords: Tension neck syndrome, NDI, NPQ

Introduction

Background

The term “tension neck syndrome” (TNS) refers to myofascial pain that is restricted to the neck and shoulder areas¹. The symptoms include headaches radiating from the neck, discomfort, tenderness, exhaustion, and stiffness in the neck and shoulder muscles, without a history of injury, a ruptured cervical disk, or degenerative processes. The trapezius or sternocleidomastoid muscles may exhibit perceptible stiffness, tenderness, or spasm during the physical examination. These muscles are commonly accompanied by neck pain on the side being resisted and a decreased neck range of flexion, extension, or rotation.¹ Chronic neck discomfort, which is defined as neck pain that persists for more than three months, is one of TNS’s most prevalent symptoms². According to several research, the

weakness of the deep cervical flexion muscles (longus colli and longus capitis), or DCFM, is a contributing factor to chronic neck pain.³ These muscles actively guard the cervical spine and regulate the stabilization of the cervical segment. However, continuous neck pain tends to weaken DCFM⁴. Users of visual display terminals (VDTs) frequently get tension neck syndrome⁵.

The neck is the part of the body on many vertebrates that connects the head with the torso and provides the head’s flexibility and movements. Anatomically speaking, the components of the human neck are divided into four compartments: the vertebral, visceral, and two vascular compartments⁶. Neck muscles are connected to the sternum, clavicles, hyoid bone, and skull. The two main neck triangles, the anterior and posterior, were found⁷.

The human body’s most flexible and intricate joint is the shoulder⁸, and painful ailments that restrict movement may

have a number of related diseases, such as painful arc syndrome⁹, supraspinatus syndrome, and glenoid capsulitis. These syndromes may manifest alone or in conjunction with tension neck discomfort, which may then subtly converge with pain in the suprascapular and upper dorsal regions, depending on whether the pain originates locally or is referred from a spinal source such as a nerve root¹⁰. Various collective terms have been used to describe these pains, e.g., cervicobrachial syndrome, neck and upper limb disorders, neck shoulder problems, and shoulder girdle pain.

Users of visual display terminals (VDTs) frequently suffer from a condition known as tension neck syndrome¹¹. The link between musculoskeletal disorders (MSDs) and computer use has been suggested as the primary adverse effect of computers¹². Bergqvist et al. (1995) and Knave et al. (1985) both found MSD to be present. They discovered a link between working with VDTs and the prevalence of different MSDs. Tension neck syndrome (TNS) is a prevalent MSD among computer users¹².

One type of occupational cervicobrachial syndrome is tension neck syndrome (TNS), which is used to describe shoulder and neck conditions that are (or may be) influenced by work-related causes. TNS might be regarded as one of a set of neck and shoulder illnesses that are “work-related.” Numerous terms, such as repetitive strain injuries (RSI), cumulative trauma disorder (CTD), and cervicobrachial disorder, may be used in investigations of a similar kind¹³. These terms are broad and sometimes may be conflicting. TNS can be differentiated from the other terms in that it is used in cases of non-articular and non-neurological pain in the neck and shoulder areas. Some papers refer to TNS as tension myalgia “fibrositis”, “fibro myositis”, or myofascial syndrome¹⁴.

Hagberg and Wegman identified the TNS symptoms include persistent muscle discomfort or stiffness in the shoulders and neck, as well as a headache or subjective neck pain. At least two sensitive places or trigger points may be felt when rubbing the shoulder and neck muscles¹⁵. Pain, soreness, stiffened bands or nodularity, and physiologically palpable muscular rigidity are all components of tension myalgia. The prevalence of cervicobrachial myalgia among employees under physical and mental stress has been reported to increase in the past¹⁶. It has been estimated that between 4% and 42% of office workers have pain and discomfort in their neck and shoulders¹⁷.

Uncertainty surrounds the pathomechanics of this illness. One potential is the buildup of metabolic waste products in the muscles, which causes prolonged muscle contraction and poor blood flow, which reduces oxygen delivery. Both physical and psychosocial causes can be explained using the idea of pain sensitivity. When it occurs in the cervicothoracic area, the deep pain system, which is characterized as being related to sclerotome distribution, may be sensitive to any functional changes made by the spinal cord and central nervous system¹⁸.

There are several questionnaires have been available to evaluate pain and disability in neck pain patients¹⁹. These are NMQ (Nordic Musculoskeletal Questionnaire) and VAS (Visual Analog Scale) and the tools specific for cervical pains: NDI (Neck Disability Index), NOOS (Neck Outcome Score), NPAD (Neck Pain and Disability Scale), and NPQ (Northwick Park Neck Pain)¹⁴.

Northwick park Neck pain is a useful questionnaire for neck pain patients. With an acceptable Test- retest reliability. The NPQ consist of 9 components, which is related to intensity,

duration, numbness at night, pain at sleep, social life effect, carrying, watching television, housework and driving²⁰.

Neck disability index is also a measurement tool that are used for neck pain patients. It is a 10 item questionnaire. It has been having high test- retest reliability. The questions include activities of daily living (personal care, lifting, reading, work, driving, sleeping, recreational activities), pain intensity, concentration and headache. Each question measured by using a scale ranges from 0 (no disability) to 5. The overall score is 100²¹.

Rationale of The Study

Tension neck syndrome (TNS) is one type of occupational cervicobrachial syndrome, a term used to refer to those disorders of the neck and shoulder which are (or can be) related to occupational factors. This study was designed to determine the effect of ergonomic intervention for workstation set-up on computer users who had tension neck syndrome. Here, this study is conducted to find out the tension neck syndrome in frequent computer users of college population.

Aim And Objectives

Aim

To find the incidence of tension neck syndrome in frequent computer using college students.

Objectives

To find the influence of frequent use of computer in the occurrence of tension neck syndrome in college students.

Materials And Methodology

Materials

- Northwick Park Neck Pain Questionnaire
- Neck Disability Index Questionnaire
- Pen or Pencil
- Laptop/ phone
- Assessment form

Methodology

Study design

Survey method

Study setting

KMCT College of Allied Health Sciences, Mukkam, Kozhikode

Sample size

A total of 110 subjects

Duration of study

6 months

Sampling technique

Convenience sampling

Criteria for sample selection

Inclusion Criteria

- Both gender
- Age between 18-24 years
- Duration of more than 4 hours of frequent use of computer per day

Exclusion Criteria

- Students without frequent use of computer
- History of any neurological or orthopedic disorder
- Any fracture of upper limb
- Not willing to participate in the study
- Any congenital deformities of upper limb

Method of Data Collection

Primary data was collected in the study setting using the outcome measures.

Outcome Measures

- Northwick Park Neck Pain Questionnaire
- Neck Disability Index (NDI)

Procedure

A total of 150 students in the age group of 18 to 24 years were participated in the study. Out of these,110 students were selected who satisfied the inclusion and exclusion criteria. Outcome measures NDI, and Northwick Park Neck Pain Questionnaires were distributed among these students and the scores were calculated and results was obtained .

Results and Analysis

Results

A total of 110 participants were included in the study, Tension Neck Syndrome was assessed using NDI (Neck Disability Index) and NPQ (Northwick Park Neck Pain Questionnaire).

(Table 1) and (Figure 1) shows that in NDI, there were 58 subjects with no disability, 42 subjects with mild disability, 8 subjects with moderate disability, 2 subjects with severe disability and no subjects with complete disability.

Table 1: NDI.

SCORE	NO. OF SUBJECTS
No disability	58
Mild disability	42
Moderate disability	8
Severe disability	2
Complete disability	0

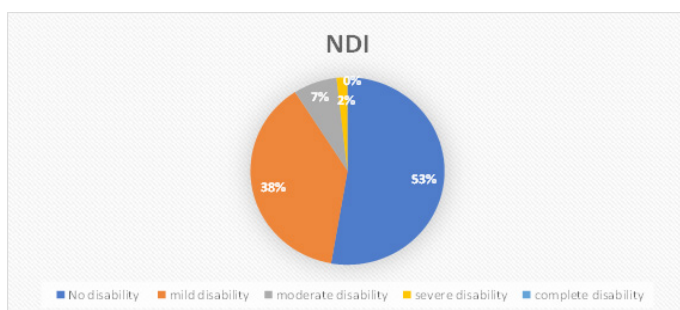


Figure 1: NDI.

(Table 2) and (Figure 2) shows that the prevalence of tension neck syndrome is measured using NPQ. There were 83 subjects with mild pain, 24 subjects with moderate pain, 03 subjects with severe pain, and no subjects with complete pain.

Table 2: NPQ.

SCORE	NO. OF STUDENTS
Mild pain (0-24%)	83
Moderate pain (25-49%)	24
Severe pain (50-74%)	03
Complete pain (75-100%)	0

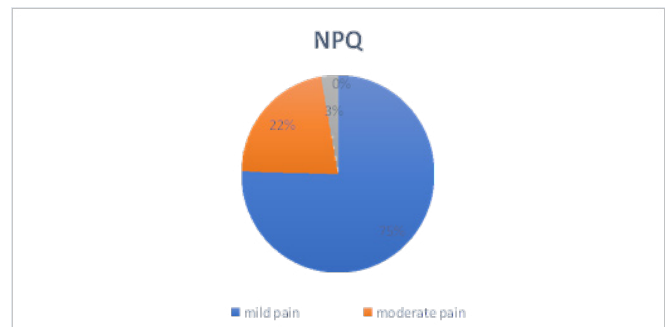


Figure 2: NPQ.

Discussion

Tension neck syndrome is a myofascial pain localized in the neck and shoulder regions^{1,6}. TNS may be due to poor posture because, during computer use, the neck goes into forward flexion and the normal curvature of the cervical spine is flattened and stretched on the neck musculature. The poor posture of the head and neck has been correlated with chronic musculoskeletal pain of the cervical spine, upper back tightness, and spasm in upper extremity muscle.

My study was conducted to evaluate the prevalence of Tension Neck Syndrome in frequent computer using college students, between the age group of 18-24. 150 students of different colleges participated in the study and 110 students were selected based on inclusion and exclusion criteria. Questionnaires were distributed to 110 college students to identify the students having neck pain and neck disability using NDI and NPQ. The response rate was very high indicating good representation and response from the students. My study was a short duration study which indicated mild to severe pain and disability and there were no individuals with complete pain and disability, further study should be made to understand the exact prevalence of TNS in frequent computer using college students.

Tension Neck Syndrome is a repetitive stress injury that could be prevented by taking some preventive measures like taking breaks while using computers, blinking of eyes, practicing 20-20- 20 rule, etc. Simple lifestyle changes like maintaining correct posture during computer use and avoiding long-term use of computers could prevent the development of neck pain and stiffness. This study would be helpful to inform computer users about the alarming rise of negative consequences of long-term computer use. By using pre-fixed inclusion and exclusion criteria, the ascertainment bias was eliminated. Selection bias and non-response bias were eliminated by using a random sampling method (simple random sampling method).

Conclusion

In this study it is concluded that 47% of the frequent computer users have mild to severe disability and no person with complete disability and pain. Hence the prevalence of TNS vary mild to severe among frequent computer using students.

Conflicts of Interest

We do not have any conflict of interest.

References

1. Nagore AN, Patil DS, Wadhokar OC. Effect of Myofascial Release Technique Verses Conventional Therapy in Tension Neck Syndrome: A Research Protocol. *J Pharm Res* 2021;33(46):409-413.
2. Kazeminasab S, Nejadghaderi SA, Amiri P, et al. Neck pain: global epidemiology, trends and risk factors. *BMC Musculoskelet Disord* 2022;23:26.
3. Kim JY, Kwag II K. Clinical effects of deep cervical flexor muscle activation in patients with chronic neck pain. *J Phys Ther Sci* 2016;28(1):269-273.
4. Alghadir AH, Iqbal ZA. Effect of Deep Cervical Flexor Muscle Training Using Pressure Biofeedback on Pain and Forward Head Posture in School Teachers with Neck Pain: An Observational Study. *BioMed Res Int* 2021;5588580:6.
5. Kim MS. Influence of neck pain on cervical movement in the sagittal plane during smartphone use. *J Phys Ther Sci* 2015;27(1):15-17.
6. Gustafsson E, Thomée S, Grimby-Ekman A, Hagberg M. Texting on mobile phones and musculoskeletal disorders in young adults: A five-year cohort study. *Applied Ergonomics* 2017;58:208-214.
7. Shogo K, Iwanaga J, Kusakawa J, Tubbs RS. Triangles of the neck: a review with clinical/surgical applications. *Anat Cell Biol* 2019;52(2):120-127.
8. Kadi R, Milants A, Shahabpour M. Soulder Anatomy and Normal Variants. *J Bel Soc Radiol* 2017;101(2):3.
9. Garving C, Jakob S, Bauer I, Nadjar R, Brunner UH. Impingement Syndrome of the Shoulder. *Dtsch Arztebl Int* 2017;114(45):765-776.
10. Machino M, Nakashima H, Ito K, et al. Association between Occupation and Cervical Disc Degeneration in 1211 Asymptomatic Subjects. *J Clin Med* 2022;11(12):3301.
11. Kim TH, Kang JW, Kim KH, et al. Cupping for treating neck pain in video display terminal (VDT) users: a randomized controlled pilot trial. *J Occup Health* 2012;54(6):416-426.
12. Lee DH, Kang B, Choi S, et al. Change in Musculoskeletal Pain in Patients with Work-Related Musculoskeletal Disorder After Tailored Rehabilitation Education: A One-Year Follow-Up Survey. *Ann Rehabil Med* 2015;39(5):726-734.
13. Darivemula SB, Goswami K, Gupta SK, Salve H, Singh U, Goswami AK. Work-related Neck Pain Among Desk Job Workers of Tertiary Care Hospital in New Delhi, India: Burden and Determinants. *Ind J Community Med* 2016;41(1):50-54.
14. Waris P. Occupational cervicobrachial syndromes. A review. *Scand J Work Environ Health* 1979;5(3):3-14.
15. Misailidou V, Malliou P, Beneka A, Karagiannidis A, Godoliasf G. Assessment of patients with neck pain: a review of definitions, selection criteria, and measurement tools. *J Chiropr Med* 2010;9(2):49-59.
16. Bruflat AK, Balter JE, McGuire D, Fethke NB, Maluf KS. Stress management as an adjunct to physical therapy for chronic neck pain. *Physical Ther* 2012;92(10):1348-1359.
17. Kroemer KH. Avoiding cumulative trauma disorders in shops and offices. *Am Ind Hyg Assoc J* 1992;53(9): 596-604.
18. Gangavelli R, Nair S, Bhat AK, Solomon JM. Cervicobrachial pain - How Often is it Neurogenic? *J Clin Diagn Res* 2016; 10(3):14-16.
19. Schellingerhout JM, Verhagen AP, Heymans MW, Koes BW, de Vet HC, Terwee CB. Measurement properties of disease-specific questionnaires in patients with neck pain: a systematic review. *Qual Life Res* 2012;21(4):659-670.
20. Arana E, Martí-Bonmatí L, Montijano R, Bautista D, Molla E, Costa S. Relationship between Northwick Park neck pain questionnaire and cervical spine MR imaging findings. *Eur Spine J* 2006;15(8):1183-1188.
21. Howell ER. The association between neck pain, the Neck Disability Index and cervical ranges of motion: a narrative review. *J Can Chiropr Assoc* 2011;55(3):211-221.