ORIGINAL RESEARCH PAPER

Physiotherapy

PREVALENCE OF NECK DISABILITY DUE TO TEXT NECK IN THE POPULATION OF GOA AND ITS ASSESSMENT USING GONIOMETER: A SURVEY

KEY WORDS: Text Neck, neck pain ,disability, Neck disability index

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ABSTRACT

Text neck is an overuse syndrome involving the head, neck and shoulders, usually resulting from excessive strain on the spine from looking in a forward and downward position at any mobile device.
Objective- To find out the prevalence of Neck disability due to Text neck in the population of Goa and to assess the Cervical range of motion using Goniometer.
Methods- The questionnaire of the Neck Disability Index (NDI) was used gather data. Goniometer will be used to assess the neck range of motion to further assess the disability.
Procedure- A total of 500 subjects were selected for the study fulfilling the inclusion and exclusion criteria.
Results- Study suggests that there is high prevalence of Text neck in the population of Goa and also a significant amount of disability associated with the presence of Text neck.

INTRODUCTION

Young adults today have grown up with mobile phones as an evident part of their lives. Smart phones are becoming central to our everyday lives. They serve as a means to fulfil tasks both at work and home 1.Texting has become an integral part of daily life. The time spent using a mobile phone and its small keyboard for texting is likely to increase because of the increased multi-functionality of the smart phones. Neck pain is the fourth leading cause of disability.2

Text neck is a global epidemic, and is a world-wide health concern, affecting millions of all ages and from all walks of life. Text neck is an overuse syndrome involving the head, neck and shoulders, usually resulting from excessive strain on the spine from looking in a forward and downward position at any hand held mobile device. This can cause headaches, neck pain, shoulder and arm pain, breathing compromise, and much more. The physical exposure when text messaging on a mobile phone consists of low physical load, repetitive thumb movements and neck flexion (Gustafsson et al., 2010, 2011).

Adolescents playing games, sending text messages, and phoning while walking, standing, lying, or sitting, may overload the upper extremities rather than the low back. It was also found that prevalence of neck/shoulder Pain (NSP) and Low Back Pain (LBP) is significantly associated with PC-use habits, the use of mobile phones and tablets, academic stress, and depression3. Zhi Shan et.al in a cross-sectional questionnaire study with a population of university students and staff associations, found that texting can be associated with musculoskeletal disorders of the neck and upper extremity 4.

The most important factor that influences the increase in smart phones usage is the functionality that helps users in their daily life especially business people and university students. A review of existing literature indicates that texting can be associated with musculoskeletal disorders of the neck and upper extremity. However, the published studies are cases, small experimental or cross-sectional studies. Hence, this research aims to assess the prevalence of Neck disability due to text neck in the population of Goa.

Aim

The aim of the study was to find out the prevalence of Neck disability due to Text neck in the population of Goa and to assess the Cervical range of motion.

MATERIALS AND METHODS

Study design: Cross-sectional study

Eligibility Criteria:

A total of 500 subjects were selected by simple random sampling .

INCLUSION CRITERIA

- Sex: Male and female of ages 18 to 30 years.
- Subjects using smart phones more than one year
- Subjects who agree to fill the informed consent

EXCLUSION CRITERIA

- Subjects will be excluded if they have had history of neck trauma or surgery or with a medical diagnosis of fibromyalgia, cervical radiculopathy, a systemic illness, or connective tissue disorder.
- Subjects with epilepsy, any orthopaedic condition, neuropathic condition like PPRP ,previous Cervical fracture, Vertigo
- Software engineers and clerical staff
- Subjects who do not agree to fill the informed consent

Procedure:

The potential volunteered candidates were explained the nature and the purpose of the study and those who agree to participate were taken for the study. Eligible candidates filled the consent form.

Tools and measuring methods:

The questionnaire of the Neck Disability Index (NDI) of the populations results will be applied in order to gather the related data. Questionnaire of the NDI is distributed to the volunteered candidates in the form of paper.

Universal Goniometer was used to assess range of motion of the Neck flexion, extension, lateral flexion and rotation will be measured using a universal goniometer.

RESULTS

The aim of the study was to find the prevalence of text neck in the population of Goa. The sample size consisted of 500 subjects. Data analysis showed that of the 500 subjects, 473 subjects had mild to severe disability and 27 subjects had no difficulty/ disability at all (Fig. a)

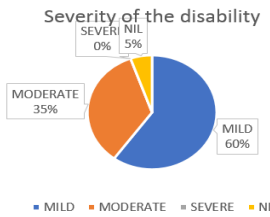

Figure a : Pie chart depicting severity of disability

Figure a. shows us the severity of disability amongst the 500 participants. It is seen that 5% of the subjects showed nil disability, followed by 35% participants who showed moderate disability. Majority of the population i.e. 60% of them experienced mild disability. None of the participants had any severe disability.

CERVICAL ROM

Cervical flexion: The normal ROM for cervical flexion is between 0-40 degrees.

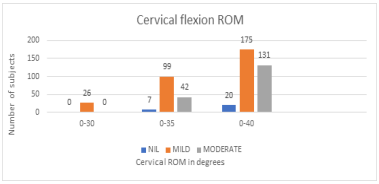

Figure b: Chart depicting distribution of participants into cervical flexion ROM

Hence it is seen that majority of the participants with disability had normal cervical flexion ROM.

Cervical extension: Normal cervical extension is 0-50 degrees.

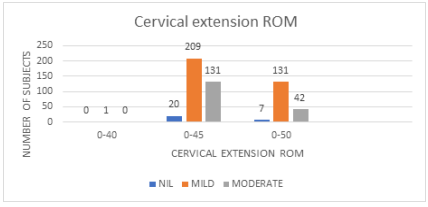

Figure c: Chart depicting distribution of participants into cervical extension ROM

Hence majority of the people with disability belonged to a slightly restricted ROM for cervical extension i.ie between 0-45 degrees. This implies that cervical extension is affected due to presence of a disability.

Cervical Lateral flexion (right and left):Normal cervical ROM for lateral flexion on either sides is 0-22 degrees.

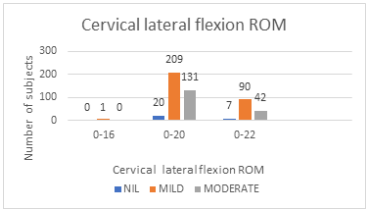

Figure d: Chart depicting distribution of participants into cervical lateral flexion ROM

Hence, majority of the people with disability belonged to a slightly restricted ROM for cervical lateral flexion (right) i.e between 0-20 degrees. This implies that cervical lateral flexion (right) is affected due to presence of a disability.

There is no significant difference in ROMs for lateral flexion on the left and right amongst the participants.

Cervical Rotation (right and left):The normal ROM for cervical rotation on either sides is approximately 0-50 degrees.

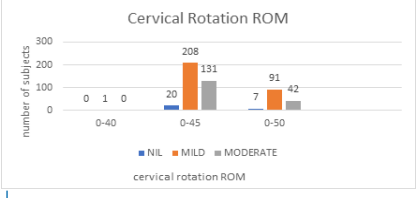

Figure e: Chart depicting distribution of participants into cervical rotation ROM

Hence majority of the people with disability belonged to a slightly restricted ROM for cervical rotation (right) i.e. between 0-45 degrees. This implies that cervical rotation is affected due to presence of a disability.

Hence it is seen that majority of the population with disability due to text neck have near to normal cervical flexion ROM, slightly restricted ROM for cervical extension, lateral flexion (left and right) and cervical rotation (left and right). Hence it can be concluded that, Text neck does lead to restriction in the cervical ROMs.

DISCUSSION

The results conclude that ,Text neck is prevalent in the population of Goa and the use of smartphones does lead to mild to moderate amount of disability. None of the participants experienced any severe disability due to text neck. Also noted that, Text neck does lead to restriction in the cervical ROMs.

This study coincides with the findings of a study conducted by Junhyuk Park et al, which concluded that heavy smartphone use may produce considerable stresses on the cervical spine, thus changing the cervical curve and pain threshold of the muscles around the neck thus supporting our study 5

A study was conducted by Sang In Jung, MS, PT et al on 'The effect of smartphone usage time on posture and respiratory function' . The study had similar findings which said that prolonged use of smartphones could negatively affect both, posture and respiratory function.6

J.E. Gold et al, conducted a study on Postures, typing strategies, and gender differences in mobile device usage: An observational study. This study observed that most of the subjects i.e. 91% of the subjects (782 out of 859 participants) had a flexed neck hence implying significant strain in the neck due to typing on the smartphone.7

P stalin et al conducted a study on mobile phone usage and its health effects in adults of semi urban area in south India. The study concluded that neck pain was one of the numerous side effects of using smart phones.8

Zhi Chan et al, studied the 'Correlational Analysis of neck/shoulder Pain and Low Back Pain with the Use of Digital Products, Physical Activity and Psychological Status among Adolescents in Shanghai'. Among all respondents, 85.4% were mobile phone users who were less likely to suffer from Low Back Pain (LBP), but a period of mobile phone use longer than 2 hours per day were related to a significant increase in the prevalence of Neck-Shoulder Pain and LBP. 9

B R Glaukus et al, conducted a study on titled, "The Head Down Generation: Musculoskeletal Symptoms and the Use of Smartphones Among Young University Students" and showed that one of the main results found was a tendency for participants to have symptoms of musculoskeletal pain with regards to their typing methods on smartphones. 10

Conclusion

Data analysis shows that 473 subjects are mild to severe disability and 27 subjects had no disability at all (Fig. a). That is 94.6% of the adults experienced some amount of symptom and disability in the neck and 5.4% of the adults did not experience any difficulty at all.

Majority of the population i.e. 60% of them experienced mild disability. None of the participants had any severe disability.

Cervical ROMs were restricted , hence proving that Text neck has a effect on the cervical movements.

Hence the findings of this study suggests that there is high prevalence of text neck in the population of Goa .There is also a

significant amount of disability associated with the presence of text neck.

REFERENCES

1) Ewa Gustafsson , Sara Thomee , Anna Grimby-Ekman , Mats Hagberg (2017). Texting on mobile phones and musculoskeletal disorders in young adults: A five-year cohort study. Applied Ergonomics 58 (2017)208-214
2) Steven P. Cohen (2015). Epidemiology, Diagnosis, and Treatment of Neck pain. 90(2):284-99
3) Paula T. Hakala , Arja H.Rimpela , Lea A. Saarni, Jouko J. Salminen(2006) European Journal of Public Health, Vol.16, No 5,536-541.
4) Zhi Shan , Guoying Deng , Jipeng Li , Yangyang Li, Yongxing Zhang , Qinghua Zhao (2013). PLOS ONE October2013/ Volume8/ Issue10.
5) Junhyuk Park1, Jinhong Kim1, Jonggun Kim1, Kwangho Kim2, Namkang Kim2, Inwon Choi2, Sujung Lee2, Jongeun Yim1,2 *. The effects of heavy smartphone use on the cervical angle, pain threshold of neck muscles and depression. Advanced Science and Technology Letters Vol.91 (Bioscience and Medical Research 2015), pp.12-17
6) Man-Sig Kim, PhD, Influence of neck pain on cervical movement in the sagittal plane during smartphone use. J. Phys. Ther. Sci.27: 15–17, 2015.
7) J.E. Gold*, J.B. Driban1, N. Thomas, T. Chakravarty, V. Channell, E. Komaroff. Postures, typing strategies, and gender differences in mobile device usage: An observational study. J.E. Gold et al. / Applied Ergonomics 43 (2012) 408e41
8) P. Stalin, Sherin Billy Abraham, K. Kanimozhy, R. Vishnu Prasad, Zile Singh, and Anil J. Purty. Mobile Phone Usage and its Health Effects Among Adults in a Semi-Urban Area of Southern India. Published online 2016 Jan1. doi: 10.7860/JCDR/2016/16576.7074
9) Zhi Shan , Guoying Deng , Jipeng Li , Yangyang Li, Yongxing Zhang , Qinghua Zhao (2013). PLOS ONE October2013/ Volume8/ Issue10.
10) Glaukus Regiani Bueno, Lucas França Garcia, Sonia Maria Marques Gomes Bertolini and Tiago Franklin Rodrigues Lucena. The Head Down Generation: Musculoskeletal Symptoms and the Use of Smartphones Among Young University Students. https://doi.org/10.1089/tmj.2018.0231.