International Journal of Community Medicine and Public Health
*Kamaraj N et al. Int J Community Med Public Health. 2022 Jul;9(7):2919-2922*
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20221759

**Original Research Article**

# A study on prevalence of text neck syndrome among under-graduate students of a medical college in Puducherry

**Nirupama Kamaraj, Vedapriya Dande Rajasekar*, Surendar Rangasamy**

Department of Community Medicine, Sri Venkateshwaraa Medical College Hospital and Research Centre (SVMCH and RC), Ariyur, Puducherry, India

**Received:** 13 May 2022
**Accepted:** 02 June 2022

***Correspondence:**
Dr. Vedapriya Dande Rajasekar,
E-mail: vedapriya@svmchrc.ac.in



## ABSTRACT

**Background:** Text neck syndrome denotes the repetitive stress injury due to prolonged usage of electronic gadgets. If the condition is left untreated, could lead to serious permanent damage to nerves and spine. Due to COVID-19 pandemic, the dependence to the electronic gadgets has increased as the academic sessions were conducted via virtual modes. These electronic gadgets were increasingly used for personal or recreational purposes particularly by the college students and this might result in neck pain, shoulder pain and discomfort. The objective of the current study is to determine the prevalence of text neck syndrome using neck disability index (NDI) among the under-graduate medical student and to find out the association between the duration of electronic gadget usage and text neck syndrome among the study population.
**Methods:** A self-administered validated questionnaire (NDI) was used to evaluate the neck pain related disability. Google forms were sent to undergraduate students and 354 responded students were included in our study. Percentage and Chi-square values were analysed.
**Results:** Prevalence of text neck syndrome was 16.7%. Significant association was found between gender, MBBS academic year and duration of electronic gadget usage with significant p values 0.030, 0.001 respectively. Duration of electronic gadget usage and text neck syndrome was associated statistically with significant p value 0.038.
**Conclusions:** We conclude that there is significant disability associated with the duration of electronic gadget usage. We found that, the intensity of the neck pain increases with the duration of electronic gadget usage.

**Keywords:** Text neck, Medical students, Electronic gadgets

## INTRODUCTION

Text neck is used to describe the neck pain and damage sustained from looking down while using cell phone, tablets or other wireless device too frequently and for too long.[1] The term "text neck" was coined by Dr. Dean L. Fishman, who is a US chiropractor. Text neck or turtle neck posture is defined as repetitive stress injury or an overuse syndrome where a person has his/her head hung or flexed in forward position and is bent down looking at his/her mobile or other electronic device for prolonged periods of time.[2] The end result is neck pain, upper back pain, shoulder pain, chronic headaches, and increased curvature of spine and hand discomforts.[2]

In today's world, particularly the age group 18-44 years spend more time in using electronic gadgets such as smart phone; computer, tablets and e-readers.[2,3]

In India, the prevalence of text neck syndrome ranges between 25% to 47%.[2-4] If text neck is left untreated, then it can lead to some serious permanent damage such as flattening of the spinal curve, onset of early arthritis, spinal misalignment can be an outcome of text neck, spinal

degeneration, disc compression, disc herniation, nerve damage, and muscle damage.[1,3,4]

Due to the COVID-19 pandemic, all the colleges and educational institutions are pursuing the classes via virtual aids. There are also reformed teaching methods and these electronic gadgets have been used for educational and recreational purpose as well. Most smart phone tasks users require to stare sharply downwards or to hold their arms out in front of them to read the screen which makes their head move forward and cause an excessive anterior curve in the lower cervical vertebrae and an excessive posterior curve in the upper thoracic vertebrae to maintain balance, placing stresses on the cervical spine and the neck muscles.[3] This forward head posture/turtle neck posture is one of the most commonly recognized poor postures in sagittal plane, such posture causes shortening of muscular fibres and overstretching of muscles.[3,4]

The excessive usage of these gadgets reported to have a negative influence on our anxiety and stress levels. Lack of proper sleep may lead to fatigue, tiredness and shortfall of energy during morning hours.[5] Presently a smaller number of research has been done on text neck syndrome that are minimally concentrated among the medical students. The objective of the current study is to determine the prevalence of text neck syndrome using neck disability index (NDI) among the under-graduate medical student and to find out the association between the duration of electronic gadget usage and text neck syndrome among the study population.

## METHODS

After getting clearance from Scientific Research and Institutional Ethical Committee, this cross-sectional study was conducted among under-graduate medical students of a tertiary medical college in Puducherry. The study was conducted from December 2020 to January 2021. The students who consent to participate in the study were included and excluded those who had history of any trauma or surgery in the neck. A self-administered, validated and pre-tested questionnaire was circulated via Google forms and responses were limited to one month from the date of circulation. The questionnaire has two parts: part–A comprised of demographic details and part–B NDI questionnaire with 10 section each related to the subjective symptoms, activities of daily living and discretionary activities of daily living. Each item is scored from 0 to 5. Based upon the NDI scores the subjects were categorized into normal (0–20); mild disability (21–40); moderate (41–60); severe (61–80); complete/exaggerated (more than 80), 354 responded.[15] Statistical analysis was done using statistical package for the social sciences (SPSS) v.23.0. (Armonk, NY: IBM Corp). Quantitative variables like age, NDI scores were expressed in mean and standard deviation (SD). Categorical variables like gender, MBBS academic year were expressed in frequency and proportion. Chi-square test was used to find the significant association between the duration of electronic gadgets usage and text neck syndrome. A p value<0.05 is considered statistically significant.

## RESULTS

The mean age groups of the participants were 19.91±02.44 years and mean NDI score was 12.11±01.22. Maximum of 57.6% (204) were female and about 42.1% (149) of participants were belonged to first year MBBS followed by 35.3% (125) belonged to pre-final MBBS. The prevalence of text neck syndrome among the undergraduate students was found to be 16.7% (Figure 1). About 38.4% of the respondents were spending an average of 6–12 hours on texting in a day. About 69.5% (246) of individuals were experiencing neck pain at the moment followed by 65.8% (233) has reported headache, 54.5% (193) has experienced neck pain while reading and 11.3% (40) had neck pain on personal care (Figure 2).

**Table 1: Frequency distribution of participants with disability grading-based neck disability index score (n=354).**

| Grade | Frequency (%) |
|---|---|
| **Normal** | 295 (83.3) |
| **Mild disability** | 50 (14.1) |
| **Moderate disability** | 6 (1.7) |
| **Severe disability** | 3 (0.8) |

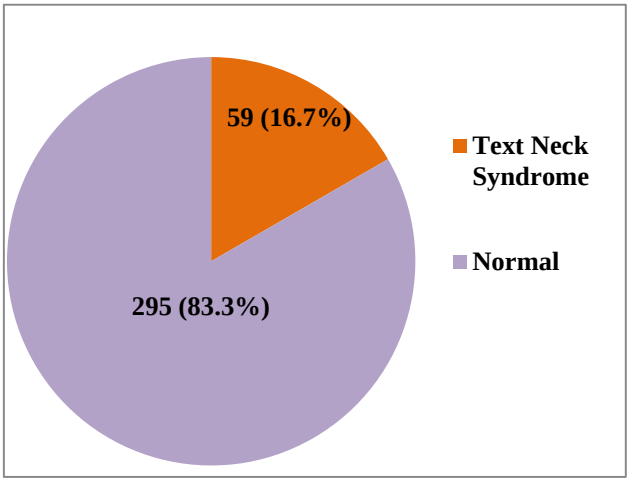


**Figure 1: Prevalence of text neck syndrome among the study participants (n=354).**

The duration of electronic gadget usage increases with increasing age which was found to be statistically significant with p value (0.005). Gender, MBBS academic year was significantly associated with duration of electronic gadget usage with statistically significant p values 0.030 and 0.001 respectively (Table 2). There is significant association exist between duration of electronic gadget usage and Text neck syndrome with significant p value of 0.038 (Table 3).

**Table 2: Association of age, gender, MBBS academic year with duration and hours spent on electronic gadgets (n=354).**

| Characteristics | Duration of mobile phone usage | | | Chi-square | P value |
|---|---|---|---|---|---|
| | <2 years, n (%) | 2-4 years, n (%) | >4 years, n (%) | | |
| **Age** | | | | | |
| ≤20 | 75 (29.6) | 88 (34.8) | 90 (35.6) | 27.686 | 0.005* |
| >20 | 14 (13.9) | 48 (47.5) | 39 (38.6) | | |
| **Gender** | | | | | |
| Male | 28 (18.7) | 67 (44.6) | 55 (36.7) | 6.989 | 0.030* |
| Female | 61 (29.9) | 69 (33.8) | 74 (36.3) | | |
| **MBBS academic year** | | | | | |
| First | 53 (35.6) | 50 (33.6) | 46 (30.8) | 22.220 | 0.001* |
| Second | 22 (27.5) | 31 (38.7) | 27 (33.8) | | |
| Pre-final | 14 (11.2) | 55 (44) | 56 (44.8) | | |

*p<0.05, statistically significant

**Table 3: Association of duration and hours spent on electronic gadgets usage with text neck syndrome (n=354)**

| Duration of usage | Text Neck syndrome, n (%) | Normal, n (%) | Chi-square | P value |
|---|---|---|---|---|
| **Number of years** | | | | |
| <2 | 11 (9.0) | 111 (91) | 9.693 | 0.038 * |
| 2-4 | 30 (27.8) | 78 (72.2) | | |
| >4 | 18 (14.5) | 106 (85.5) | | |
| **Hours spent in a day** | | | | |
| <6 | 47 (16.5) | 237 (83.5) | 6.742 | 0.014* |
| >6 | 12 (17.1) | 58 (82.9) | | |

*p<0.05, statistically significant

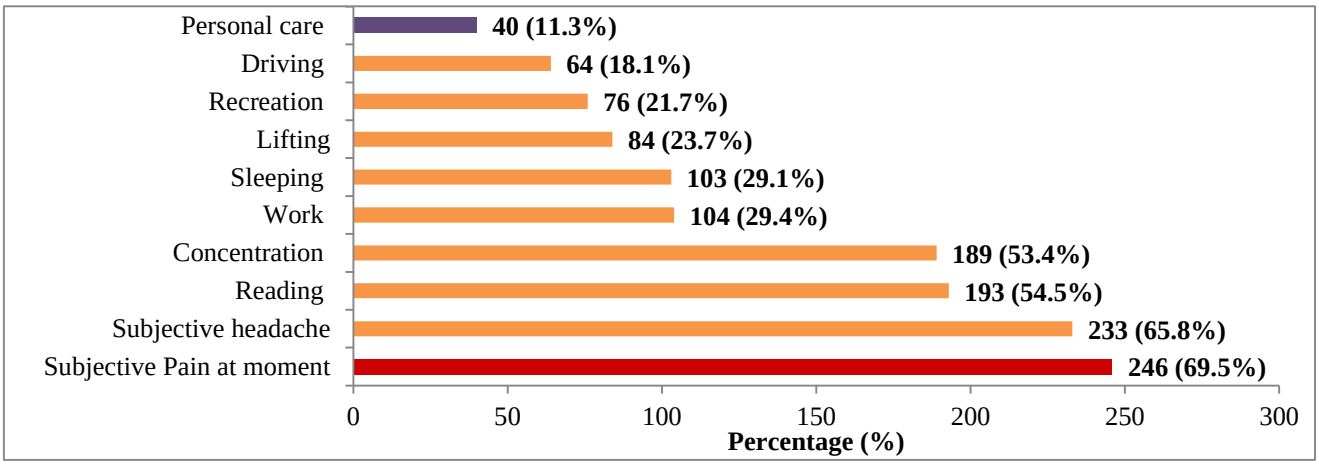


**Figure 2: Distribution of participants based upon the categories under neck disability index questionnaire (n=354) *multiple options.**

## DISCUSSION

This study included 354 under-graduate medical students from a tertiary care hospital in Puducherry. In the current study we included the students' age group between 18 to 22 years and maximum (71.5%) were aged less than 20 years. This was consistent with the study conducted by Vijayakumar et al and Kataria et al.[3,8] In our study majority of the respondents were female (57.6%) which was similar to the study conducted by Khattak et al and Medani et al.[16,17] We found that 16.7 % of the students had text neck syndrome and l% of them had severe disability whereas studies conducted by Sathya et al.[2] Gracias et al found similar results and also documented increased mobile phone usage among age group 18-22 years.[5] In contrary study conducted by Nair et al reported 23.7% with severe disability.[14] According to our study gender was significantly associated with duration of mobile phone usage and similar results were reported by Khattak et al and Kokiwar et al.[16,18] The reason could be due to the

predominance of female population in the current study. We found the duration of electronic gadget usage is associated with text neck syndrome with significant p value (0.038). Similar results were found in study conducted by Khan et al in Lahore with p value<0.001.[10] They also reported that the text neck syndrome is increasing as age advances. Limited study related to text neck syndrome among medical college students.

### *Limitations*

Focused only the neck pain relating to text neck syndrome. The present study would help health professionals to plan strategies of management of text neck syndrome.

## CONCLUSION

We found that text neck syndrome was seen among 16.7% of study population. There is significant neck disability associated with the duration of electronic gadget usage. Text neck syndrome can be prevented by taking frequent breaks while using electronic gadgets, posture focused exercises such as chin tucks, pilates and yoga to improve posture.

## ACKNOWLEDGEMENTS

Author would like to thank the department of community medicine for their constant support and guidance throughout the research. They would like to extend their thanks to scientific research committee and institutional ethics committee for permitting the current study and the students who participated in the study.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Neupane S, Ifthikar UT, Mathew A. Text Neck Syndrome – Systematic Review. Imperial J Interdisciplinary Res. 2017;3(7):141-8.
2. Sathya P, Tamboli SA. Prevalence of Text Neck Syndrome in young-adult population: A Cross sectional study among Physiotherapy students in Mumbai. Int J Med Exc Sci. 2020;6(2):749-59.
3. Vijayakumar M, Mujumdar S, Dehradurai A. Assessment of Co-Morbid factors associated with Text Neck Syndrome among Mobile Phone Users in Maharashtra. Int J S Res Sci Tech. 2018;4(9):38-46.
4. Vijayakumar M, Joshi R, Chavan RM, Shinde SA. Prevalence of Text Neck Syndrome in college students in Pune. Int J Bas Applied Res. 2018;8(8):1223-7.
5. Gracias AL. Prevalence of Neck Disability due to Text Neck in the population of Goa and its assessment using goniometer: A Cross sectional study among College students. Ind J Res. 2019;8(3):57-9.
6. Shah PP, Sheth MS. Correlation of smartphone use addiction with text neck syndrome and SMS thumb in physiotherapy students. Int J Community Med Public Health. 2018;5(6):1-5.
7. Samani PP, Athavale NA, Shyam A, Sancheti PK. Awareness of text neck syndrome in young-adult population. Int J Community Med Public Health. 2018;5:3335-9.
8. Kataria J. Effect of scapular position on text neck syndrome in undergraduate college students in New Delhi. Int J Yogic Hum Mov Sports Sci. 2019;4(1):732-5.
9. Salve N, Nagrale S, Golhar S. Effectiveness of Pilates exercise on Neck Pain and Forward Head Posture in Younger Adults with Text Neck Syndrome: An Experimental Study. Miraj Med Centre J Physiotherap. 2020;1(2):58-70.
10. Khan FA, Waqar A, Khan SN. Text neck syndrome among students of Medical and Dental College in Lahore. J Sharif Med Dent Coll. 2020;6(1):5-8.
11. Kesiktas N, Ozcan E, Vernon H. Clinimetric properties of Turkish Translation of Modified Neck Disability Index. BMC Musculoskeletal Disord. 2012;13:25.
12. Vernon H, Mior S. The Neck Disability Index: a study of reliability and validity. J Manipulative Physiol Ther. 1991;14(7):409-15.
13. Jyothsna G. Text Neck Syndrome in Adolescents: How to Stem the Tide? Int J Pediatr Nurs. 2019;5(1):35-41.
14. Nair PJ. Text Neck syndrome a Growing Epidemic among Smart phone users. Ind J Res. 2019;8(4):21.
15. McCarthy MJH, Grevitt MP, Silcocks P, Hobbs G. The reliability of the Vernon and Mior neck disability index and its validity compared with the short form-36 health survey questionnaire. Eur J Spine. 2007;16:2111-7.
16. Khattak S, Gul M, Kakar HA, Ullah G, Rahman M. Prevalence and awareness of text neck syndrome & addiction to smartphones in Doctor of Physical Therapy students of Peshawar. Ann Allied Health Sci. 2020;6(1):32-7.
17. Medani KET, Ahmad MS, Sami W. Perspective, awareness and behaviour towards text-neck among medical students of Majmaah university - a cross-sectional study. J Evol Med Dent Sci. 2021;10(05):294-8.
18. Kokiwar PR, Shruthi CH, Vaishnavi I, Kavya Sirisha S, Keerthi Manognya MD, et al. Prevalence and risk factors of text neck syndrome among medical students. MRIMS J Health Sci. 2020;8(1):10-3.

**Cite this article as:** Kamaraj N, Rajasekar VD, Rangasamy S. A study on prevalence of text neck syndrome among under-graduate students of a medical college in Puducherry. Int J Community Med Public Health 2022;9:2919-22.