Frequency of Text Neck Syndrome in Medical Students due to Excessive Usage of Electronic Devices

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ABSTRACT

Objective: To determine the frequency of text neck syndrome in medical undergraduate students using smart phone, tablets or laptop.

Methods: It was a cross-sectional survey using non-probability convenient sampling technique at Combined Military Hospital(CMH) Lahore medical college and Institute of dentistry, Lahore from January 2019 to February 2019 in a period of one month. Our sample size was 500 undergraduate students from first year till final year MBBS and BDS. The inclusion criteria of the study were all medical undergraduates who were using smart phone, tablet and laptop for past six-month or more. We filled all questionnaire at the spot. The exclusion criteria of the study were all questionnaire which were filled with the help of colleague, going through internet, and left incomplete. Data was obtained using pre-tested self-administered questionnaire.

Results: Out of total 500 medical students, 292 (58.4%) were female and 208 (41.6%) were male. The mean age of our study subjects were 23 ±2 years. The frequency of text neck syndrome was documented in 218 (43.6%) students. There was no disability (0-4 scores) in 292(58.4%) students, mild disability(5-14 score) in 150(30%) students and moderate disability (15-24 scores) in 58 (11.6%) with p-value <0.004.

Conclusion: Text neck syndrome was common in medical students using smart phones. Females students were more prone to have text neck syndrome than male students.

Keywords: neck pain, smart phone, text neck syndrome

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INTRODUCTION

The anatomy of cervical spine is complex. It is composed of muscles, bones, nerves and spinal cord. The irritation of the nerves can cause neck and shoulder pain.[1] It has been estimated that about 79% of the population aged between 18 to 44 year used their cell phones excessively with exception of two hours' time when they spend time in walking.[2] It occurs due to repetitive stress injury or overuse with neck in flexion in forward direction and bent down to see the mobile or other electronic devices.[3] In 21st century, the advancement in mobile technology has brought more and more people together daily using smart phones. They spend more time using smart phone, tablets, laptops in call, text e-reading and using social media. This result in flexion of neck for prolonged time causing text neck syndrome.[4-7] It is a growing health problem and young generation may be affected more. It occurs due to excessive and repeated stress to the flexed neck. It is responsible for neck and shoulder pain and headach.[8] If this condition is not treated it may result in early arthritis, permanent damage and result into overuse syndrome.[9-11] Currently little research is available on text neck syndrome. There is a need to evaluate this condition and its association with different factors in young population. This study will help us in gaining knowledge about the frequency of text neck syndrome amongst medical undergraduates.

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METHODS

It was a cross-sectional survey using non-probability convenient sampling technique at the CMH Lahore medical college and Institute of Dentistry, Lahore from January 2019 to February 2019 in a period of one

month. Our sample size comprises of 500 under graduate medical students. The inclusion criteria of the study were all medical undergraduates who were using smart phone, tablet and laptop for the last six-month or more and who were willing to participate. We filled all questionnaires at the spot. The exclusion criteria of the study were all questionnaire which were filled with the help of colleague, going through internet, or submitted incomplete. The study was approved by the ethical board of the college.Anonymity of the data was assured to all the participants. All students were approached in their class room five minutes before the completion of lecture before break. They were administered with pretested self-administered questionnaire made after going through books, literature and guidelines taken from neck disability index proforma.[12] We asked both open and close ended questions. The questionnaire was pilot for understanding of the questions and removes the possible bias. The neck disability index is a 10 items questionnaire with every single item has total five score with first statement scored as zero and the last statement scores five with minimum score of zero and maximum score of fifty. It has minimal detectable change with 90% confidence interval is 5points or 10 points. Data was analyzed with SPSS version 22. Quantitative variables like age were presented as Mean ±SD. Qualitative variable like gender, profession and use of smart device were presented as frequency and percentage. We tested the association of the variable for statistical significance using Chi square and difference was regarded to be significant at 5% level.

RESULTS

Out of total 500 medical student, there were 292(58.4%) female and 208(41.6%) male. The mean age of our study subjects were 23 ±2 years. The mean time since using smart phone was 5.62±3.3957year. Most(n= 242,48.4%) preferred cell phone, 95(19%) preferred tablet, and 163(32.6) preferred cell phone and laptop for educational and personal use. Approximate time of daily use of all gadgets was 5.57±3.105 hours daily. When they were asked about their preference of establishing connection, majority(n= 210,42%) preferred call, 125(25%) preferred both voice call and text and 165(33%) preferred text messaging as shown in table I.

Table I: The demographic data and major findings of our study.

Variables	**N**	**Frequency**
Females	292	58.4%
Males	208	41.6%
Age of the Students (Mean ± SD)	23±2 year	
Preferred Gadgets / Technology		
Cell phone	242	48.4%
Tablet	95	19%
Cell phone and laptop	163	32.6%
Time of daily use of Gadgets or technology	5.57±3.105hours	
Preferred method of establish connection		
Call	210	42
Text	165	33
Text & Call	125	25

Table II: Cross tabulation of the age of the students with neck disability index

Variable	**Gender of the students**	
	Male(n=208)	Female(n=292)
	-	-
Neck Disability		
No Disability	119	183
Mild Disability	74	79
Moderate Disability	20	25

The majority (n=302,60.4%) of students did not prefer E-reading while193(38.6%) used gadgets for e-reading. The frequency of text neck syndrome was documented in 218 (43.6%) students. Only 30 (6%) students warmed up their muscles before using smart-phones while majority (n=470,94%) did not warm-up their neck muscle. Only 60(12%) students used break away during use of cell phone and majority(n=440,88%) did not break away to relax while using cell phone. Mean time of break-up in user was 11.8±7.578 minutes. The neck disability index was calculated. There was no disability (0-4 scores) in 292(58.4%) students, mild disability in (5-14 score) 150(30%) students and 58 (11.6%) had moderate disability (15-24 scores) with p-value <0.004 (table II).

DISCUSSION

In this study we tried to find the frequency of text neck syndrome in undergraduate medical students who use smartphones, tablets and laptops for their educational and personal use. Their daily usage in hours and patterns of using different gadgets in daily life were also known. The practices and disability patterns were also noted. Their posture during mobile phone usage was asked. The preferences of communication with other students via call, text or social media was also asked to add the evidence to the neck pain in participants. Their awareness about exercise and break-way during prolong use or use with stress was also noted. Smartphones have replaced the laptops and tablets in our daily life. We used them frequently for different communication and reading purposes. The head, neck and body posture while texting on a cell phone disturbs the normal biomechanical axis of spine resulting in muscle spasm and neck pain. [2,4,9,10,12.] The continuous forward bending poses risk for early arthritis and change in the neck alignment and may result in permanent damage.[13,14]

In this study we found that majority (n=63,62.4%) of the students felt continuous stress in neck,21 (20.8%) had on-off stress and 17 (16.8%) gas no stress with using cell phone. Lee[5] found no disability(score 0-4) in majority(62.9%) of his study subjects, while mild disability (score 5-14) was noted in 32.8% and moderate disability(score 0-4) in 1.1%. In our study, there was no disability (0-4 scores) in 59 (58.4%) students, mild disability (5-14 score) in 31 (30.7%) students and 10 (9.9%) had moderate(15-24 scores) disability (p-value <0.004). Text neck syndrome is caused by repeated injury and can be avoided with frequent break-away while using the smart phone, tablets and laptops. In our study, when the participants were asked about break-away while using gadgets, only 12 (11.9%) used break away from use of cell phone while majority 89 (88.1%) did not break away to relax while using cell phone. It is recommended to take break every 20 minutes while using the gadgets in daily life. In this way the stress on neck muscles can be reduced. This may prevent the harmful effect of the text neck syndrome. In our study population females were affected more than male population. There were 59 (58.4%) female and 42 (41.6%) were male students. Our study subjects had mean age of 23±2 years. All were in their adolescent age. This raises the concern of text neck syndrome as it can affect their life afterward. Text neck syndrome can be managed conservatively without use of medication. The warm up exercises can be helpful in preventing this disabling condition. In our study, only 6 (5.9%) students warmed up their muscles before using smart-hones and majority 94 (94.1%) did not warm-up neck muscle. They need awareness about exercises to warm the neck during prolonged use. These exercises can be helpful before using the smart phone. In our study we did not measure the flexion angle and could not add the awareness related to the posture while using the smart phones, tablets and laptops. We recommend comparative studies with large sample size to generate the evidence that can help in prevention of this condition.

CONCLUSION

Text neck syndrome is common in medical students using smart phones. Females students were more prone to have text neck syndrome than male students. The lack of knowledge about warm up exercise, posture change and break-away while using smart-phone was lacking in most of the students. Neck pain was mostly associated with flexed neck posture while using smartphones/laptops for approximately 3-4 hours without breakaway and any warmup exercises.

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Authorship and contribution Declaration

Asad Ali Chaudary, Conception and design of the study,
Farjad Aslam, acquisition of data,
Arfa Ali, interpreted the data
Arshman Rauf Asghar, Drafted the manuscript,
Hamza Bashir, Revised the manuscript critically for important intellectual content,
Arfa Awais, Final approval of the version for publication
Ch. Zaid Riaz, Acquisition of data,
Bismah Riaz, interpreted the data,
Maj. Gen ® Ch. Ahmed, Revised the manuscript critically for important intellectual content
Brig® Dr. Shahid Majeed, Final approval of the version for publication
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