

Awareness and Prevalence of Text Neck Syndrome in smart device users

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ABSTRACT

Introduction:

Text neck also known as turtle neck is a condition occurring due to excessive use of smart devices in wrong posture. In the present time of pandemic the usage of smart devices has increased alarmingly especially by students and employees eventually leading to pain and stiffness in neck muscles which may radiate to other sites if not taken care of. This study focuses on the awareness and prevalence of Text Neck Syndrome among smart device users.

Methodology:

The conducted study is a descriptive study of awareness and prevalence of Text Neck Syndrome in smart device users conducted for 2 months with the help of Google forms which was distributed to random population in sample size of 300. This study includes three section named as:-

- 1) Demographic data - concerning the name, age, occupation of and individual.
- 2) Awareness - consisting of 10 questions which focus on knowledge of an individual on text neck syndrome.
- 3) Prevalence - also consists of 10 questions which concerns the characteristics of pain presentation and stiffness. With the consent of participants they were asked to fill the survey. Later the data was analysed and interpreted into results very carefully.

Result:

56.6% participants are using more than one smart device, 30% of participants use Smart Devices for more than 8 hours, the age group mostly affected with pain and stiffness in text neck syndrome is 18 - 25 years which is 75.6% of participants.

Conclusion:

This descriptive study analysed the awareness and prevalence of Text Neck Syndrome in smart device users and concluded that in pandemic era, most of the participants are aware about text neck syndrome, its cause and about its prevention. 53% participants suffer from pain and stiffness as there is increase in usage of smart devices along with bad posture and the major component affected is concentration, Reading, headache, work.

Keywords:

Text neck syndrome, Neck pain, Neck posture, Smart device users.

Introduction:-

The term “Text Neck” was coined by Dr. Dean L. Fishman, a US chiropractor. The “Text Neck Syndrome” is somewhat similar to “turtle neck posture” which is due to overuse or repetitive stress to the cervical vertebrae and placing head in forward and downward position while using smart devices for prolonged period of time.[\[1\]](#) According to the anatomical alignment the line of gravity passes through the external auditory meatus, the bodies of cervical spine and acromion and anterior to thoracic spine. Degeneration of the disk caused by the over stress that imposed at lower cervical vertebrae due to anterior pull of head.[\[2\]](#)

Due to “Text neck syndrome” it can induce the various symptoms in body such as neck pain, shoulder pain, chronic headache, increased curvature of the spine and upper back pain. These symptoms affect the body badly. [\[3\]](#)

In 21st century, which is the era of technology, smartphone devices are in the lead role, serve as tools as people practically spend most of their lifetime using them.[\[4\]](#) Smart phones, laptops, tablets etc. these are example of smart devices that are used for call, texting, learning in schools and colleges and other purpose's like communication and entertainment [\[5\]](#) Approximate 79% of the population age between 18 to 44 year, most of the time they keep their cell phone with them and excluded of two hours, while they spend time for walking.[\[6\]](#)

The use of these devices consistently and excessively without putting into consideration health in a sense of posture of the body, directly puts strain on the cervical tissues and this leads to negative effects such as irritation of the nerves and tissues. These effects that mentioned above occurs due to repetitive stress on the neck with forward bending in the downward direction of cervical spine while using smart devices. This will result in change in the angle of the neck, thereby causing “Text Neck Syndrome”.[\[7\]](#)

While using smart devices in poor posture it can cause the upper back muscle to work continuously with pull of gravity and forward head.

Healthy posture indicate that the approximately 10 - 12 pounds of force passes through the muscles of the neck with the average head of the weight than when the degree of head flexion is increased.[8] When the head tilts forward at 15 degree, it is sufficient to produce 27 pounds; at 30 degree.

It produces 40 pounds of force; at 45 degree it produces 49 pounds of force; at 60 degree it produces 60 pounds of force; then at 90 degree the producing force was not constant. Children are at more risk than adult because the child head size is large compare to other body size than adult. That's why it is more problematic for child. .[2]

Bad posture leads to fatigue, which will have a negative effect like disruption of automatic nervous system, reduced physiological function and leads to generate various problems in daily life.[9]

With cervical pain if cervical nerve impingement is present, than pain radiate down to arm and hand and it lead to other neurological symptoms like numbness. If these symptoms are treated at time, it leads to severe inflammation of muscles, nerves neck ligaments, and arthritic damage and leads to as flattening of spinal curve, spinal malalignment, spinal degeneration, disc compression, nerve damage, onset of early arthritis, GI problems, loss of lung capacity and volume, neck stiffness, headache and radiating pain.[10]

To prevent text neck syndrome by reducing the time of using the smart devices and it is important to take frequent break after certain period of time and for relaxation of muscle, it can also be prevented by adapting proper posture while using laptop and smart phones.[11] And Precautions from developing sickness must be taken. Proper handling of smart phone, simple postural correction exercise, neck stabilization exercise, and soft tissue massage can help to decrease the development of cervical and upper extremity musculoskeletal disorder. [12]

The present study was carried out to assess the awareness and prevalence about the text neck syndrome among the smart device users.

Methodology:-

The conducted study is a systematic review along with purposive sampling. The size of the sample is 300 and the study population was chosen randomly where the age group maximally consisting participants of age group from 18 year to 25 years. This study was conducted in a virtual manner for time period of 2 months where a survey form link was shared to random population. The survey includes 3 section which are 1) Demographic Data 2) Awareness 3) prevalence.

The formula used to interpret result :-

$n / \text{total number of participants} \times 100$ (where n = number of responses).

Questionnaire:-

This questionnaire was prepared in the Google Form and was distributed among random population and received 400+ responses, later based on the exclusion criteria the responses were brought down to 300 and analysed the data there \after turning it into descriptive study after calculating response of each individual.

In Demographic Data, information like Name, age , gender, occupation was concerned where in age range from 18 to 25 years old were highly aware about the condition.

Awareness :- this section includes 10 Questions, which targets the knowledge of text neck syndrome in population of 300 whether they heard about text neck syndrome, from where have they heard, or do they know the cause of TNS, the ill effects of using smart phones with bad posture or is text neck syndrome preventable or not.

Inclusion criteria – those who use Smart Devices from, people of any age, gender, occupations were included.

Exclusion criteria – population with congenital condition of neck were filtered out from the study analysis.

Prevalence:-this section consists of 10 questions framed on the basis of Neck Disability index, where differences in the characteristics of their pain presentation was measured including parameters id it is mild pain, moderate pain, severe pain or no pain such as the intensity of pain while working, reading, lifting, sleeping, or how much the pain affects their concentration during work.

Procedure:-the study was conducted for 2 months and a survey to check the awareness and prevalence of TNS among subject was distributed to random population with sample size of 300, with their consent to participate in this study, they were asked to fill their details. Later, the data availed was properly analysed and interpreted into results.

Results:-

Data was collected from 300 smart device users of which 52% were females and 48% were males. Most of the participants (n=227; 75.6%) were between the age group of 18-25 years, followed by (n=63; 21%) who belonged to the age- group of above 25 years, whereas only (n=10; 3.33%) participants were below 18 years. The major bulk of participants (n=133; 44.3%) were using the smart devices for 5-7 hours per day, around (n= 77; 25.7%) were using for 2-3 hours whereas (n= 90; 30%) were using them more than 8 hours. The results are presented in Table 1.

Table-1 Demographic characteristics and duration of using smart devices

| Variables | | n=300 | Percentage (%) |
|--|-------------|-------|----------------|
| Gender | Female | 156 | 52% |
| | Male | 143 | 48% |
| Age | <18 years | 10 | 3.33% |
| | 18-25 years | 227 | 75.6% |
| | >25 years | 63 | 21% |
| Duration of using smart devices daily | 2-3 hours | 77 | 25.7% |
| | 5-7 hours | 133 | 44.3% |
| | >8 hours | 90 | 30% |

Result presented in Table-2 shows that participants (n=174; 58%) are aware about Text Neck Syndrome, (n=62; 20.7) participants have not heard about Text neck syndrome, whereas (n=64; 21.3%) participants are not sure whether they know about Text neck syndrome or not. Most of the participants (n=107; 35.7%) have heard about Text Neck Syndrome via source of “Medical”, followed by “Social media” (n=93; 31%), “Friends” (n=75; 25%) and other sources (n=25; 8.3%) respectively. (n=220; 73.3%) participants believe that “Bad posture” is one of the cause of Text Neck Syndrome, whereas (n=55; 18.3%) thinks it is “Smart devices”, (n=18; 6%) thinks “Texting” and (n=7; 2.45%) believes it can be due to other cause. Participants (n=218; 72.7%) think Text Neck Syndrome can be preventable, whereas (n=16; 5.3%) feel it cannot be prevent and (n=66; 22%) are not sure about it. Participants (n=228; 76%) having knowledge about ill effects of smart devices on body, (n=37; 12.3%) have no idea about it, whereas (n=35; 11.7%) are not sure. Mostly half of the participants (n=142; 47.3%) do exercise to prevent Text Neck Syndrome, (n=134; 44.7%) do not do any activity whereas (n=24; 8%) are not sure. (n=32; 10.7%) do not take any medication whereas (n=256; 85.3%) use painkiller and (n=12; 4%) are not sure about it.

Table-2 Awareness about Text Neck Syndrome and sources of knowledge

| Variables | | n =300 | Percentage (%) |
|--------------------------------|--------------|--------|----------------|
| Preferred smart devices | Smart phones | 125 | 41.6% |
| | Tablet | 1 | 0.3% |
| | Laptop | 3 | 1% |

| | | | |
|---|--------------------------------|-----|--------|
| | Smartphones+ Laptop/ tablet | 103 | 34.3% |
| | All of them | 67 | 22.3% |
| | Other | 1 | 0.3% |
| Have you heard about Text Neck Syndrome? | Yes | 174 | 58% |
| | No | 62 | 20.7% |
| | Maybe | 64 | 21.3% |
| From where have you heard about Text Neck Syndrome? | Friends | 75 | 25% |
| | Medical | 107 | 356.7% |
| | Social media | 93 | 31% |
| | Other | 25 | 8.3% |
| What do you think can cause Text Neck Syndrome? | Bad posture | 220 | 73.3% |
| | Smart devices | 55 | 18.3% |
| | Texting | 18 | 6% |
| | Other | 7 | 2.45% |
| Do you think you can prevent Text Neck Syndrome? | Yes | 218 | 72.7% |
| | No | 16 | 5.3% |
| | Maybe | 66 | 22% |
| In which body position do you use smart devices? | Sitting | 171 | 57% |
| | Lying on your head | 77 | 25.7% |
| | Lying on your abdomen | 21 | 7% |
| | Standing | 8 | 2.7% |
| | Other | 23 | 7.6% |
| Do you know ill effects of smart devices on your body? | Yes | 228 | 76% |
| | No | 37 | 12.3% |

| | | | |
|--|-------|-----|-------|
| | Maybe | 35 | 11.7% |
| Do you do exercise or any other activity to prevent Text Neck Syndrome? | Yes | 142 | 47.3% |
| | No | 134 | 44.7% |
| | Maybe | 24 | 8% |
| Do you use any painkiller to fight from pain? | Yes | 32 | 10.7% |
| | No | 256 | 85.3% |
| | Maybe | 12 | 4% |

It was alarming that majority (n=160; 53.3%) having pain or stiffness in the neck while using smart devices and (n=73; 24.3%) stated pain radiates towards arm and upper back whereas (n=92; 30.7%) candidates do not feel any pain or stiffness in the neck and (n=48; 16%) are not sure about it.

Table-3 Prevalence of Text Neck Syndrome among smart device users

| Variables | No pain | Mild | Moderate | Severe |
|---|----------------|----------------|-----------------|---------------|
| Intensity of pain in the neck | 100 (33.3%) | 155 (51.7%) | 42 (14%) | 3 (1%) |
| Headache while using smart devices | 141 (47%) | 125 (41.7%) | 24 (8%) | 10 (3.3%) |
| Intensity of pain while lifting | 148 (49.3%) | 115 (38.3%) | 28 (9.3%) | 9 (3%) |
| Intensity of pain while sleeping | 193 (64.3%) | 87 (29%) | 18 (6%) | 2 (0.7%) |
| Intensity of pain while reading | 131 (43.7%) | 122 (40.7%) | 42 (14%) | 5 (1.7%) |
| Intensity of pain while working | 145 (48.3%) | 103 (34.3%) | 43 (14.3%) | 9 (3%) |
| Disturbance in concentration | 76 | 170 | 38 | 16 |

| | | | | |
|--|---------|---------|---------|--------|
| | (25.3%) | (56.7%) | (12.7%) | (5.3%) |
|--|---------|---------|---------|--------|

Result presented in Table-3 shows that most of the half of the participants (n=155; 51.7%) feel mild pain in the neck, (n=42; 14%) moderate pain and (n=3; 1%) severe pain whereas (n=100; 33.3%) do not feel any pain. Candidates (n=125; 41.7%) feel mild headache while using smart devices, (n=24; 8%) moderate headache, (n=10; 3.3%) severe headache and (n=141; 47%) do not feel headache respectively. Participants (n=115; 38.3%) experiencing mild pain during lifting, (n=28; 9.3%) moderate pain, (n=9; 3%) severe pain and (n=148; 49.3%) no pain. Participants (n=87; 29%) feel mild pain during sleeping, (n=18; 6%) moderate pain, (n=2; 0.7%) severe pain and (n=193; 64.3%) no pain. Participants (n=122; 40.7%) experience mild pain during reading, (n=42; 14%) moderate pain, (n=5; 1.7%) severe pain and (n=131; 43.7%) no pain. Participants (n=103; 34.3%) feel mild intensity of pain while working, (n=43; 14.3%) moderate intensity of pain, (n=9; 3%) severe pain whereas (n=145; 48.3%) no pain. Participants (n=76; 25.3%) can concentrate fully on their work, (n=170; 56.7%) feel mild disturbance, (n=38; 12.7%) moderate disturbance and (n=16; 5.3%) get severely disturbed while working.

Discussion:-

In our study we attempted to assess the awareness and prevalence of text neck syndrome in the random population. In the current age or present times, students, employees and other people spend most of their daily lives on smart devices, which is why this is called the digital era. While using smart devices, the neck is in a flexed for most of the time for viewing and texting on smart phone devices, as in forward head posture with rounded shoulders and movement of the thumb repeatedly. As a result, people are prone to pain, stiffness in the neck and headaches, and this if not corrected can lead to more serious chronic conditions.

In our study, a sample size of 300 population was used. The age groups that we discovered from our questionnaire was into the categories below 18, Between ages of 18 to 25 and above 25, of which 75.6% is the majority, from the age groups of 18-21 and 21% was for the age groups above 25 and only 3.33% was for those of the age below 18 years. According to this study, it is possible upon further research on a larger sample size, we might be able to conclude smart devices invading the work space and the frequency the tertiary age group uses is the reason the children below 18 might always come in low percentage, as their need for them is the least.

The age range which is majorly affected by text neck syndrome is 18-25 years this indeed shows that we are in digital age, and awareness about text neck syndrome should be raised more before it becomes a topic of concern, especially among the youth group. On our findings we also discovered that 5 to 7 hours was the most time spent on smart devices per day, which was followed by more than 8 hours per day was 30 percent,

and this goes to show that majority of time is spent on this devices. The awareness of text neck syndrome among the participants of our research was in the lead with 58%, while only 20.7% were not aware of it. There was also 21.3% that were not sure whether they know about text neck syndrome or not.

The ways in which our participants heard about text neck syndrome was through Medical sources, social media and friends and other sources which were the least answer we got from our participants. 73.3% of our participants believed bad posture was the cause of text neck syndrome. Also, what caught our attention was the fact that 53.3% have pain or stiffness when using smart devices, which is a red alert, to make more efforts and come up with ideas to educate and raise awareness about text neck syndrome, which can lead to chronic conditions in the long run .Trigger points in the muscles, which are points of exquisite tenderness that are painful to touch, along with limited range of motion. Prolonged shearing of the vertebrae from forward head posture eventually leads to irritation of the small facet joints in the neck as well as the ligaments and soft tissues. This irritation can result in neck pain that radiates down to the shoulder blades and upper back, potentially causing a variety of spinal chronic conditions etc. There are some simple lifestyle changes which greatly help in alleviating the muscular pain and discomfort of the text neck before the condition worsens. A person can make some simple changes in his/her daily posture and lifestyle to make him/her feel better. Taking frequent breaks and, with exercise helps in relieving the stress on neck and shoulders and prevent the wrong posture.

As with some articles we have seen concerning the same topic, more research, using a larger sample size needs to be done, in order to see the severity of the lack of awareness of of text neck syndrome, and formulate ways in which education can be administered to the masses about it, and the ways in which one can prevent it and still be able to use their smart devices.

Conclusion:-

The study concluded that out of 300 participants, 58% of participants are aware about Text neck syndrome, 73% knows about the cause behind it and believes it can be prevented. The increasing number of smart device users and incorrect posture while using it, is increasing the number of text next syndrome sufferers which after Pandemic Doubled in the population of students studying online and employees working from home under age range 18-25 are more in danger to get text neck syndrome. According to the study, 53% participants suffer with pain and stiffness while using smart devices. The majorly affected areas of concern based on Neck Disability Index out of all the other components are headache, reading, working and concentration.

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