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PREVALENCE OF TEXT NECK SYNDROME AND SMS THUMB AMONG SMARTPHONE USERS OF PHYSIOTHERAPY STUDENTS IN SWARRNIM UNIVERSITY: A CROSS SECTIONAL SURVEY STUDY

Community Physiotherapy

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ABSTRACT

Background: The rise in Text Neck Syndrome (TNS) and SMS Thumb is largely due to sustained forward head posture (FHP) and poor ergonomic habits related to the overuse of smart phones, tablets, and laptops. The term ―text neck was first introduced by Dr. Dean L. Fishman, a US-based chiropractor, to describe the condition stemming from these habits. Prolonged forward bending of the neck increases the static load on the neck's muscles, while there's limited support for the arms and repeated movement of the fingers. This syndrome has become a significant health concern across all age groups, particularly among children, teens, and young adults who frequently and for extended periods use their smartphones. Physiotherapy students, due to their extensive academic routines and clinical responsibilities, are especially prone to developing these disorders. The main aim of this study was to determine the prevalence of Text Neck Syndrome in this young adult population. **Methods:** A descriptive cross-sectional survey was conducted among 106 physiotherapy students using the Neck Disability Index (NDI), Nomophobia Questionnaire (NMP-Q), and Cornell Hand Discomfort Questionnaire (CHDQ). Data on symptoms, phone-use patterns, and related discomfort were collected through a structured form and analyzed using descriptive statistics to determine prevalence and associations. **Results:** The majority of the participants used smart phones for 2–4 hours daily. Females comprised 63% of the sample, with most participants aged 22 years. The prevalence of Text Neck Syndrome (TNS) was 38%, while 44.6% of students demonstrated moderate neck disability according to the NDI. Nomophobia levels were high, with 59% severe, 20% moderate, 16% mild, and 5% showing no nomophobia. Hand discomfort analysis showed Area B (central palm/gripping region) to be the most affected (total score 322), followed by Area E (250) and Area D (148), whereas Area C (115) was the least affected. These findings indicate that excessive smart phone use is associated with marked cervical and upper extremity musculoskeletal strain, coupled with high psychological dependency in The form of nomophobia. **Conclusion:** The results show that smart phone use among physiotherapy students is significantly associated with musculoskeletal and psychological symptoms. High rates of severe nomophobia, neck impairment, and Text Neck Syndrome indicate that behavioral dependence and postural strain are important factors in the development of symptoms. These findings highlight the critical need for preventive physiotherapy interventions, early screening, and focused ergonomic education to shield the next generation of healthcare workers from long term cervical and upper-limb dysfunction.

KEYWORDS

Musculoskeletal disorders, Smartphone addiction, neck pain, nonspecific neck pain, thumb discomfort.

INTRODUCTION

Text neck syndrome, also called tech neck or forward neck posture, refers to a modern overuse injury stemming from the prolonged use of smart phones, tablets, and other electronic devices. The term was first introduced by Dr. Dean L. Fishman to describe a condition that involves forward bending of the neck while looking down at a phone or computer for extended periods of time.[1]This condition has become increasingly common due to the growing reliance on technology for communication, work, and daily routines. Some key risk factors for text neck include poor ergonomics, repeated thumb and finger movements, and using a phone without proper arm support. This poor posture typically results in misalignment of the neck and shoulder girdle, causing additional stress on the neck's extensors. Because smartphones have small screens placed close to the lap, users naturally tilt their heads forward, adding excess pressure to the neck's muscles. This sustained forward posture can lead to muscle fatigue, reduced work efficiency, and a greater likelihood of developing related musculoskeletal disorders. The most frequently reported symptoms include neck pain, shoulder discomfort, upper back tension, and, in some cases, a gradual progression toward numbness in the upper limbs. Often, these symptoms manifest as a persistent ache that slowly worsens without a change in position [2] Currently, nearly 75% of the world's population is engaged in daily phone and gadget use. This highlights the growing need for greater awareness of proper posture and the implementation of lifestyle adjustments in the digital age.

"Poking chin posture", typically occurs due to extended periods of phone usage with poor posture. This forward tilting increases stress on the neck's structures, which can contribute to neck pain and even lead to long-term complications — such as degenerative changes in the cervical spine, a narrowing of the spaces between vertebrae, and bone spur formation. To help keep balance, the upper back may curve more than normal, adding additional strain to both spinal and neck muscles. Furthermore, repeated thumb movements during phone use can create unusual stress, adding to postural discomfort and muscle fatigue.

While texting, typically the thumb is used to perform numerous small and intricate movements in multiple directions-including flexion, extension, abduction, adduction, and opposition-all while retaining a sustained grip on the phone. An adult's head normally weighs about 5 kg in a neutral position. However, tilting it forward increases pressure on the neck-ranging from 4.5 kg at a 15º forward tilt to nearly 27.3 kg at a 60º forward tilt. This forward head posture due to phone usage is a growing concern, with 62% of users experiencing related neck and shoulder pain. Bending the neck forward, especially while resting in bed with the phone resting in the lap, further reduces the normal curve of the cervical spine and increases pressure on the upper back. This can manifest over time as structural abnormalities and persistent discomfort [3,4,5]

Strain on the neck's muscles, ligaments, and spine can produce a range of symptoms-from minor discomfort to more severe and chronic pain. While short-term effects may be barely perceptible, the long-term impact can be more significant.

Text Neck commonly presents with **neck pain and stiffness**, often worsening after prolonged phone use. **Shoulder and upper-back discomfort** are frequent due to forward head posture, sometimes progressing to **radiating arm pain** if cervical nerves are irritated. Many individuals also report **tension-type headaches**, **reduced neck mobility**, and **numbness or tingling in the arms or hands** from nerve compression.

Chronic poor posture contributes to **muscle fatigue, weakness**, and tightness in the neck, shoulder, and scapular muscles. Some may experience **jaw discomfort** and persistent **muscle soreness** that improves with rest or stretching. Symptom intensity typically increases with longer device use.

Additional concerns include **eye strain**, **dryness**, and in some cases **sleep disturbance, dizziness, difficulty concentrating**, and stress-related complaints. Poor posture may also negatively influence **respiratory mechanics** and overall well-being.[6,7,8]

The study aims to find the prevalence and influence of Text Neck Syndrome among physiotherapy students at Swarrnim Start-up and Innovation University. It examines how prolonged smart phone use relates to neck disability, hand discomfort, and nomophobia, using

standardized assessment tools that will help identify risk factors and guide preventive strategies.

Methodology

Study Place

Swarrnim Start-up and Innovation University, Gandhinagar, Gujarat.

Sampling Design Convenience sampling.

Study Design A cross-sectional, observational study design.

Duration Of Study 6 months-1 Year

Sample Size: 106

Inclusion Criteria:

- sex: male and female of age of 17to 25 year.
- Minimum duration of Smartphone use more than or equals to 1 hour per day.
- Subjects who understand the English.
- Subjects who agree to fill the form.

Exclusion Criteria:

Any Condition which leads to pain in the neck or upper limb or any traumatic injury to the cervical spine or any neurological or cardiovascular problem.

Material Required

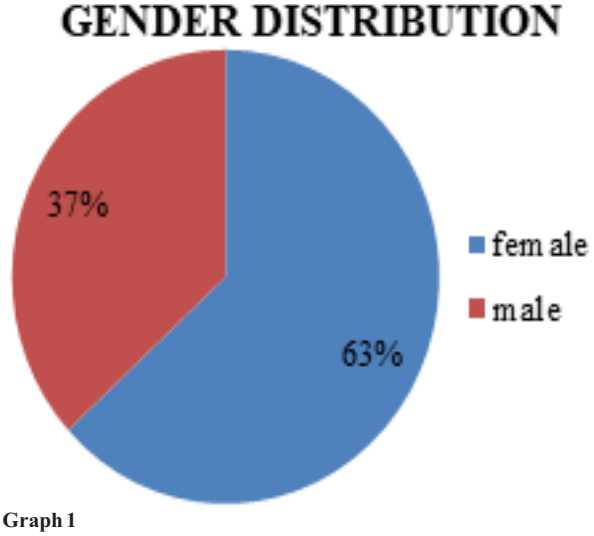
- Questionnaires (NDI, CHDQ, NMP-Q)(32,33,34)
- Printed copies of questionnaires (for survey distribution)
- Informed consent forms (for ethical approval and consent)
- Participant information sheet (explaining study's objective and procedure)
- Pen and Paper.

METHOD

- A cross-sectional survey was conducted among physiotherapy students at Swarrnim Startup and Innovation University.
- Participants were screened as per selection criteria, informed about the study, and provided written consent.
- Demographic details, mobile phone usage habits, and neck-related symptoms were recorded.
- The NDI, CHDQ, and NMP-Q questionnaires were explained and self-administered by the students.
- Completed forms were collected and compiled, and responses were analyzed using descriptive statistics, percentage distribution, and graphical representation.
- The data were used to identify the prevalence and patterns of text neck syndrome, hand discomfort, and mobile-use behaviour.

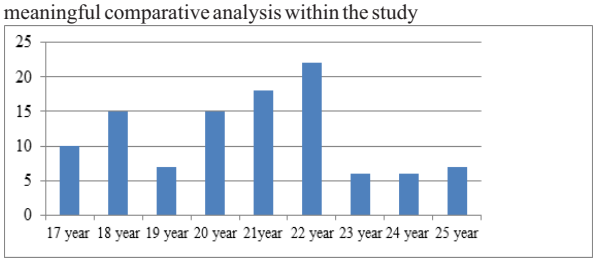
RESULTS

- The analysis was done using excel.
- Total 106 physiotherapy students are taken for the study.



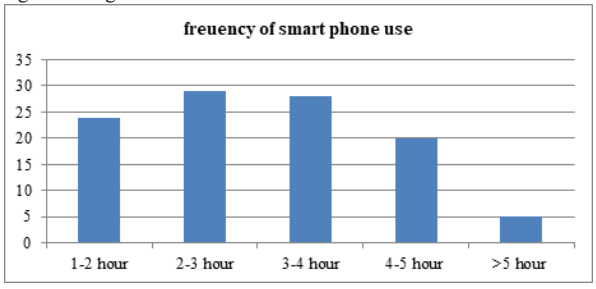
Graph 1

A. Of the participants in the sample, 37% were male and 63% were female students. This distribution reflects the typical enrollment pattern commonly observed in physiotherapy programs, where female representation is generally higher. The balanced proportion still ensures adequate representation for both genders, supporting meaningful comparative analysis within the study



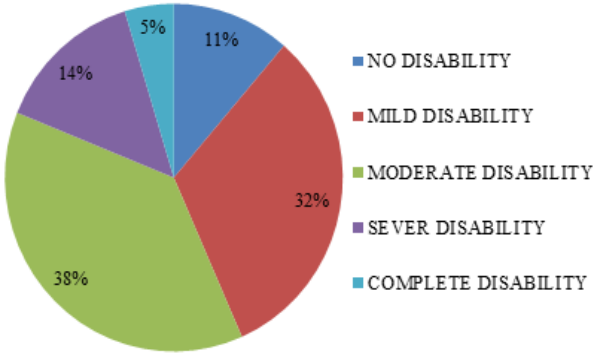
Graph-2

B. Most participants belonged to the 21–23-year age group, which represented the highest proportion in the sample. Fewer students were found in the younger (17–19 years) and older (24–25 years) age categories. This confined demographic profile of participants reflects a relatively homogeneous cohort, which makes it appropriate for examining musculoskeletal symptoms related to smart phones without significant age-related variation.



Graph 3

C. The largest percentage of the sample involved of students who reported using their smart phones for two to four hours every day. Usage gradually decreased in the 4–5 hour range, with only a small number of students exceeding 5 hours of daily use. This pattern suggests moderate-to-high device exposure, which is relevant for understanding neck disability, hand discomfort, and nomophobia trends.



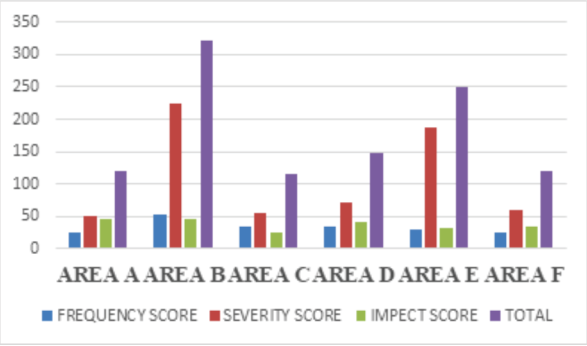
Graph-4

D. The majority of the sample had moderate disability, with mild disability coming in second. Only a small percentage of participants demonstrated severe or complete disability. These findings indicate that text neck–related functional limitations are noticeable but generally fall within early-to-moderate severity.

Table 1: NDI Score Summary

NDI Category	Score Range (0-50)	Frequency (n)	Percentage (%)
NO disability	0-4	12	11.3%
Mild disability	5-14	34	32.1%
Moderate disability	15-24	40	37.7%
Severe disability	25-34	15	14.2%
Complete disability	35-50	5	4.7%

E. The table presents the mean, standard deviation, and distribution of NDI scores, showing that most participants had mild (32.1%) or moderate (37.7%) disability. This pattern suggests early functional impairment linked to prolonged device use, while only a small proportion reported severe, complete, or no disability.



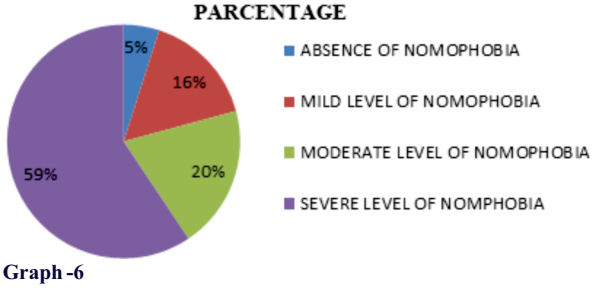
Graph 5: CHDQ Total Area Scores (Area A–F)

F. The graph shows variation in hand discomfort across different regions, with Area B demonstrating the highest total, severity, and frequency scores. Areas E and F also showed elevated discomfort levels. These findings indicate that regions involved in gripping and repetitive thumb movements are most affected during prolonged smart phone use.

Table 2: CHDQ Area-Wise Discomfort Scores

	Area A	Area B	Area C	Area D	Area E	Area F
Frequency Score	25	53	35	35	30	26
Severity Score	50	224	55	72	188	59
Impact Score	45	45	25	41	32	35
Total Score	120	322	115	148	250	120

G. This table provides the total discomfort scores for each hand region (Area A–F) along with the most commonly reported symptoms. Higher scores in Areas B and E suggest greater stress on the thumb and finger flexor regions during smart phone use.



Graph -6

H. A large proportion of students demonstrated severe levels of nomophobia, with moderate and mild levels forming the second and third most common categories. Only a small fraction reported no nomophobia, indicating a high dependency on mobile devices within the student population.

DISCUSSION

The current study investigated the prevalence of TNS, neck disability, hand discomfort, and nomophobia among 106 physiotherapy students. Among 106 students, 40 (38%) had TNS. Using the Neck Disability Index, 44.6% of the students demonstrated moderate disability, indicating significant functional impact related to prolonged use of smart phones. The levels of nomophobia were found to be considerably high: 59% severe, 20% moderate, 16% mild, and only 5% reporting no nomophobia at all. Thus, such psychological dependency on smart phones may significantly contribute to sustained cervical flexion and altered posture, hence increasing the risk of developing TNS. The analysis of hand discomfort using the Cornell Hand Discomfort Questionnaire showed that Area B of the hand (Central palm and gripping region) had the most significant discomfort with a cumulative score of 322, while Area E (radial wrist/forearm region) recorded 250; thus, it had the next highest ranking, followed by Area D with 148. Areas A and F scored comparatively lower with 120 each, while Area C recorded the lowest ranking of 115. This ranking suggests that the gripping and stabilizing activities associated with using smart phones impose greater mechanical demands on Areas B and E. Pain symptoms, such as stiffness and reduced cervical mobility, increased significantly in students who used smart phones for longer periods, 4-5 hours or more. These findings support existing evidence that prolonged neck flexion, poor ergonomics, and sustained postures contribute to musculoskeletal strain. Gender differences were also observed, with female students reporting higher levels of nomophobia and discomfort, possibly due to posture, usage patterns, and task demands. In this way, the research clearly points to a relationship between smart phone dependency and musculoskeletal complaints, stating that ergonomic education, posture correction strategies, and early physiotherapy interventions could prevent long-term dysfunction. Students using smart phones for more than 4–5 hours daily reported symptoms like neck pain, stiffness, and reduced range of motion, indicating a direct link between prolonged usage and musculoskeletal issues. These findings are supported by Ariëns et al. [9] who found a positive association between neck flexion beyond 20° for more than 70% of time and increased neck pain. Similarly, Yip et al. [10] emphasized that poor postural awareness and cervical flexion can increase cervical spine loading and associated pain. Gender-based differences were also noted, with female students reporting higher levels of Nomophobia and more pronounced neck and hand discomfort. These disparities may result from both anatomical and behavioral differences in phone usage and posture. A significant relationship was found between high levels of Nomophobia and TNS severity, with students more dependent on smart phones demonstrating worse posture and symptoms. These findings suggest that Text Neck Syndrome is an emerging public health concern, particularly among the youth. If left unaddressed, TNS may lead to academic performance decline, increased absenteeism, and chronic musculoskeletal dysfunction. Therefore, implementing ergonomic education, smart phone usage guidelines, postural correction exercises, and early physiotherapy intervention is essential. These strategies can help mitigate the risk of TNS and promote healthier digital habits among students.

CONCLUSION

The results show that smart phone use among physiotherapy students is significantly associated with musculoskeletal and psychological symptoms. High rates of severe nomophobia, neck impairment, and Text Neck Syndrome indicate that behavioral dependence and postural strain are important factors in the development of symptoms. These findings highlight the critical need for preventive physiotherapy interventions, early screening, and focused ergonomic education to shield the next generation of healthcare workers from long term cervical and upper-limb dysfunction.

Limitations:

Self-Reported Answers: Since the study used questionnaires, students may not have remembered everything correctly or may have answered in a way that looks good, which can affect accuracy.

One-Time Study: Because the study was done at only one point in time, we cannot say what caused the symptoms or behaviours.

Small And Limited Sample: The data came from one college and was collected by its own students, so the results may not represent all physiotherapy students or the general population.

Future Recomandation:

Include More People: Future studies should involve more participants from different colleges, age groups, professions, and locations to get results that apply to more people.

Study Environmental and Work Factors: More research is needed to understand how things like workload, device usage, and study environment contribute to Text Neck Syndrome.

Expand to a Larger Population: Since this study was limited to one institution, future research should include students from different places to make the findings stronger and more meaningful.

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