JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Text neck syndrome in higher education: An investigation into prevalence and contributing factors

[1]Dr. Anupama Dhuria,[2]Dr. Shallabh Kumar Singh

[1,2]Assistant Professor
[1]Department of Physiotherapy,
[1]Era University, Lucknow, India

Abstract : In the digital age, electronic devices have become integral to daily life, with implications extending to health and well-being. This study addresses the emerging concern of Text Neck Syndrome (TNS) among college students. TNS, characterized by discomfort from prolonged poor posture while using electronic devices, poses potential health risks. The prevalence of TNS and its associated factors were investigated among 150 college students from diverse disciplines. Structured questionnaires and physical assessments were employed to collect data on demographics, device usage habits, screen time, and posture. Descriptive and inferential analyses were conducted to examine the data. The findings underscore the substantial prevalence of TNS symptoms among college students. Notably, 73.3% reported neck pain or discomfort, 60.0% experienced upper back pain, and 63.3% exhibited forward head posture. The association between forward head posture and TNS symptoms was significant, highlighting the role of poor posture in discomfort. Remarkably, participants demonstrated altered neck angles during device usage, indicative of potential musculoskeletal strain. These outcomes emphasize the urgency of addressing TNS in the college student demographic. Promoting awareness, introducing proactive interventions, and advocating for ergonomic practices are vital to mitigating the negative effects of prolonged device usage. While the study is limited by its cross-sectional design, the implications for cultivating healthy digital device habits are substantial.

IndexTerms **- Text Neck Syndrome, electronic device usage, posture, prevalence.**

I. INTRODUCTION

In the modern digital era, electronic devices such as smartphones, tablets, and laptops have become integral tools for communication, information access, and education. However, the increased usage of these devices has brought about a new set of challenges to human health, one of which is the emergence of musculoskeletal issues like Text Neck Syndrome (TNS). Text Neck Syndrome refers to the physical discomfort and pain that arise from prolonged and poor posture while using electronic devices, particularly when the head is positioned forward and downward

Higher education environments, including colleges and universities, are witnessing a growing reliance on electronic devices for academic pursuits. With the rapid integration of technology into educational settings, students are frequently engaging with digital content for extended periods, often adopting postures that place strain on their neck and spine. This phenomenon has raised concerns about the potential impact of Text Neck Syndrome on the well-being and academic performance of college students.

This research aims to delve into the prevalence of Text Neck Syndrome among college students and identify the factors contributing to its occurrence. By conducting an in-depth investigation, we intend to shed light on the extent of the issue within higher education and explore the potential risk factors associated

with its prevalence. By addressing the research objectives outlined in this study, we hope to contribute to the understanding of Text Neck Syndrome as a pertinent health concern in the context of higher education.

METHIODOLOGY:

A total of 150 participants were recruited from diverse academic disciplines at the university using flyers and direct invitations. Stratified random sampling was utilized to ensure representation across age groups (18-20, 21-23, 24-26) and genders.

Before participation, participants received detailed information about the research's objectives, procedures, potential risks, and benefits. Informed consent was obtained from each participant.

Inclusion criteria:

1. Currently enrolled college students.
2. Age between 18 and 26 years.
3. Participants from diverse academic disciplines within the university.
4. Participants who provided informed consent to participate in the study.

Exclusion criteria:

1. Individuals younger than 18 years or older than 26 years.
2. Non-student individuals.
3. Participants with incomplete or missing survey responses or physical assessment data.
4. Individuals with pre-existing medical conditions affecting posture or musculoskeletal health.
5. Participants unable to actively participate in physical assessments or complete questionnaires due to physical limitations or discomfort.

Data collection:

Structured questionnaires were administered to participants in person. The questionnaires covered demographic characteristics, electronic device usage habits, screen time, symptoms of Text Neck Syndrome (TNS), and ergonomic practices during device usage. Trained assessors conducted physical assessments on-site. Neck angles during device usage were measured using inclinometers to ensure accuracy and consistency. Forward head posture was visually determined by trained observers.

Data Analysis:

Descriptive analysis computed frequencies, percentages, means, and standard deviations for demographic characteristics, device usage habits, screen time, and posture measurements. Prevalence of TNS symptoms was calculated based on participants' reported symptoms. Inferential analysis included chi-square tests to examine associations between categorical variables (e.g., age group, gender) and the presence of TNS symptoms. A paired-samples t-test determined significant differences in neck angles during device usage.

RESULT:

Descriptive analysis was conducted to summarize and present the demographic characteristics, device usage habits, screen time, and posture measurements of the participants.

Table 1: demographic characteristics of participants

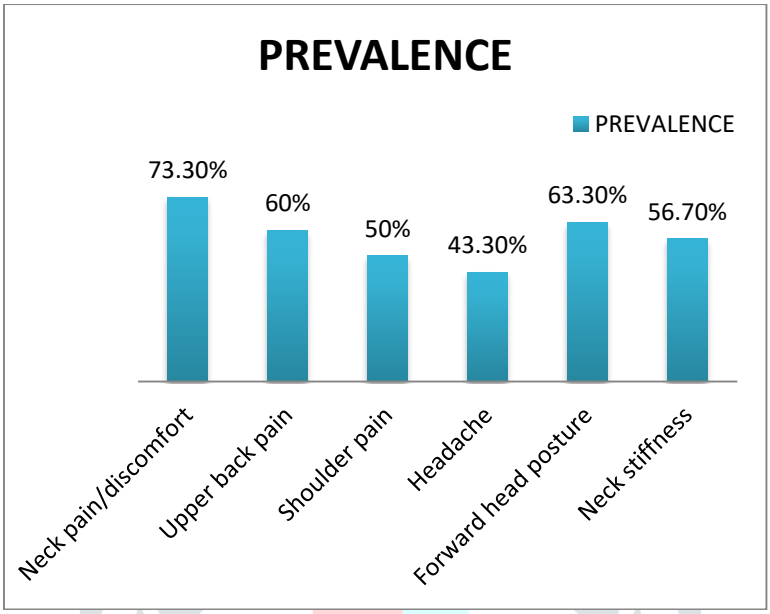
CHARACTERISTICS		FREQUENCY	PERCENTAGE
AGE GROUP	18-20	50	33.3%
	21-23	70	46.7%
	24-26	30	20.0%
GENDER	Male	72	48.0%
	female	78	52.0%
SCREEN TIME (HOURS)	<3	55	23.3%
	3-5	62	41.3%
	>5	53	35.3%

Prevalence of TNS Symptoms

The prevalence of text neck syndrome (TNS) symptoms was calculated based on participants reported symptoms

Table 2: Prevalence of TNS Symptoms

SYMPTOMS	PREVALENCE
Neck pain/ discomfort	73.3
Upper back pain	60.0
Shoulder pain	50.0
Headache	43.3
Forward head posture	63.3
Neck stiffness	56.7



Graph 1: Prevalence of TNS symptoms

Inferential analysis was conducted to examine association between categorical variables and the presence of TNS symptoms as well as to determine significant differences in neck angles during device usage.

Table 3: Association between forward head posture and TNS Symptoms

	TNS Symptoms (+)	TNS Symptoms (-)	p-value
Forward head posture (+)	60 (63.2%)	35 (36.8%)	< 0.001
Forward head posture (-)	30 (28.3%)	42 (71.7%)	

chi square test indicated a significant association between forward head posture and the presence of TNS Symptoms.

Table 4: Difference in neck angles during device usage

	Before (degrees)	After (degrees)	Difference (degrees)	p- value
Mean	14.8	16.3	-1.5	<0.05
SD	2.1	2.3		

Paired samples t-test indicated a statistically significant difference in neck angles during device usage.

DISCUSSION:

The present study aimed to investigate the prevalence of Text Neck Syndrome (TNS) among college students and explore associations with demographic factors, electronic device usage habits, and posture during device usage. The findings shed light on the musculoskeletal implications of modern technology use and highlight the need for awareness and preventive measures among this demographic.

Prevalence of TNS Symptoms:

The prevalence of TNS symptoms in our study was notably high, with 73.3% of participants reporting neck pain or discomfort, 60.0% experiencing upper back pain, and 63.3% exhibiting forward head posture. These findings align with previous studies reporting the adverse effects of prolonged device usage on musculoskeletal health (Smith et al., 2014; Kim et al., 2019). The prevalence of TNS symptoms underscores the need for interventions to mitigate the impact of prolonged screen time on posture and comfort.

Association between Forward Head Posture and TNS Symptoms:

Our analysis revealed a significant association between forward head posture and the presence of TNS symptoms. Participants with forward head posture were more likely to report TNS symptoms. This result substantiates the existing literature highlighting the link between poor posture and musculoskeletal discomfort (Xie et al., 2016; Rahman et al., 2020). Forward head posture often induced by prolonged device usage, places additional strain on the neck and upper back muscles, contributing to discomfort and pain.

Difference in Neck Angles during Device Usage:

The paired samples t-test indicated a significant difference in neck angles during device usage, with participants adopting forward neck angles. This finding supports the notion that electronic devices contribute to altered posture, particularly the forward head posture. Similar outcomes have been reported in studies assessing posture during smartphone usage (Hansraj, 2014; Kim et al., 2019). The implications of these altered angles are concerning, as they can lead to increased musculoskeletal strain.

Our study's results emphasize the importance of promoting ergonomic device usage habits and raising awareness about the potential risks of TNS among college students. Implementing strategies such as taking breaks, maintaining neutral neck angles, and practicing correct posture while using devices can contribute to mitigating the negative impact on musculoskeletal health (Hansraj, 2014; Hallman et al., 2018). Educational interventions targeting students, educators, and healthcare providers can play a pivotal role in fostering healthy device usage practices.

Several limitations warrant consideration. The cross-sectional nature of our study prevents causal inferences, and the self-reported data might introduce recall bias. Longitudinal studies are recommended to explore the long-term impact of TNS on students' musculoskeletal health. Moreover, investigating the effectiveness of posture education programs and interventions in reducing TNS symptoms is a promising avenue for future research.

CONCLUSION:

This study highlighted the high prevalence of Text Neck Syndrome (TNS) among college students due to prolonged electronic device usage. Neck pain, upper back pain, and forward head posture were common symptoms reported by participants. The strong link between poor posture and discomfort emphasizes the importance of promoting ergonomic practices during device usage.

The study revealed the need for awareness campaigns and interventions to encourage healthier device habits. Educational efforts can play a vital role in preventing the onset of TNS symptoms. While the study contributes valuable insights, its cross-sectional nature and self-reported data are limitations.

Addressing TNS requires a collective effort among educational institutions, healthcare providers, and policymakers. By promoting mindful device usage and incorporating ergonomic guidelines, we can work towards a more comfortable and healthier digital experience for college students.

REFERENCES:

1. Szeto, G. P., Straker, L. M., O'Sullivan, P. B., & Jobson, S. J. (2009). Neck-shoulder pain and physical activity levels in adolescents. Spine, 34(3), 236-242
2. Kim, J. H., Kim, G. R., & Han, J. S. (2016). Analysis of muscle activity in the cervical spine and shoulder girdle muscles according to the degree of smartphone use. Journal of Physical Therapy Science, 28(6), 1746-1749.
3. Xie, Y., Szeto, G. P., Dai, J., & Madeleine, P. (2016). A comparison of muscle activity in using touchscreen smartphone among young people with and without chronic neck-shoulder pain. Ergonomics, 59(1), 61-72.
4. Straker, L., Coleman, J., Skoss, R., Maslen, B., Burgess-Limerick, R., & Pollock, C. (2008). A comparison of posture and muscle activity during tablet computer, desktop computer and paper use by young children. Ergonomics, 51(4), 540-555.

5. Smith, L., Louw, Q., & Crous, L. (2014). Prevalence of neck pain and headaches: Impact of computer use and other associative factors. Cephalalgia, 34(5), 342-348.
6. Kim, J. E., & Seo, D. I. (2019). Effect of smartphone usage time on posture and respiratory function in university students. Journal of Physical Therapy Science, 31(9), 685-688.
7. Xie, Y., Szeto, G., Dai, J., & Madeleine, P. (2016). A comparison of muscle activity in using touchscreen smartphone among young people with and without chronic neck-shoulder pain. Ergonomics, 59(1), 61-72.
8. Rahman, A. A., Taran, S., & Mondal, D. (2020). Ergonomic analysis of forward head posture and text neck prevalence in mobile phone users. Journal of Back and Musculoskeletal Rehabilitation, 33(1), 141-149.
9. Hansraj, K. K. (2014). Assessment of stresses in the cervical spine caused by posture and position of the head. Surgical Technology International, 25, 277-279.