

Original Research Article

Knowledge on text neck syndrome among paramedical students

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ABSTRACT

Background: The smartphone has evolved into an essential tool for many individuals, serving both communication and entertainment purposes. However, the prevalence of "text neck syndrome" (TNS) is emerging as a significant health issue, potentially impacting a substantial portion of the global population. TNS is predominantly observed in adolescents, largely due to their prolonged use of handheld electronic devices. Current estimates suggest that approximately 75% of the global population spends several hours each day in a forward-leaning position while using these devices.

Methods: A cross-sectional study to assess the knowledge on TNS was conducted with a sample size of 198 paramedical students from the Department of Bachelor of Physiotherapy at Thalassery, Kannur, Kerala. A convenience sampling method was employed, and informed consent was secured from each participant before data collection commenced. A structured survey questionnaire was developed, validated, and utilized in this research.

Results: 59.5% of participants had poor knowledge, 25.5% had moderate knowledge, and 5% had good knowledge regarding TNS and also highlighted a significant association between knowledge and age, gender, year of study, educational status of parents, occupation of mother and duration of usage of hand-held electronic devices.

Conclusions: The findings of this study highlight a significant lack of understanding regarding TNS among participants and 59.5% exhibiting insufficient knowledge. This lack of awareness is closely linked to factors such as age, gender, academic year, parental education, maternal occupation, and the amount of time spent using handheld electronic devices.

Keywords: Knowledge, TNS, Paramedical students

INTRODUCTION

Neck pain is a widespread issue that significantly contributes to disability globally, and it has become an increasingly prominent public health concern.¹ The prevalence of neck pain is notably high across all age groups and is comparable to that of lower back pain. Research shows that 73% of university students and 64.7% of remote workers experience neck or back pain. Furthermore, 39.2% acknowledge that these issues hinder their productivity. The growing dependence on personal

computers and smartphones for texting is a key factor driving the rise in neck pain cases.²

Since their introduction, cell phones have significantly influenced the daily routines of people around the globe, particularly young adults. The mobile phone has evolved into more than just a means of communication; it has become an essential tool in our lives. For many, the smartphone feels like a constant companion that is hard to part with. These devices offer numerous conveniences, including the ability to send and receive emails, browse

the internet, and enjoy various forms of entertainment. This reliance on smartphones has reached a level where one might argue that individuals can hardly function in contemporary society without them. Additionally, the social consequences of this reliance may lead to various negative subjective experiences for those affected.³

The rise of smartphones and other handheld devices has led to the emergence of TNS a repetitive stress injury characterized by neck pain and musculoskeletal disorders caused by prolonged forward head posture during device use. This condition is particularly common among students, especially those in paramedical fields, due to their extensive use of electronic devices for both academic and personal activities.⁴

In recent years, TNS has emerged as a notable condition of the 21st century. This diagnosis describes the cervical spine degeneration that occurs due to the repetitive strain from frequent forward head bending while looking down at mobile device screens and texting for extended periods. This syndrome predominantly affects adolescents who spend several hours each day using handheld electronics. It is estimated that around 75% of people globally are hunched over their devices for hours each day with their heads bent forward. The relationship between neck posture and neck pain is not well understood. Treatment typically focuses on alleviating symptoms through recommendations, physiotherapy, and swimming sessions to help ease the discomfort.⁵

In epidemiology, research on the general population indicates that the one-year incidence rate of neck pain can reach up to 40%. The World Health Organization has ranked neck pain and other musculoskeletal disorders as the 4th and 10th most significant health conditions contributing to years lived with disability. According to the WHO's Global Burden of Disease report, neck pain is the 8th leading cause of years lived with disability among 15- to 19-year-olds, surpassing other prominent adolescent health issues such as asthma, substance abuse, and road traffic injuries.⁶

Recent studies have highlighted the significant impact of TNS among medical students. For example, a study conducted among medical students in Jeddah, Saudi Arabia, reported a prevalence rate of 68.1%, with varying degrees of neck disability observed among participants.⁷ Similarly, research among undergraduate medical students in Puducherry, India, found a prevalence rate of 16.7%, indicating a notable presence of this condition within the student population.⁸

Research conducted by Samani PP, in Pune, India, focused on awareness of TNS among young adults indicated that maintaining poor posture for prolonged periods while using electronic devices will shift the head's center of weight forward. This imbalance leads to continuous muscle contraction as a compensatory mechanism, resulting in TNS, which manifests symptoms

such as neck pain, shoulder pain, upper back pain, forward head posture, and muscle spasms.⁹

Another study by Senthil Kumar B and colleagues in 2024 examined the prevalence and awareness of TNS and text thumb syndrome among 200 participants aged 18 to 25 who had used mobile phones for at least five years. The findings showed that 50.3% of the participants were not aware of TNS, and 57.1% were unaware of text thumb syndrome. Furthermore, 33% of the participants displayed a forward head posture while using their mobile phones, which is linked to TNS. This study highlighted the importance of raising awareness and implementing preventive measures to tackle these conditions among young adults.¹⁰

Conducting research to assess the awareness of TNS among paramedical students is important for various reasons. As emerging healthcare professionals, these students are key to teach patients about preventive health practices and managing musculoskeletal issues related to the use of modern technology. Understanding their knowledge and awareness of TNS is vital, as it impacts their capacity to recognize early symptoms, apply preventive measures, and offer suitable advice to patients. Additionally, such research can highlight areas where students lack knowledge, guiding the creation of focused educational programs to improve their skills in addressing TNS. In the end, this brings about enhanced patient education and supports the promotion of musculoskeletal health within the wider community. The aim of the study is to assess the level of knowledge and its association with selected variables among paramedical students.

METHODS

A cross-sectional study was conducted with a sample size of 198 paramedical students from the Department of Bachelor of Physiotherapy at Thalassery, Kannur, Kerala. The researchers obtained ethical clearance and administrative permission from the Institutional Review Board prior to initiate the study. A convenience sampling method was employed, and informed consent was secured from each participant before data collection commenced. The study included paramedical students enrolled in the Bachelor of Physiotherapy program at Thalassery, Kannur, Kerala. Eligible participants are those in their 1st to 4th year of study who have provided written informed consent to participate. Additionally, students must be available and present during the designated data collection period, which runs from December 29, 2022 to January 5, 2023. A structured survey questionnaire was developed, validated, and utilized in this research. The validation process involved a panel of experts, and the questionnaire was revised in accordance with the feedback received. The final version of the questionnaire was implemented for data collection. Throughout the study, confidentiality was strictly maintained. Both descriptive and inferential statistical analysis was

conducted to evaluate the responses obtained from the participants.

RESULTS

Table 1 indicates that the majority of respondents, totaling 108 (55%), were in the age range of 21 to 22 years. Each class year 1st year, 2nd year, and 4th year bachelor of physiotherapy (BPT) had 50 participants (25.25%). The remaining 48 participants (24.24%) were enrolled in the 3rd Year BPT program. In terms of paternal educational attainment, 92 fathers (46.46%) had completed higher secondary education, while only 8 (4%) had achieved a postgraduate degree.

Table 1: Distribution of subject based on demographic variables (n=198).

Demographic variables	F	%
Age in years		
19-20	90	45
21-22	108	55
Year of study		
1 st year BPT	50	25.25
2 nd year BPT	50	25.25
3 rd year BPT	48	24.24
4 th year BPT	50	25.25
Educational status of parent		
Father		
Primary education	52	26.26
Higher secondary education	92	46.46
Graduation	46	23.23
Post-graduation	8	4
Mother		
Primary education	46	23.23
Higher secondary education	100	50.5
Graduation	40	20.2
Post-graduation	12	6
Occupation of parents		
Father		
Government services	10	8
Private job	176	88.8
Retired	6	3
Home maker	0	0
Mother		
Government services	10	5
Private job	50	25.25
Retired	0	0
House wife	138	69.6
Have you previously attended any classes on TNS?		
Yes	0	0
No	198	100

Note: f = frequency, % = percentage

Regarding maternal educational levels, the majority, 100 mothers (50.5%), also had higher secondary education, and 12 (6%) held postgraduate qualifications.

Furthermore, 176 fathers (88.8%) were employed in the private sector, whereas 138 mothers (69.6%) were homemakers. Notably, none of the students had attended any prior classes on TNS.

Section 1: Description of Socio demographic variables of Sample.

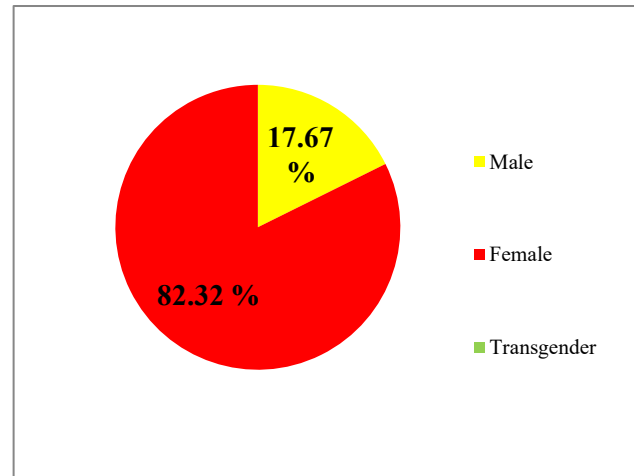


Figure 1: Distribution of sample based on gender.

Figure 1 shows that majority of 163 (82.32%) were females, 35 (17.67%) were males and no transgender.

Figure 2 illustrates the usage patterns of handheld electronic devices among respondents. Specifically, 70 individuals (35.35%) reported using these devices for 2 to 4 hours per day, while 68 individuals (34.34%) indicated usage for 5 to 7 hours. Furthermore, 40 individuals (20.20%) utilized the devices for 8 to 10 hours, and 20 individuals (10.10%) exceeded 10 hours of usage per day.

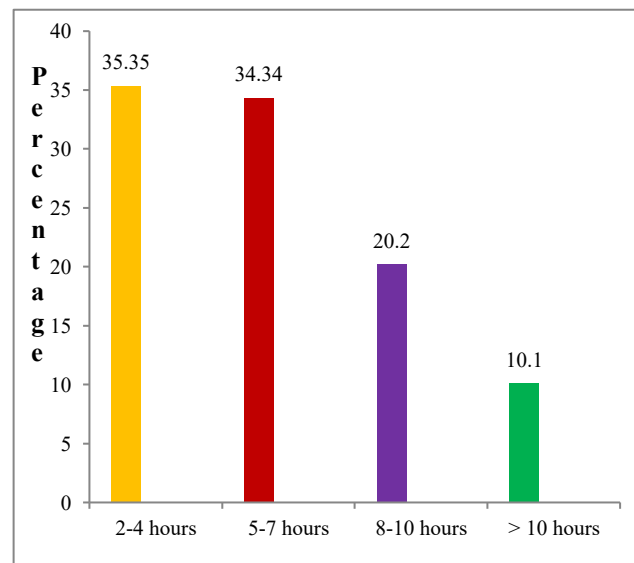


Figure 2: Distribution of the sample based on duration of usage of hand-held electronic devices.

Section 2: The level of knowledge regarding TNS.

Table 2: Level of knowledge of sample regarding TNS (n=198).

Variable	F	%
Knowledge		
Poor	118	59.5
Moderate	50	25.5
Good	30	15.15

Note: f = frequency, %= percentage

Table 2 shows that 118 (59.5%) of subjects had poor knowledge, 50 (25.5%) had moderate knowledge and 30 (15.15%) had good knowledge regarding TNS.

Section 3: Association between knowledge on TNS and selected demographic variables.

The study revealed a significant association between knowledge and various demographic variables. The findings are summarized as follows: -

Age: chi-square value = 20.09; critical table value = 5.99, gender: chi-square value = 12.26; critical table value = 9.49, year of study: chi-square value = 26.6; critical table value = 12.59, educational status of parents: - father: chi-square value = 19.22; critical table value = 12.59 - mother: chi-square value = 19.27; critical table value = 12.59, occupation of mother : chi-square value = 46.35; critical table value = 12.59, duration of usage of handheld electronic devices: chi-square value = 33.59; critical table value = 5.99. These results indicate strong associations between knowledge levels and the selected demographic variables, warranting further investigation into these relationships.

DISCUSSION

The present study indicates that 108 participants (55%) are aged 21-22 years, with a predominant female representation of 163 (82.32%). Each academic year 1st, 2nd, and 4th year BPT consists of 50 students, equating to 25.25% of the sample. Regarding parental education, 92 fathers (46.46%) and 100 mothers (50.5%) have completed higher secondary education. Additionally, 176 fathers (88.8%) are employed in the private sector, while 138 mothers (69.6%) are homemakers. Notably, none of the students have attended prior classes on TNS, indicating a need for targeted educational initiatives. In our study we found that 59.5% of participants had poor knowledge, 25.5% had moderate knowledge, and 5% had good knowledge regarding TNS (TNS) and also highlighted a significant association between knowledge and age, gender, year of study, educational status of parents, occupation of mother and duration of usage of hand-held electronic devices. The investigation yielded results that were similar to those of several other studies. About 35% of population had TNS, out of which 8% had knowledge of this syndrome based on a study conducted

by SR Patil, 20189. A study conducted in Kothamangalam, Kerala, assessed the incidence of TNS and the knowledge levels among 50 young adults. The results revealed that 58% of participants had good knowledge, 32% had average knowledge, and 8% exhibited clinical manifestations of TNS, such as postural abnormalities and neck pain. Notably, the study found significant associations between knowledge levels and demographic variables, including gender, educational status, and monthly income ($p < 0.05$).¹¹ Similarly, research conducted among undergraduate medical students in Puducherry focused on the prevalence of TNS and its associated factors. The study observed that a substantial proportion of students experienced symptoms related to TNS, and knowledge levels varied significantly across different demographics. Factors such as age, year of study, and duration of handheld device usage were significantly associated with the prevalence and awareness of TNS.¹² Michael et al. demonstrated that structured teaching programs effectively improved students' knowledge about TNS, highlighting initial gaps in awareness.¹³ A high prevalence of TNS was found among medical students, despite their education, primarily due to gadget addiction, suggesting a disconnect between knowledge and behaviour.¹⁴ Neck pain is prevalent among adolescents due to increased smartphone usage in improper postures, leading to TNS, and emphasized the need for awareness programs according to a study conducted by Rath M.¹⁵ A study found a significant association between TNS and smartphone use, emphasizing the need for awareness regarding proper neck positioning and limiting device usage duration.⁷ About 53% of nursing students had average knowledge, 41% had poor knowledge, and only 6% had good knowledge regarding TNS and Typer's Thumb, with significant associations found between knowledge levels and demographic variables such as age, religion, and pain experience.¹⁶

The research faced several limitations, including the reliance on convenience sampling and the gathering of data from just one institution, coupled with a brief data collection timeframe. Additionally, the study depended on self-reported information, which could lead to potential biases.

CONCLUSION

This cross-sectional study among Paramedical students at a single institution in Kerala offers a comprehensive overview of the selected variables across all academic years, contributing to a deeper understanding of the student population's characteristics, attitudes, or experiences. The structured and expert-validated questionnaire ensured the reliability of the data collected, while the inclusion of students from first to fourth year provided a broad representation within the institution. Despite inherent limitations such as convenience sampling, self-reported responses, and a restricted geographic scope, the study adds meaningful evidence to

the existing literature. It highlights trends and gaps that can inform curriculum development, student support services, and targeted interventions to enhance educational outcomes. Moreover, the findings may serve as a baseline for future comparative or longitudinal studies across multiple institutions. By capturing student data within a defined period, the study also demonstrates the utility of short-term cross-sectional surveys in educational research, paving the way for more robust, large-scale studies in the field of premedical education.

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