IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

"A Study To Assess The Effectiveness Of Blended Learning Approach On Knowledge Regarding Prevention Of Text Neck Syndrome Among Students At Selected Higher Secondary Schools, Daman"

Ms. Nista.M. Patel[1], Ms. Karishma Patel[2]

[1]M.Sc. Nursing, Department of Child Health Nursing, Government College of Nursing, Daman

[2]Nursing Tutor, Department of Child Health Nursing, Government College of Nursing, Daman

Abstract

INTRODUCTION: In today's era, smartphones, laptops, tablets, and books used for learning, communication, and entertainment has become an integral part of adolescent life. However, prolonged incorrect posture has led to rising health concerns like Text Neck Syndrome, caused by forward bending of the neck while using devices, studying books placed below eye level, results in pain, stiffness, and long-term musculoskeletal complications especially among adolescents with high digital and academic demands. Increasing awareness about proper posture, ergonomics and preventive exercises is essential. A Blended learning approach, combining classroom teaching with digital resources, provides an effective and engaging method to improve knowledge and promote healthy practices for preventing Text Neck Syndrome.

AIM: To increase the level of knowledge regarding prevention of Text Neck Syndrome among the students at selected Higher Secondary Schools, Daman.

METHODOLOGY: A Quantitative research approach with Quasi experimental, pre-test post-test research design was adopted for this study. Total 260 samples were selected from Government Higher Secondary Schools by using Stratified random sampling technique. Data was collected by using self-structured knowledge questionnaire before and after administration of blended learning approach and after 14 days post- test was conducted.

RESULT: The study result shows that pre-test mean was 9.44 whereas post-test mean was 23.86. The mean difference and standard deviation of pre-test and post-test knowledge was 14.42, 2.19 and 3.38 respectively. The calculated z-value was 13.964, which exceeds the critical z-value of 1.96 at <0.05 level of significance which shows that the Blended Learning Approach is significantly effective in increasing knowledge regarding prevention of Text Neck Syndrome among Higher secondary school students.

Keywords: Blended Learning Approach, Text Neck Syndrome, Higher Secondary schools Students.

INTRODUCTION

Technology has become an integral part of daily life, especially among adolescents who depend on digital devices for learning, communication, and entertainment. While responsible use of technology offers many benefits, excessive screen time and prolonged use of handheld devices have led to various health issues such as eye strain, poor posture, headaches, sleep problems, and musculoskeletal disorders like Text Neck Syndrome. Mentally, overuse is linked with stress, anxiety, and reduced attention, while socially it may cause digital addiction and decreased face-to-face interaction.

Text Neck Syndrome occurs due to bending the neck forward for long periods while using mobile phones, tablets, laptops, or even reading books placed below eye level. This posture puts stress on the cervical spine and can lead to neck pain, stiffness, and long-term complications. Other poor postures like slouching while sitting or lying down with a device also contribute to neck and upper back strain.

With increasing digital use and sedentary habits, awareness about Text Neck Syndrome is essential. Many people are unaware that prolonged neck flexion and poor ergonomics can cause serious issues. Educating individuals about correct posture, viewing angles, and preventive exercises can reduce the risk of chronic neck pain.

Studies show high rates of neck and back pain among university students and remote workers, and most individuals aged 18–44 use their phones almost constantly. Poor posture during device or book use can cause upper back pain, shoulder tightness, and chronic headaches. The term “Text Neck” was coined by Dr. Dean L. Fishman to describe this repetitive stress injury.

This study uses a blended learning approach combining classroom teaching with digital tools to improve knowledge on preventing Text Neck Syndrome. Through lectures, discussions, animations, and online resources, students will learn proper posture, neck exercises, and the harmful effects of forward head posture, promoting better awareness and preventive practices.

STATEMENT OF THE PROBLEMS

“A study to assess the effectiveness of blended learning approach on knowledge regarding prevention of text neck syndrome among students at selected higher secondary schools, Daman”

OBJECTIVES OF THE STUDY

The objectives of the study are:

•To assess the pre-test knowledge regarding the prevention of Text neck syndrome among students at selected higher secondary schools, Daman.

•To evaluate the effectiveness of blended learning approach on knowledge regarding the prevention of Text neck syndrome at selected higher secondary schools, Daman.

•To find out the association between pre-test knowledge score with selected demographic variables.

OPERATIONAL DEFINITION

Blended Learning Approach: Blended learning Approach combine face-to-face instruction with computer-mediated instruction.

- Graham (2006)

In this study, the blended learning approach refers to a structured educational method combining traditional face-to-face classroom instruction with digital learning materials—such as video, demonstration, presentations, designed to enhance student's knowledge regarding the prevention of Text Neck Syndrome.

Text Neck Syndrome (TNS): Text Neck Syndrome refers to a repetitive stress injury or overuse syndrome in the neck caused by prolonged forward head posture while looking down at mobile phones, tablets, or other electronic devices.

-Dean Fishman (2008)

In this study, Text Neck Syndrome is a modern musculoskeletal condition that arises from prolonged forward head posture, commonly seen in individuals who frequently use books, smartphones, tablets, or other devices. This poor posture leads to strain on cervical spine, causing symptoms such as neck pain, muscle tightness, reduced mobility, headaches, and in severe cases, changes in spinal curvature. It is considered a lifestyle-related health issue emerging from increased screen time and poor ergonomic habits.

Knowledge: Knowledge refers to facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.

- Oxford Dictionary (2023)

In this study, knowledge refers to the understanding of students about the causes, symptoms, and prevention strategies of TNS. This will be measured by using a self-administered questionnaire.

Effectiveness: Effectiveness is the extent to which a program or intervention achieves its intended outcomes under real-world conditions

-Patton (2008)

In this study, effectiveness refers the comparison of the knowledge scores of students before and increase of the knowledge after the implementation of the blended learning approach.

RESEARCH METHODOLOGY

Research approach: Quantitative Research approach
Research Design: Quasi-experimental research design (One group pre-test-post-test design)

Variables:

- **Independent variable:** Blended learning approach on prevention of text neck syndrome
- **Dependent variable:** Knowledge on prevention of text neck syndrome
- **Demographic variables:** age in years, gender, religion, residence of living, stream currently studying, previous knowledge, hours per day spend using your device, device used most frequently, usual position when holding your device, where do you usually sit while studying.

Research setting: Selected Higher Secondary schools, Daman

Population: All the Higher secondary school's students

Sample: Student studying in 11th and 12th standard

Sample size & sampling technique: 260 students by using Stratified random sampling technique

Inclusion criteria:

1.Students studying in higher secondary schools of Daman.

2.Students who are willing to participate in the study.

3.Students who can able to read Hindi, Gujarati or English.

4.Students who are between 15-18 years old.

Exclusion criteria:

1.Students who are physically and mentally challenged.

2.Students who are not available for the entire duration of the study.

3.Students who have participated in any similar study or training program on prevention of Text Neck Syndrome.

Description of the tool:

Section A: Demographic Variables

Consisted of demographic variables which included age in years, gender, religion, residence of living, stream currently studying, previous knowledge, hours per day spend using your device, device used most frequently, usual position when holding your device, where do you usually sit while studying.

Section B: Tool to assess the level of knowledge regarding prevention of Text Neck Syndrome

This section consisted of knowledge questionnaires to assess the knowledge regarding prevention of Text Neck Syndrome.

Scoring interpretation for level of knowledge was categorized as:

Score Range	Percentage	Level of Knowledge
0-14	<50%	Poor Knowledge
15-22	50% - 75%	Average Knowledge
23-30	>75% - 100%	Good Knowledge

RESULT AND DISCUSSION

DATA ANALYSIS AND INTERPRETATION

Section A: Frequency and percentage of demographic variables

Table 1. Frequency and percentage wise distribution of samples based on demographic variables

[n=260]

Sr. No	Demographic variables	Variables	Frequency (f)	Percentage (%)
1	Age in years	15 Year	90	34.5
		16 Year	81	31.2
		17 Year	68	26.2
		18 Year	21	8.1
2	Gender	Male	112	43.1
		Female	148	56.9
3	Religion	Hindu	231	88.8
		Muslim	26	10.0
		Christian	3	1.2
		Other, specify	0	0
4	Residence of living	Rural	149	57.3
		Urban	98	37.7
		Semi urban	13	5.0
5	Stream in which currently studying	Science	63	24.2
		Commerce	91	35.0
		Arts	106	40.8
6	Previous knowledge of topic	Yes	0	0
		No	260	100.0
7	How many hours per day do you spend using your device?	Less than 2 hours	52	20.0
		2-4 hours	106	40.7
		5-7 hours	81	31.2
		More than 7 hours	21	8.1
8	Which device do you use most frequently?	Smartphone	256	98.4
		Tablet	1	0.4
		Laptop/ Desktop Computer	3	1.2
9	What is your usual position	On lap	26	10.0
		On a table or desk	33	12.7

Sr. No	Demographic variables	Variables	Frequency (f)	Percentage (%)
	when holding your device?	In hands	201	77.3
10	**Where do you usually sit while studying?**	Regular chair	105	40.4
		On Bean bag or couch	12	4.6
		On Floor or mat	141	54.2
		On Standing desk	2	0.8

SECTION B: Assessment of the knowledge regarding Prevention of Text neck syndrome before and after blended learning approach

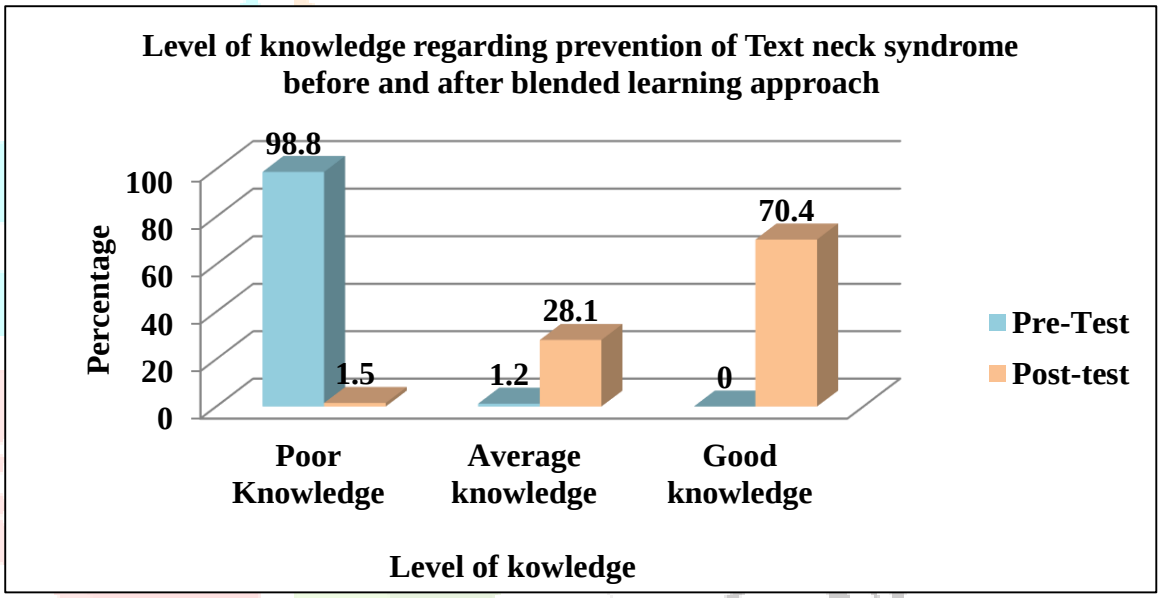

Table 2. Frequency and percentage distribution of level of knowledge regarding prevention of Text neck syndrome before and after blended learning approach.

[n=260]

Level of knowledge	Score	Pre-test		Post-test	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Poor Knowledge	1 - 14	257	98.8	4	1.5
Average knowledge	15 – 22	3	1.2	73	28.1
Good knowledge	23 - 30	0	0	183	70.4
Total		**260**	**100%**	**260**	**100%**

The above table and figure depict that in the pre-test, 257 participants (98.8%) had poor knowledge, 3 participants (1.2%) had average knowledge, and none had good knowledge regarding the prevention of Text Neck Syndrome. After the intervention using the blended learning approach, only 4 participants (1.5%) remained in the poor knowledge category, 73 participants (28.1%) had average knowledge, and a majority of 183 participants (70.4%) achieved good knowledge. These results indicate a positive shift in knowledge after the intervention, with a significant reduction in poor knowledge scores and a substantial increase in good knowledge levels.

SECTION C: **Effectiveness of blended learning approach on knowledge regarding Prevention of Text neck syndrome**

Table 3. Effectiveness of blended learning approach regarding the knowledge of Prevention of Text neck syndrome among students at selected higher secondary schools

[n=260]

Knowledge score	Mean	Mean difference	Median	SD	z value	z critical value	p value	Remark
Pre-test	9.44	14.42	10	2.19	13.964	1.96	P=<0.001	**S***
Post -test	23.86		24	3.38				

Table 3 presents the effectiveness of the blended learning approach on students' knowledge regarding the prevention of Text Neck Syndrome. As the data were not normally distributed, the Wilcoxon Signed Ranks Test was used. The mean pre-test score was 9.44 with a standard deviation (SD) of 2.19 and a median of

10, indicating low baseline knowledge. After the intervention, the mean Post-test score significantly increased to 23.86 with an SD of 3.38 and a median of 24, resulting in a mean difference of 14.42.

The calculated z-value was 13.964, which exceeds the critical z-value of 1.96, and the p-value was < 0.001, indicating a highly significant improvement in knowledge after the blended learning approach.

This significant improvement in post-test scores clearly demonstrates that the blended learning approach was effective in enhancing students knowledge regarding the prevention of Text Neck Syndrome.

SECTION D: **Association between the pretest knowledge score with selected demographic variables**

Table 4. Association between pretest knowledge score and selected demographic variables of subjects

[n=260]

Sr. No	Demographic variables		< Median	> Median	(f)	χ^2 value	df	p value	Significance
1	Age in years	15 Year	77	13	90	0.302	3	0.960	NS
		16 Year	67	14	81				
		17 Year	57	11	68				
		18 Year	18	3	21				
2	Gender	Male	95	17	112	0.052	1	0.820	NS
		Female	124	24	148				
3	Religion	Hindu	196	35	231	0.998	2	0.607	NS
		Muslim	21	5	26				
		Christian	2	1	3				
4	Residence of living	Rural	131	18	149	3.891	2	0.143	NS
		Urban	77	21	98				
		Semi urban	11	2	13				
5	Stream in which currently studying	Science	51	12	63	0.972	2	0.615	NS
		Commerce	79	12	91				
		Arts	89	17	106				
6	Previous knowledge of topic	No	178	82	260	No statistics are computed because the variable religion is constant			
7	How many hours per	Less than 2 hours	42	10	52	1.992	3	0.574	NS
		2-4 hours	91	15	106				

Sr. No	Demographic variables		< Median	> Median	(f)	χ^2 value	df	p value	Significance
	day do you spend using your device?	5-7 hours	70	11	81				
		More than 7 hours	16	5	21				
8	**Which device do you use most frequently?**	Smartphone	216	40	256	0.888	2	0.641	NS
		Tablet	1	0	1				
		Laptop/ Desktop Computer	2	1	3				
9	**What is your usual position when holding your device?**	On lap	22	4	26	0.397	2	0.820	NS
		On a table or desk	29	4	33				
		In hands	168	33	201				
10	**Where do you usually sit while studying?**	On Ergonomic chair or Regular chair	87	18	105	2.187	3	0.534	NS
		On Bean bag or couch	10	2	12				
		On Floor or mat	121	20	141				
		On Standing desk	1	1	2				

Table 4. shows the association between pre-test knowledge scores and selected demographic variables of 260 higher secondary school students. Chi-square test was performed to determine the association. The results revealed that age ($\chi^2 = 0.302$, $p = 0.960$), gender ($\chi^2 = 0.052$, $p = 0.820$), religion ($\chi^2 = 0.998$, $p = 0.607$), residence ($\chi^2 = 3.891$, $p = 0.143$), and stream of study ($\chi^2 = 0.972$, $p = 0.615$) were not significantly associated with pre-test knowledge scores. Similarly, there was no significant association between knowledge scores and hours of daily device usage ($\chi^2 = 1.992$, $p = 0.574$), type of device used ($\chi^2 = 0.888$, $p = 0.641$), usual position while holding the device ($\chi^2 = 0.397$, $p = 0.820$), or usual study position ($\chi^2 = 2.187$, $p = 0.534$). No statistics were computed for previous knowledge of the topic because all participants reported no prior knowledge.

CONCLUSION

The study concludes that the blended learning approach was highly effective in improving knowledge regarding the prevention of Text Neck Syndrome among higher secondary school students in Daman.

REFERENCES

1. Pew Research Center. Mobile Fact Sheet. Washington, D.C.: Pew Research Center; 2021 [cited 2025 Jul 5]. Available from: https://www.pewresearch.org/internet/fact-sheet/mobile/

2. Hansraj KK. Assessment of stresses in the cervical spine caused by posture and position of the head. Surg Technol Int. 2014; 25:277–9.

3. Keles B, McCrae N, Grealish A. A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. *Int J Adolesc Youth*. 2020;25(1):79–93.

4. Gustafsson E, Thomée S, Grimby-Ekman A, Hagberg M. Texting on mobile phones and musculoskeletal disorders in young adults: A five-year cohort study. *Appl Ergon*. 2017; 58:208–14.

5. Damasceno GM, Ferreira AS, Nogueira LA, Meziat-Filho N, Marques AP. Text neck and neck pain in 18–21-year-old young adults. *Eur Spine J*. 2018;27(6):1249–54.

6. Lee JI, Song HS. The Correlation Analysis between Hours of Smartphone Use and Neck Pain in the Gachon University Students. The Acupuncture. 2014 Jun 22;31(2):99–109.
7. Physiopedia. Text Neck. Physiopedia. 2017. Available from: https://www.physio-pedia.com/Text_Neck
8. Noroozi O, Biemans HJ, Weinberger A, Mulder M, Chizari M. Argumentation-based computer-supported collaborative learning (ABCSCL): A synthesis of 15 years of research. *Educ Res Rev*. 2012;7(2):79–106.
9. Kim HJ, Kim JS. The relationship between smartphone use and subjective musculoskeletal symptoms and university students. Journal of Physical Therapy Science. 2015;27(3):575–9.

10. Pinto A, Rekha S, Evangelin J. A study to assess the effectiveness of structured teaching programme on knowledge regarding text neck syndrome among young adults. Asian J Nurs Educ Res. 2021;11(3):311–6. doi:10.52711/2349-2996.2021.00075

11. Kaur A, Makker S. A Study to Assess the Prevalence of Text Neck Syndrome and Quality of Sleep among Smartphone Users in Selected Colleges of District Ludhiana, Punjab. International Journal of Health Sciences and Research. 2021 Sep 7;11(9):49–54.

12. Rahman RU, Yadav L, Tomar DS. A descriptive study to assess the knowledge of text-neck syndrome and typer's thumb among the undergraduate nursing students of selected schools of Sharda University, Greater Noida. Journal of Information Technology Research. 2022 Jan;15(1):1–23.

13. Medani KET, Ahmad MS, Sami W, Shaik RA, Mohamed E, Alhammad MA, et al. Perspective, Awareness, and Behaviour towards Text-Neck among Medical Students of Majmaah University - A Cross Sectional Study. Journal of Evolution of Medical and Dental Sciences. 2021 Feb 1;10(5):294–8.

14. Abdali Y, Sherwani A, Alsharif A, Kariri A, Khormi Y, Lughbi M, et al. Text neck syndrome prevalence and knowledge among the Saudi population in Jazan, Kingdom of Saudi Arabia: a cross-sectional study. International Journal of Medicine in Developing Countries. 2020;1893–9.

15. Alghamdi M, Alharthi AM, Alorabi SO, Alzahrani AM, Almaliki MG. Awareness of Text Neck Syndrome among clinical years medical students at King Abdulaziz University, Jeddah. Int J Med Res Prof. 2021 Nov;7(6):1-5. doi:10.21276/ijmrp.

16. Aksa Mariyam A, Angel Mary P, Blessy S, Jeslin Mary K, Nimiya B, Jyothilekshmi J. A study to assess the effectiveness of structured teaching programme on knowledge regarding text neck syndrome among college students in selected college, Kollam. Eur J Pharm Med Res. 2023;10(6):198-202.

17. S Mrs R. A study to assess the effectiveness of structured teaching plan on text neck syndrome among adolescents of sree narayana gurukulam higher secondary school, chempazhanthy, sreekaryam, thiruvananthapuram. gjra - global journal for research analysis. 2018. Available from: https://www.worldwidejournals.com/global-journal-for-research-analysis-GJRA/article/a-study-to-assess-the-effectiveness-of-structured-teaching-plan-on-text-neck-syndrome-among-adolescents-of-sree-narayana-gurukulam-higher-secondary-school-chempazhanthy-sreekaryam-thiruvananthapuram/OTkxMA==/?is=1&b1=197&k=50

18. Kurane SC, Sakate SS. A study to assess the effectiveness of planned teaching programme on knowledge regarding text neck syndrome among students at selected colleges of sangli, miraj, kupwad corporation area. research gate. 2023. Available from: https://www.researchgate.net/publication/371445246_A_STUDY_TO_ASSESS_THE_EFFECTIVENESS_OF_PLANNED_TEACHING_PROGRAMME_ON_KNOWLEDGE_REGARDING_TEXT_NECK_SYNDROME_AMONGSTUDENTS_AT_SELECTED_COLLEGES_OF_SANGLI_MIRAJ_KUPWAD_CORPORATION_AREA

19. Mengnia N, Barman B. A Study to Assess the Effectiveness of Structured Teaching Program on Knowledge Regarding Text Neck Syndrome Among Students in Selected Nursing Colleges of Guwahati, Assam. 2019. Available from: https://ijcrt.org/papers/IJCRT21X0307.pdf

20. Pinto A, S Rekha, J Evangelin. A Study to assess the effectiveness of Structured teaching programme on knowledge regarding Text Neck Syndrome among young adults. Asian Journal of Nursing Education and Research. 2021 Jul 1;311–6.