International Journal of Community Medicine and Public Health
Mali NB et al. Int J Community Med Public Health. 2026 Apr;13(4):1910-1915
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20261031

Original Research Article

Prevalence of text neck syndrome among Anganwadi workers: a cross-sectional study from Chalisgaon, Maharashtra

Namrata B. Mali[1]*, Latika Ahire[2]

[1]Department of Community Physiotherapy, CMF's College of Physiotherapy, Pune, Maharashtra, India
[2]Intern, CMF's College of Physiotherapy, Pune, Maharashtra, India

Received: 03 January 2026
Accepted: 09 March 2026

***Correspondence:**
Dr. Namrata B. Mali,
E-mail: namrata.mali2995@gmail.com

ABSTRACT

Background: Anganwadi workers (AWWs) play an essential role in community health and nutrition services. Digital initiatives such as Poshan Abhiyan have led to increased smartphone use among AWWs. Prolonged smartphone use with sustained neck flexion predisposes individuals to text neck syndrome (TNS). However, limited evidence exists regarding the prevalence of TNS among Anganwadi workers. This study aimed to determine the prevalence of text neck syndrome among AWWs.
Methods: A cross-sectional observational study was conducted among 76 Anganwadi workers from the Chalisgaon-2 sector, Jalgaon district, Maharashtra. Participants aged 18-60 years with a minimum of six months of work experience were included using simple random sampling. Data were collected using the neck disability index (NDI), numerical pain rating scale (NPRS), and text neck questionnaire assessing smartphone usage patterns and neck- and shoulder-related symptoms. Descriptive statistics and correlation analysis were performed.
Results: The prevalence of text neck syndrome was 78.94%. Based on the NDI, 39.47% of participants had moderate disability and 32.89% had severe disability. Moderate pain was reported by 38.15%, while 10.52% experienced severe pain. Severe text neck symptoms were present in 56.57% of participants. A significant association was observed between daily smartphone usage duration and NDI scores, as well as between text neck questionnaire and NDI scores ($p<0.001$).
Conclusions: Text neck syndrome is highly prevalent among Anganwadi workers. Prolonged smartphone use and poor neck posture appear to be key contributing factors, emphasizing the need for ergonomic education and preventive interventions.

Keywords: Anganwadi workers, Neck disability index, Smartphone use, Text neck syndrome

INTRODUCTION

Anganwadi workers (AWWs) constitute the backbone of India's community-based health and nutrition delivery system. As frontline functionaries under the integrated child development services (ICDS) scheme, they play a pivotal role in providing supplementary nutrition, growth monitoring, immunization support, health education, and preschool education at the grassroots level, directly influencing maternal and child health outcomes, particularly in rural and semi-urban populations.[1]

In recent years, the scope of responsibilities of Anganwadi workers has expanded considerably with the introduction of digital health initiatives aimed at strengthening service delivery and monitoring. Under national programs such as Poshan Abhiyan, Anganwadi workers have been technologically empowered through the provision of smartphones for real-time data collection, record maintenance, reporting, and communication.[2] While digitalization has enhanced efficiency and accountability, it has also substantially increased daily screen time among Anganwadi workers.[3,4]

Prolonged smartphone use, often performed in suboptimal postures and without adequate ergonomic support, exposes Anganwadi workers to emerging occupational health problems, particularly musculoskeletal disorders of the cervical spine.[4] One such condition is text neck syndrome (TNS), a modern-day musculoskeletal disorder characterized by neck pain, stiffness, and functional disability resulting from sustained neck flexion during prolonged use of handheld electronic devices. The term "text neck" was first introduced by Dr. Dean L. Fishman to describe repetitive stress injury caused by excessive forward head posture during smartphone use.[5]

Several studies across different populations have reported a high prevalence of neck pain and disability associated with smartphone usage.[7-10] However, despite growing evidence among students and young adults, there remains a paucity of data focusing on community health workers, particularly Anganwadi workers, who represent a vulnerable occupational group due to prolonged work-related smartphone use, advancing age, and limited ergonomic awareness.[6]

Given the critical role of Anganwadi workers in public health service delivery, chronic neck pain and disability may adversely affect work efficiency, productivity, and quality of life, ultimately impacting community health services.[3,4]

Hence, the present study was undertaken to determine the prevalence of text neck syndrome among Anganwadi workers using standardized assessment tools.

METHODS

An observational cross-sectional study was conducted to determine the prevalence of text neck syndrome among Anganwadi workers. The study was carried out in Anganwadi centers of Chalisgaon-2 block, Jalgaon district, Maharashtra, India from 11th April 2025 to 9th October 2025 over a period of six months.

The study population consisted of full-time Anganwadi workers working under the integrated child development services (ICDS) programme. Sample size estimation was performed using the standard formula for descriptive studies, considering a population proportion of 0.5, a 95% confidence interval (Z=1.96), and a 10% margin of error. Based on this calculation, the minimum required sample size was 76 participants. Simple random sampling was used to recruit eligible participants.

Anganwadi workers aged 18-60 years, with a minimum work experience of six months, minimum educational qualification of 8th standard, and the ability to understand and respond to questionnaires in Marathi were included in the study. Workers willing to provide written informed consent were enrolled. Anganwadi helpers were excluded. Anganwadi helpers work as part time assistant who supports an Anganwadi workers at Anganwadi centers. Additional exclusion criteria included history of cervical spine trauma or surgery, diagnosed cervical radiculopathy, fibromyalgia, osteoporosis, systemic or connective tissue disorders, previous cervical fractures, or any other significant orthopedic condition.

Following approval from the institutional ethics committee (reference no. COP/BPTh/205A/24), eligible participants were approached and provided with detailed information regarding the study. Written informed consent was obtained prior to data collection. Data were collected using three measures. Numeric pain rating scale (NPRS) was used to measure pain intensity on a scale of 0 to 10. Neck disability index (NDI) was used to assess neck pain-related disability. The NDI consists of 10 items, each scored on a six-point scale, with total scores ranging from 0 to 50 and categorized into no, mild, moderate, severe, and complete disability. Text neck questionnaire on basis of relevant literature was used to assess duration and pattern of phone use, symptoms, relieving factors of pain. The questionnaires were administered in a language comfortable to the participants. Participants were given adequate time to complete the questionnaires, and confidentiality of responses was strictly maintained.

All completed responses were checked for completeness and entered into Microsoft Excel for data management. Data were analysed using descriptive statistics, and results were expressed as frequencies, percentages, and measures of central tendency. The prevalence of text neck syndrome obtained with the help of NDI, NPRS, and self-designed questionnaire.

RESULTS

A total of 76 Anganwadi workers who fulfilled the selection criteria and provided informed consent were included in the study. The demographic characteristics of the participants are presented in Table 1. The mean age of the participants was 43.82±9.20 years. The average daily working duration was 4.05±1.17 hours, and the mean work experience was 15.63±8.36 years.

Pain intensity was assessed using the numerical pain rating scale. As shown in Table 2, 21.05% (n=16) of the participants reported no pain. Moderate pain (scores 4-6) was the most commonly reported category, observed in 38.15% (n=29) of the workers, followed by mild pain (scores 1-3) in 30.26% (n=23). Severe pain (scores 7-10) was reported by 10.52% (n=8) of the participants.

Table 1: Demographic characteristics of 76 Anganwadi workers.

Demographic characteristics	Categories	Number of participants	Percentage
Total participants		76	100
Age (in years)	20-30	7	9.2
	31-40	21	27.6
	41-50	29	38.2
	51-60	19	25.0
Work experience (in years)	0-10	23	30.3
	11-20	21	27.6
	>20	32	42.1
Daily working (in hours)	2-3	31	40.8
	4-5	35	46.0
	>5	10	13.2

Table 2: Numerical pain rating scale analysis of 76 Anganwadi workers.

Pain intensity	No. of workers	Percentage
No pain (0)	16	21.05
Mild pain (1-3)	23	30.26
Moderate pain (4-6)	29	38.15
Severe pain (7-10)	8	10.52
Total	76	100

The prevalence of text neck syndrome was evaluated using the neck disability index. The overall prevalence was 78.94% with a 95% confidence interval of 68.50% to 86.60%. Based on neck disability index categorization, 21.05% of participants had no disability, 3.94% had mild disability, 39.47% had moderate disability, 32.89% had severe disability, and 2.63% had complete disability, as shown in Table 3 and Figure 1.

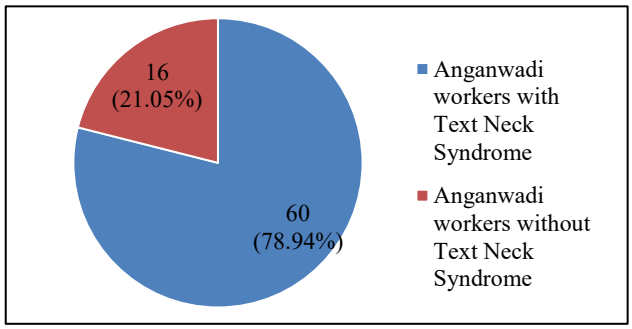

Figure 1: Prevalence of text neck syndrome among Anganwadi workers.

Table 3: Neck disability index analysis of 76 Anganwadi workers.

NDI score range	Disability level	Number of workers	Percentage
0-4	No disability	16	21.05
5--14	Mild disability	3	3.94
15-24	Moderate disability	30	39.47
25-34	Severe disability	25	32.89
35-50	Complete disability	2	2.63
Total		76	100

Table 4: Text neck syndrome questionnaire analysis of Anganwadi workers.

Text neck syndrome category	No. of workers	Percentage
Mild (0-10)	15	19.73
Moderate (11-20)	18	23.68
Severe (21-40)	43	56.57
Total	76	100

Text neck related symptoms were further assessed using the text neck questionnaire. Participants were categorized as having mild, moderate, or severe symptoms. Severe symptoms were reported by 56.57% (n=43) of participants, while 23.68% (n=18) reported moderate symptoms and 19.73% (n=15) reported mild symptoms, as presented in Table 4.

The association between daily smartphone working hours and neck disability was evaluated using Pearson's correlation analysis and the Chi-square test. A moderate positive correlation was observed between smartphone usage duration and neck disability index scores, which was statistically significant ($p<0.0001$). The Chi-square

test demonstrated a significant association between smartphone usage duration categories and severity of neck disability (χ^2=17.09, df=8, p=0.0292), as shown in Table 5 and Figure 2.

The relationship between text neck questionnaire and neck disability index was analyzed to assess the association between symptom severity and functional disability. A highly significant association was observed between the two measures (χ^2=88.82, df=8, p<0.0001). All participants with mild text neck questionnaire scores demonstrated no disability. Among participants with severe text neck questionnaire scores, the majority exhibited severe disability, with a small proportion reporting complete disability. Participants with moderate text neck questionnaire scores most commonly exhibited moderate disability (Table 6) (Figure 3).

Table 5: Association between smartphone working hours and text neck syndrome.

Working hours	Positive text neck syndrome	Total participants	Chi-square value	P value
2-3 hours	14	25		
4-5 hours	36	41	χ^2=12.5227 df=8	p<0.0019
>5 hours	10	10		
Total	60	76		

Table 6: Relationship between TNQ and NDI scores.

TNQ score	No disability (0-4)	Mild disability (5-14)	Moderate disability (15-24)	Severe disability (25-34)	Complete disability (35-50)	Total	Chi-square value	P value
Mild (0-10)	15	0	0	0	0	15		
Moderate (11-20)	1	2	14	1	0	18	χ^2=88.82 Df= 8	p<0.0001
Severe (21-40)	0	1	16	24	2	43		
Total	16	3	30	25	2	76		

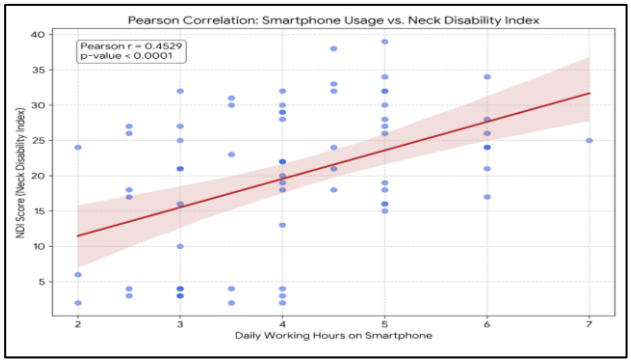

Figure 2: Association between daily smartphone working hours and NDI.

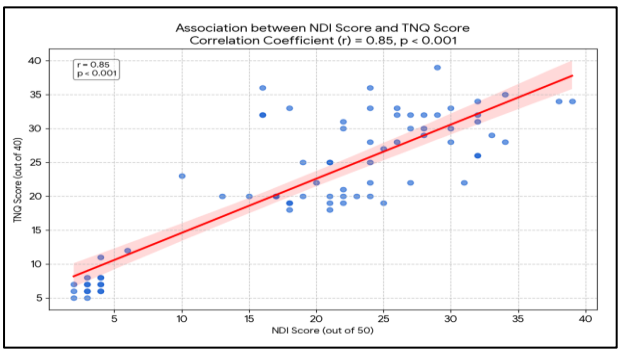

Figure 3: Association between text neck questionnaire and NDI.

DISCUSSION

The present study assessed the prevalence of text neck syndrome among Anganwadi workers and found a high prevalence (78.94%), indicating that neck-related musculoskeletal disorders are highly prevalent in this occupational group. The findings highlight text neck syndrome as an emerging occupational health concern among Anganwadi workers.

The high prevalence observed can be attributed to the increasing reliance on smartphones for occupational tasks following digitalization initiatives such as Poshan Abhiyan.[2] Smartphones are extensively used for data entry, reporting, and monitoring, resulting in prolonged screen time and sustained neck flexion.[3,4] Previous studies have similarly highlighted the dual role of digital tools in improving efficiency while increasing physical strain among Anganwadi workers.[3,4]

In the present study, the majority of participants demonstrated moderate to severe neck disability based on the neck disability index. These findings are consistent with earlier studies conducted among students and young adults, where prolonged smartphone use was significantly associated with neck pain and disability.[7-9] Kumari et al reported comparable levels of neck pain severity, reinforcing the relationship between sustained cervical flexion and musculoskeletal dysfunction.[5]

Pain assessment using the numerical pain rating scale revealed that a substantial proportion of Anganwadi workers experienced moderate to severe pain, which may negatively impact functional capacity and work performance. Similar associations between smartphone usage duration and pain severity have been reported in previous studies.[8,9]

A significant association was observed between daily smartphone working hours and neck disability, indicating that increased duration of smartphone use contributes to worsening symptoms. This finding aligns with existing literature that identifies duration of use and poor posture as major risk factors for text neck syndrome.[5,8]

Additionally, a strong association between symptom severity and functional disability was observed using the text neck questionnaire and neck disability index. awareness studies have shown that limited knowledge regarding correct posture and preventive strategies further exacerbates the condition.[6] Poor ergonomic conditions and lack of postural education among Anganwadi workers may explain the higher prevalence observed in this study.[3,4]

Overall, the findings of the present study are consistent with existing literature and emphasize the need for ergonomic interventions, posture correction training, and preventive physiotherapy strategies to reduce the burden of text neck syndrome among Anganwadi workers.[5,7-10]

The study was conducted in a single block with a relatively small sample size, which may limit the generalization of the findings. Objective assessment of posture, cervical range of motion, and ergonomic factors was not performed. Other potential confounding factors such as physical activity level and psychosocial stress were not assessed.

Future scope

Further studies with larger sample sizes are recommended to enhance external validity. Longitudinal and interventional studies are needed to establish causality and to evaluate the effectiveness of ergonomic education, posture correction, and physiotherapy-based preventive programs.

CONCLUSION

The present study demonstrates a high prevalence of text neck syndrome among Anganwadi workers, with most participants experiencing moderate to severe neck disability. Prolonged smartphone use related to occupational duties was significantly associated with increased neck pain and disability. These findings indicate that text neck syndrome is an important occupational health issue among Anganwadi workers and need of early identification and preventive strategies to reduce musculoskeletal morbidity and improve work efficiency.

ACKNOWLEDGEMENTS

Author would like to thank the department of community physiotherapy for their constant support and guidance throughout the research. They would like to extend their thanks to scientific research committee and institutional ethics committee for permitting the current study and the Anganwadi workers who participated in the study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee (reference no. COP/BPTh/205A/24)

REFERENCES

1. Target Study. Role of Anganwadis in early schooling of rural children. Target Study. Available from: https://targetstudy.com/articles/role-of-anganwadis-in-early-schooling-of-ruralchildren.html. Accessed on 7 November 2025.
2. Press Information Bureau, Government of India. Make in India: Smartphones and tablets for Anganwadi workers. PIB. Available from: https://www.pib.gov.in/PressReleseDetailm.aspx?PRID=1806598&reg=3&lang=2. Accessed on 7 November 2025.
3. Bajpai N, Sharma A. How can smartphones bring about a developmental breakthrough in school education? ICT India Working Paper No. 71. New York: Center for Sustainable Development, Earth Institute, Columbia University; 2022. Available from: https://csd.columbia.edu/sites/default/files/content/docs/ICT%20India/Papers/ICT_India_Working_Paper_71.pdf. Accessed on 7 November 2025.
4. Kumari S, Kumar R, Sharma D. Counting to be counted: Anganwadi workers and digital infrastructures of ambivalent care. Indian J Labour Econ. 2022;65(Suppl 1):1-15.
5. Kumari S, Kumar R, Sharma D. Text neck syndrome: the pain of modern era. Int J Physiother Res. 2021;11(11):1-6.
6. Athavale PP, Shyam A, Sancheti P. Awareness of text neck syndrome in young adult population. Int J Med Allied Sci. 2018;5(8):1-6.
7. Kamaraj N, Rajasekar VD, Rangasamy S. Prevalence of text neck syndrome among undergraduate medical students in Puducherry. Int J Community Med Public Health. 2022;9(7):2919-22.
8. Alsiwed T, Alsarwani RM, Alshaikh SA, Howaidi RA, Aljahdali AJ, Bassi MM. Prevalence of text neck syndrome and its association with smartphone use among medical students. J Musculoskelet Surg Res. 2021;5(3):168-74.

9. Shivani SP, Tamboli AA. Prevalence of text neck syndrome in young adult population. Int J Med Allied Sci. 2020;6(2):749-59.
10. Gracias AL, Saharan AK, Sunil KM. Prevalence of neck disability due to text neck in the population of Goa: a survey. Int J Dev Res. 2019;9(2):25789-93.

Cite this article as: Mali NB, Ahire L. Prevalence of text neck syndrome among Anganwadi workers: a cross-sectional study from Chalisgaon, Maharashtra. Int J Community Med Public Health 2026;13:1910-5.