Original Research

Assessing the Prevalence of Neck Pain in Junior College Teachers

Humaira Jasnak[1], Roopa Rao[2]

[1]Student, [2]Associate Professor, Department of Community Resource Management, College of Home Science Nirmala Niketan, (Affiliated to the University of Mumbai), Mumbai, Maharashtra, India.

How to cite this article: Humaira Jasnak, Roopa Rao. Assessing the Prevalence of Neck Pain in Junior College Teachers. Indian Journal of Public Health Research and Development / Vol. 16 No. 3, July-September 2025.

Abstract

This study examines the relationship between posture and neck pain among junior college teachers in Mumbai city and Thane district, exploring how prolonged standing, classroom dynamics, and unique occupational demands contribute to neck strain. Despite perceptions of high mobility, junior college teachers often perform repetitive tasks and maintain sustained postures, such as prolonged standing, frequent neck movements while engaging students, and extended periods of looking up to write on boards. Additionally, administrative duties, grading, and lesson planning increasingly involve computer use, which, combined with limited ergonomic support, can exacerbate musculoskeletal discomfort, particularly neck pain.

Junior college teachers were chosen due to their distinct role within education sector. Compared to senior college faculty, they often have heavier teaching loads, limited professional development support, and fewer ergonomic resources, increasing their physical strain. Their classroom settings differ significantly from those of both school teachers, who may teach younger students with different setups, and senior college faculty, who typically have better ergonomic facilities.

The study's objectives are to: (i) profile the demographics of junior college teachers, (ii) assess the prevalence and severity of neck pain among them, (iii) analyze the link between teaching duration and neck pain symptoms, and (iv) recommend ergonomic solutions to address these occupational health concerns. A random sample of 200 educators, each with at least one year of teaching experience, was surveyed using methods including observations, structured interviews, and the Cornell Musculoskeletal Discomfort Questionnaire to assess posture and discomfort levels. This research fills a critical gap in ergonomic studies for this specific educator group, offering practical interventions to improve their health and teaching effectiveness, thereby fostering a supportive teaching environment.

Keywords: Junior college teachers, neck pain, discomfort, ergonomics, occupational health

Introduction

In today's educational landscape, junior college teachers face unique challenges that often lead to physical strain, as highlighted by recent empirical investigations. Studies reveal a significant prevalence of neck pain among educators, with a substantial portion reporting discomfort that directly

Corresponding Author: Humaira Jasnak, Student, Department of Community Resource Management, College of Home Science Nirmala Niketan, (Affiliated to the University of Mumbai), Mumbai, Maharashtra, India.

E-mail: humairajasnak17@gmail.com

Submission date: August 10, 2024 **Revision date:** Nov 16, 2024 **Published date: June 7,2025**

impacts their work performance[1][2]For instance, research shows that teachers frequently experience musculoskeletal discomfort, including neck and lower back pain, due to prolonged periods of standing, repetitive movements, and poor ergonomic conditions within classrooms. A study reported that approximately 53% of teachers in their sample experienced neck pain, attributing it to factors such as inadequate furniture, poor posture, and extended hours of computer use[3]. Similarly, Yue, Liu, and Li (2012) found that nearly 45% of teachers reported neck and shoulder pain, often linked to the demands of their teaching roles and insufficient workplace ergonomics[4]

Despite these findings, there is a notable gap in the literature specifically focusing on junior college educators. Most existing studies center around primary and secondary school teachers, leaving a research void in understanding how occupational demands impact junior college teachers, particularly about neck pain. Given that junior college teachers often engage in prolonged periods of lecturing, administrative work, and assessment tasks, this study aims to fill this gap by investigating the prevalence and contributing factors of neck pain within this demographic.

Addressing posture-related issues among educators is imperative for promoting their occupational health and well-being, ultimately enhancing their ability to fulfill their professional responsibilities effectively[5] Occupational health and safety encompass measures aimed at ensuring the physical, mental, and emotional well-being of workers, reducing the risk of injuries, illnesses, and other hazards. The implementation of comprehensive occupational health and safety protocols is vital for fostering a safe and conducive work environment, promoting productivity, and safeguarding the welfare of employees.

This study underscores the importance of ergonomics and occupational health and safety measures as potent solutions to mitigate neck pain among junior college teachers[6]. By incorporating ergonomic principles, such as optimizing workstation design, providing adjustable furniture, and promoting proper posture through training and awareness programs, educational institutions can significantly reduce strain on teachers' necks during teaching and administrative tasks. Additionally, integrating occupational health and safety protocols that prioritize regular breaks, ergonomic assessments, and access to healthcare resources can facilitate early detection and intervention for neck pain, thereby promoting a healthier and more supportive teaching environment conducive to overall well-being and professional efficacy[7].

This research is justified by the evident gap in existing studies that explore neck pain prevalence and its occupational implications specifically among junior college educators. By addressing this gap, the study aims to provide insights into the unique needs of this demographic, ultimately supporting the development of targeted interventions that promote teachers' occupational health and enhance their professional performance.

Aim and Specific Objectives

The study aims to assess the prevalence of the problem of neck pain experienced by junior college teachers with specific objectives being to (i) analyse the demographic profile of junior college teachers in Mumbai and Thane districts of Maharashtra; (ii) assess the prevalence and severity of neck pain among junior college teachers; and (iii) propose actionable recommendations for ergonomic interventions to revolutionize occupational health concerns in junior colleges.

Methodology

The study was conducted in two districts (Mumbai and Thane) of Maharashtra state. 200 junior college teachers were selected randomly from 25 colleges. The chosen sample reflected the diversity of Junior college teacher population thereby enhancing the reliability and validity of the research results. The inclusion criteria for the study were junior college teachers with a minimum work experience of 1 year, and the willingness of the teachers to participate in the research. The exclusion criteria encompassed non-teaching staff, administrative staff, and teachers who refused to sign the informed consent or be interviewed. The main tool of data collection involved a self-constructed questionnaire and one-on-one interview

(20-25 mins each). The data collection process involved observation and interview methods. Each participant provided informed consent before participation in the study. The consent form was personally signed by all respondents after they were fully informed about the study's objectives, the nature of their participation, and how the data would be used. This process ensured that participants were aware of their rights and that their involvement was entirely voluntary. The Cornell Musculoskeletal Discomfort Questionnaire assessed discomfort, and photographs were taken to analyze teachers' working postures. For data analysis, statistical techniques and functions were employed to analyze the data, then interpret results and draw meaningful conclusions.

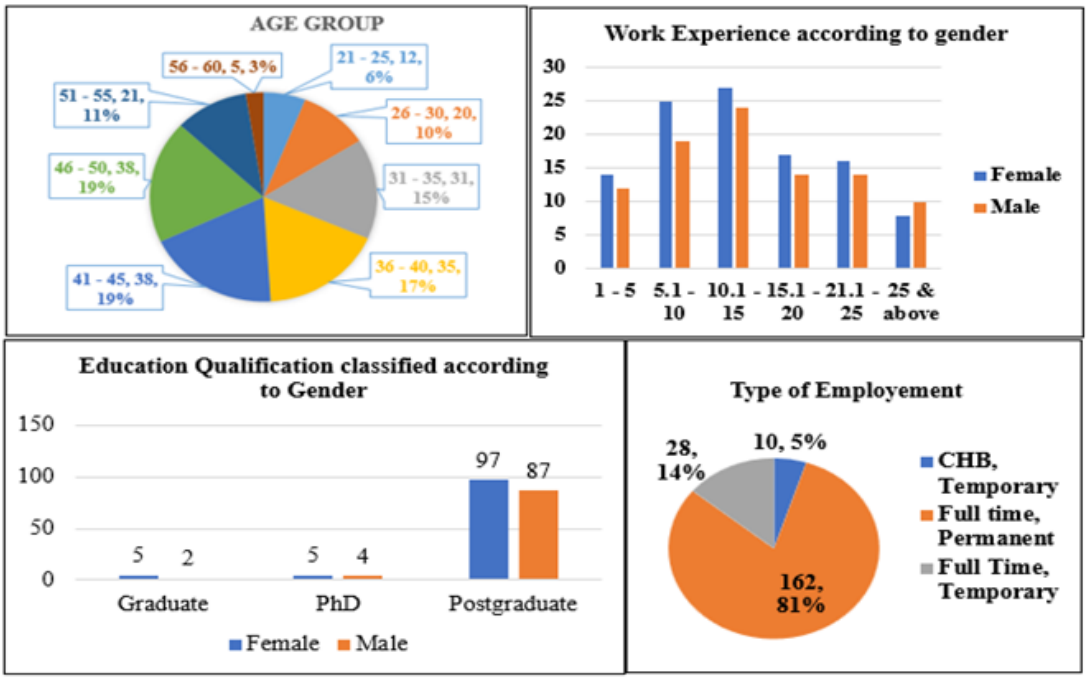

Fig 1: Demographic profile of Sample

Results and Discussion

Sample Profile: The average age of the sample is 40.6 years. Understanding the demographic profile of junior college teachers is crucial for gaining insights into the various factors that may influence their occupational health. The average age of the sample is 40.6 years. 51(25%) have a work experience of 10-15 years. 168(84%) are assistant teachers. 93 (47%) are males while 53 (26.5%) are females.

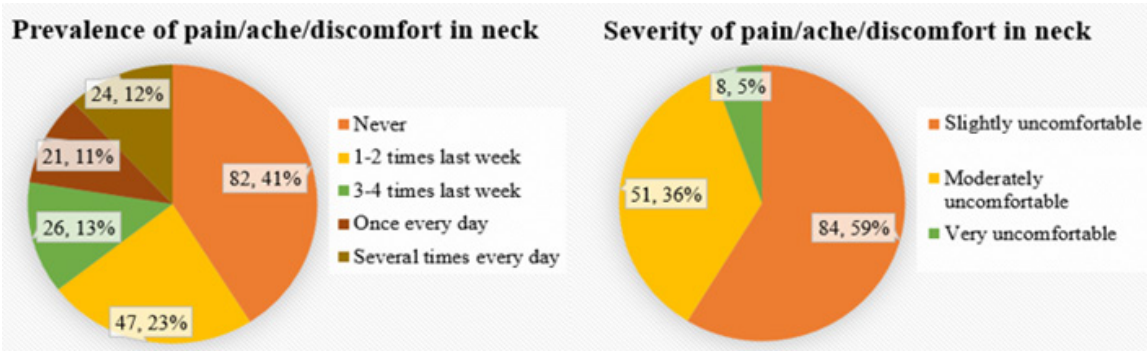

Fig 2: Prevalence and Severity of neck pain

Prevalence and severity of neck pain: Out of 200, 118 (59%) experience neck pain.

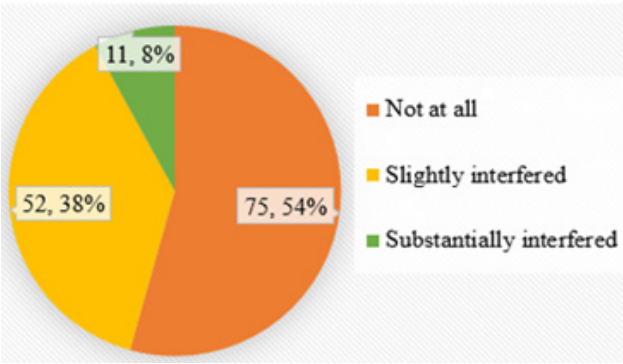

Fig 3: Interference of neck pain/ache/discomfort in neck with work

Interference of neck pain with teaching: The prevalence of neck pain among junior college teachers indicates a significant impact on their work efficacy. Among 118(59%) who complained of neck pain 63 (53%) (52 moderately and 11 severely) stated that it significantly affected their efficiency of work.

Table 1: Work/Tasks that contribute to the pain/ache/discomfort in the neck

Work task	No. of teachers	
	f	%
Administrative work	2	1
Continuous neck movement during frequent lectures	67	33.5
Continuously looking up while writing on the board	27	13.5
Extra-curricular activities	5	2.5
Long hours of working on the computer	37	18.5
Paper assessment	41	20.5

- **Frequent Lectures with Continuous Neck Movement** requires teachers to constantly move their necks as they engage with students, look around the classroom, and shift between their teaching materials and the class. This repetitive motion strains the neck muscles due to continuous movement and sustained head positions, leading to muscle fatigue and discomfort.
- **Looking Up While Writing on the Board** necessitates a prolonged upward gaze, which can compress certain muscles in the neck and shoulders. Holding this position for extended periods puts stress on the cervical spine and upper back, leading to muscle strain and tension. This movement is particularly taxing because the neck is held in a hyperextended position.
- **Paper Assessment** usually involves a downward gaze as teachers look down at papers for long periods. This forward neck flexion strains the muscles and ligaments in the neck and shoulders, especially in the upper trapezius area, leading to stiffness and pain.
- **Long Hours on the Computer** involves a forward head posture, where teachers may lean their heads toward the screen, which is an additional stress on the neck and upper back. This posture, often maintained for extended durations, contributes to tension in the neck muscles.
- **Administrative Work (1%) and Extra-curricular Activities (2.5%)** though are less commonly associated with neck pain, they still involve movements that can contribute to discomfort. Administrative tasks may require repetitive or prolonged neck motions, such as switching between paperwork and screens, while extra-curricular activities could involve unexpected physical tasks that impact the neck.

The main movements causing neck pain include repetitive head-turning, extended upward gaze, forward head posture, and prolonged forward neck flexion. These repetitive or sustained positions during common teaching tasks lead to muscle strain, fatigue, and discomfort, which are significant contributors to neck pain among junior college teachers. Addressing these ergonomic issues is essential to minimize strain and improve teachers' occupational health and comfort. These findings underscore the diverse work-related challenges teachers face, necessitating attention to ergonomic solutions and workplace practices to mitigate discomfort. Top of Form Bank clerks[7]also displayed similar symptoms and the reasons for the prevalence of neck pain in junior college teachers:

1. Prolonged sitting at a desk due to the very nature of their work, preparing lessons, grading papers, making presentations for lectures, etc. Prolonged sitting can lead to poor posture and strain on neck and shoulder muscles.

2. The need for time-bound completion of tasks coupled with several administrative works makes teaching a strenuous profession. Stress can cause muscle tension in the neck and shoulder leading to pain and discomfort.
3. Repetitive work such as working on computers, writing on blackboards, meeting curriculum requirements, and addressing student needs requires repetitive movements putting considerable strain on neck and shoulder muscles over time.
4. Irregular or no breaks during work hours lead to prolonged periods of static posture. This again is a cause for neck and shoulder pain/discomfort.

Strategies adopted to avoid pain/ache/ discomfort: Table 2 emphasizes the strategies adopted by Junior College teachers to cope with pain/aches/ discomfort in the neck

- A shockingly significant portion of 85(42.5%) of junior college teachers are choosing to endure pain rather than addressing its underlying causes. Ignoring pain can lead to worsening symptoms over time.
- While exercise and massage can provide temporary relief to 40 (20%) from neck pain, relying solely on these methods may not address the root cause of the discomfort. Without addressing ergonomic factors such as poor posture or repetitive strain, the pain is likely to persist or recur. However, it's positive that some teachers are engaging in proactive self-care practices.
- 40 (20%) take medicines or apply ointments which are /are not prescribed by doctors. Depending on the type of pain and its severity, taking over-the-counter medications or applying ointments may provide short-term relief. However, it's concerning if teachers are self-medicating without consulting healthcare professionals, as this can mask symptoms without addressing the underlying issues. Teachers need to seek medical advice for persistent or severe pain
- Only 16 (8%) of teachers are actively making changes to their posture as a strategy to alleviate neck pain. This suggests a need for greater awareness about the importance of ergonomic practices and how simple adjustments to posture and workspace setup can help prevent and alleviate discomfort.

Table 2: Strategies adopted to cope with pain/ache/ discomfort in the neck

Strategies adopted	No. of teachers	
	f	%
Change in posture	16	8
Exercise and massaging	40	20
Ignore and bear the pain	85	42.5
Take medicines or apply ointment	40	20
Take small rest breaks	18	9

Awareness of ergonomic practices to minimize pain/ache/discomfort: 188 (94%) of junior college teachers are not aware of ergonomics and only 12 (%) know ergonomic interventions to prevent pain/discomfort. Ergonomics is a crucial aspect of occupational health, particularly for individuals who spend long hours performing tasks that involve repetitive movements or prolonged periods of sitting. In the context of teaching, ergonomics involves optimizing the teaching environment, equipment, and teaching methods to minimize the risk of musculoskeletal disorders, discomfort, and fatigue. Without proper ergonomic support, teachers may experience a range of physical ailments, including back pain, neck strain, carpal tunnel syndrome, and eye strain. These issues can not only cause discomfort but also lead to decreased productivity, absenteeism, and a range of long-term health problems, including chronic musculoskeletal disorders, cervical spondylosis, frozen shoulder, tennis elbow, trapezius and potentially degenerative conditions such as osteoarthritis[1]. By increasing awareness, providing education, and implementing ergonomic interventions, educational institutions can support the well-being of their teaching staff and create healthier and more sustainable teaching environments.

Junior college teachers often spend long hours sitting at desks or in front of computers while preparing lessons, grading papers, or conducting administrative tasks. Maintaining poor posture during these activities can strain the neck muscles. Repetitive tasks such as writing on the board can lead to muscle

fatigue and tension in the neck contributing to pain. Teachers often have busy schedules with limited time for breaks; without adequate opportunities to rest, they may experience persistent pain that interferes with their ability to focus and perform their duties. Additionally, Junior college teachers may not have access to ergonomic furniture or equipment designed to support proper posture and reduce strain on the neck. Without adequate support, teachers are more susceptible to developing musculoskeletal issues that affect their ability to work effectively.

Recommendations based on the results of the Study:

There is currently limited literature specifically addressing ergonomic practices supported by institutions for junior college teachers to alleviate neck pain or related musculoskeletal issues. While there are general studies on ergonomic interventions in office settings and other work environments, targeted research focusing on ergonomic practices in educational settings, particularly for junior college educators, is scarce. Due to this lack of specific studies, there are no established or widely recognized recommendations tailored to the unique needs and challenges faced by teachers in preventing neck pain. The absence of such research underscores the need for further studies in this area to identify effective ergonomic interventions and develop evidence-based guidelines that can be implemented by educational institutions to support teachers' physical well-being.

To address the discomfort issues among Junior College teachers' various stakeholder involvement is essential:

A. Educational Institutes: Educational institutions should also play a role in supporting ergonomic practices by providing resources and training opportunities for teachers, such as workshops or seminars on ergonomic best practices, access to ergonomic assessments for teaching environments, and support for purchasing ergonomic furniture and equipment. They can:

- Plan Ergonomic training sessions for teachers to maintain good posture during teaching and administrative tasks.
- Invest in adjustable furniture and ergonomic accessories such as chairs with lumber support and adjustable desks to promote comfort and reduce neck stress.
- Conduct regular ergonomic assessments to identify and address potential risk factors contributing to neck pain.
- Make and implement policies that encourage regular breaks and movement during teaching hours to alleviate prolonged static posture.

By reducing the incidence of work-related injuries and promoting teacher well-being, institutions can enhance teacher retention and improve student outcomes. By integrating these comprehensive strategies, educational institutions can create an environment that not only supports effective teaching but also prioritizes the well-being of educators, who play a vital role in shaping the future of India.

B. Government Authorities and Policy Makers:

- Develop and enforce regulations mandating ergonomic standards in educational institutions to ensure the provision of an ergonomic work environment for teachers.
- Allocate funding for research and initiatives aimed at addressing musculoskeletal health issues among junior college educators.
- Collaborate with educational institutions and health care professionals to develop guidelines and best practices for preventing and managing neck pain in the teaching profession.

C. Individual teachers:

- Practice regular neck stretches and exercises to improve flexibility and reduce muscle tension
- Adjust workstation setups to maintain neutral neck postures while teaching, grading papers, or any desk work
- Take frequent short breaks to rest and stretch neck muscles during long periods of teaching or administrative tasks
- Medical treatment and advice for persistent or severe neck pain to prevent aggregating of symptoms and promote early recovery

By educating teachers about the principles of ergonomics and the importance of maintaining good posture and ergonomic practices, institutions can empower teachers to take proactive steps to protect their health and well-being.

Scope of the study:

This holistic approach prioritizes the physical well-being of junior college educators as a paramount concern. Understanding and addressing the prevalent challenge of neck pain among these educators is essential for fostering a healthy and conducive teaching environment. By recognizing the interconnectedness of teacher well-being and educational outcomes, the study advocates for targeted interventions that encompass ergonomic improvements tailored specifically for junior college teachers. The overarching goal of this research is to contribute valuable insights that will inform and guide the implementation of effective strategies to alleviate neck pain and promote overall well-being among educators. In addition to ergonomic improvements, the research underscores the importance of addressing broader organizational factors that contribute to teacher stress and discomfort. Furthermore, the study emphasizes the role of education and awareness-building through ergonomic workshops tailored to the needs of junior college teachers. These workshops will not only educate teachers about ergonomic best practices but also convey the importance of ergonomics in promoting health, comfort, and productivity in the workplace.

Based on the results further studies could explore the effectiveness of specific ergonomic interventions or workplace wellness programs tailored to the needs of junior college teachers. Researchers could investigate the impact of ergonomic furniture designs and workstation modifications on reducing neck pain and improving overall musculoskeletal health among educators. By delving into the specific challenges faced by junior college teachers and proposing evidence-based solutions, this study ultimately aims to catalyse positive change within the educational landscape of India.

Author Statements:

Acknowledgment: The researchers express their sincere gratitude to the junior college institutes and teachers for their valuable contributions to this research study.

Informed Consent: Before their participation, all participants provided written informed consent, demonstrating their understanding of the study's objectives, procedures, and potential risks.

Conflict of Interest: The authors disclose that they have no conflicting interests that could potentially influence the objectivity or integrity of the research conducted.

Funding: This study did not receive any financial grants or support from either governmental or non-governmental funding agencies.

References:

1. K. P. a. R. R. Falguni, "Assessment of Workplace Environment of BPO Employees.," *International Journal of Research and Analytical Reviews (IJRAR,* pp. 6 - 10, 2023.
2. Z. M. P. B. Damayanti S, "Occurrence of Work-Related Musculoskeletal Disorders among School Teachers in Eastern and Northeastern Part of India.," *IJMPP 2017; 2 (1),* pp. 187-192, 2017.
3. P. N. E. Derek R. Smith, "The Prevalence and Risk Factors for Musculoskeletal Disorders among School Teachers in Botswana," *Occupational Medicine & Health Affairs,* 2013.
4. L. F. L. L. Yue P, "Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors.," *BMC Public Health.,* 2012 .
5. R. Rao, Introduction to Ergonomics, Mumbai: Self Published, 2018.
6. R. Rao, ""Ergonomics: The Science for Safe Living,"," in *Contemporary Research in Humanities and Social Sciences – A deep Insight*, Shimla, (1st edition). Pratibha Spandan, Shimla. [ISBN: 978-81-926194-4-6], Chapter 12, , 2015, p. 88 – 94.
7. a. R. R. Tanaya Naik, "Identifying Ergonomics Risks Factors in Bank Clerk Workstations.," *International Journal for Innovative Research in Multidisciplinary Field (IJIRMF).,* pp. 104 -110 https://www.ijirmf.com/wp, 2022.
8. S. S. D. Phadke, "Work-Related Musculoskeletal Symptoms," *International Journal of Interdisciplinary Research and Innovations,* p. 3, 2019.
9. S.-S. T. S. S. K. Zohre Moradi, "Educational intervention for the prevention of occupational neck pain: protocol of randomized trial," 2022. [Online]. Available: https://ijmpp.modares.ac.ir/article-32-56884-en.html.