

Prevalence of Cervicogenic Headache in Medical Student

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Abstract:

Background: Cervicogenic headache (CGH) is a secondary headache disorder originating from cervical spine dysfunction and is often underdiagnosed due to overlapping features with primary headaches. Given the physically and mentally demanding nature of medical education, this study aimed to assess the prevalence of CGH among medical students.

Methods: A total of 117 medical students were initially screened using three validated tools: The Cervicogenic Headache Questionnaire (CGH), the Neck Disability Index (NDI), and the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) scale. Out of these, 56 participants met the inclusion criteria for detailed evaluation.

Results: Among the 56 participants assessed, only one individual (approximately 1.78%) tested positive for CGH. The mean scores for the scales were as follows: CGH – 26.76, NDI – 8.11, and LANSS – 3.31. These values reflect low levels of cervical-related headache symptoms and associated disability in the study population.

Conclusion: The prevalence of cervicogenic headache among medical students in this study was notably low. Contrary to common assumptions, the results suggest that CGH is not a prevalent condition among this population. Factors such as academic stress, poor posture, and excessive screen time may still contribute to musculoskeletal discomfort but do not appear to result in a high rate of CGH. Thus, the hypothesis that medical students commonly suffer from CGH was not supported.

Key Words- CGH, LANSS, Neck Disability Index (NDI), FHP

I. INTRODUCTION

Cervicogenic headaches (CGH) are a distinct type of headache caused by musculoskeletal dysfunction in the upper cervical spine (C1–C3). Pain often originates in the neck and radiates to the head due to nociceptors and the trigeminocervical nucleus, which connects cervical and cranial sensory pathways. Conditions such as herniated discs, poor posture, muscle imbalances, and degenerative changes can disrupt cervical biomechanics, triggering CGH. These headaches are often misdiagnosed due to overlapping symptoms with other headache types. Common signs include neck stiffness, upper cervical joint pain, and discomfort in the posterior neck muscles. Pain signals are transmitted through trigeminal afferents to the orbital, frontal, and parietal regions of the brain. Risk factors include repetitive neck movements, sedentary habits, poor posture, previous neck trauma, and chronic cervical conditions. Accurate diagnosis is crucial, as CGH is frequently overlooked despite its distinct anatomical and physiological basis.¹

Forward head posture (FHP), marked by a decreased cranio-cervical angle, causes upper cervical extension

and lower cervical flexion. This leads to lengthened cervical extensors and occipital flexors, while cervical flexors and sub-occipital muscles become shortened—especially the latter—contributing to cranio-cervical pain and postural imbalances.²

Migraine and cervicogenic headache often share overlapping symptoms, leading to misdiagnosis in nearly 50% of cases. The convergence of cervical and trigeminal afferents in the trigeminocervical nucleus contributes to diagnostic challenges. Structural issues like herniated discs or postural imbalances can cause neck pain or referred headache in both conditions.³ Cervicogenic headache (CGH) is typically characterized by unilateral head and neck pain that starts posteriorly and radiates forward, often accompanied by neck stiffness and sometimes ipsilateral arm discomfort. Bilateral CGH may occur in individuals with occupations involving prolonged neck positions. Key diagnostic features include pain triggered by neck movements or sustained postures, cervical dysfunction found during manual examination, pain reproduction through trigger point palpation, and normal imaging findings.⁴

II. STATEMENT OF THE PROBLEM

Although cervicogenic headache (CGH) is a recognized secondary headache arising from cervical spine dysfunction, most prevalence studies have focused on the general population or individuals with specific occupational risks (e.g., office workers, athletes). Medical students, due to prolonged study hours, poor posture, high stress, and sedentary lifestyle, may be particularly vulnerable to CGH. However, limited research has specifically examined the prevalence of cervicogenic headache among medical students, particularly in the regional context. There is a need to fill this gap better to understand the burden of CGH in this population and guide preventive and therapeutic strategies.

OBJECTIVE

To identify medical students who may be susceptible to cervicogenic headache.

HYPOTHESIS

There is a significant and non-significant prevalence of cervicogenic headache among medical students.

III. METHODOLOGY

A Total of 117 subjects were included in the present study according to the inclusion and exclusion criteria. All the subjects were taken from Career Point University Kota, Rajasthan.

Study Setting- This study was observational-based and the participants were medical students in Career Point University, Kota, Rajasthan, India.

Sample Size- I have conducted a prevalence-based study, and the sample size is 56.

Sampling Method - The sampling method that is used in this study is a random sampling method.

Study Design- The study design determines the proportion of medical students who can suffer with a cervicogenic headache.

Study Duration- The duration of this study was from February 2025 to April 2025.

Data Collection – The data was collected by the Google form with the help of scales and a questionnaire.

Inclusion criteria

- Persistent, unilateral neck pain in the ipsilateral fronto-temporal region that lasts longer than three months.
- Headache exacerbated by neck movement or sustained awkward head postures.
- Less cervical range of motion, particularly in the upper cervical rotation.
- Induction of discomfort with cervical spine palpation and pressure.

Exclusion criteria

- Students who have experienced persistent migraines, neurological diseases, or other primary headache disorders in the past.
- Those who, during the previous six months, had experienced trauma or neck injuries.
- Individuals with primary headaches, such as tension-type headaches, cluster headaches, trigeminal neuralgia, and chronic paroxysmal hemicranias.
- Headache with mixed diagnoses.
- Temporomandibular disease (internal joint derangement, ankylosing spondylitis).

Instrument use

- Data collecting sheet,
- Google form

In this study, I have required the data of medical students who have suffered from neck pain. So I designed the questionnaire Google form for the above data collection. Arranging the data systematically for ease in studies. Scoring the collected data according to the cervicogenic headache questionnaire NDI scale and LANSS scale. According to the inclusion or exclusion criteria, I have analyzed the collected data. As per the analysis of collected data, the result of this study was concluded.

III. DATA ANALYSIS

The data was coded and entered into a Microsoft Excel Spreadsheet. Analysis was done using Microsoft Excel. Descriptive statistics included mean, median, mode and standard deviation.

IV. RESULT

Table 6.1 Showing score of scale

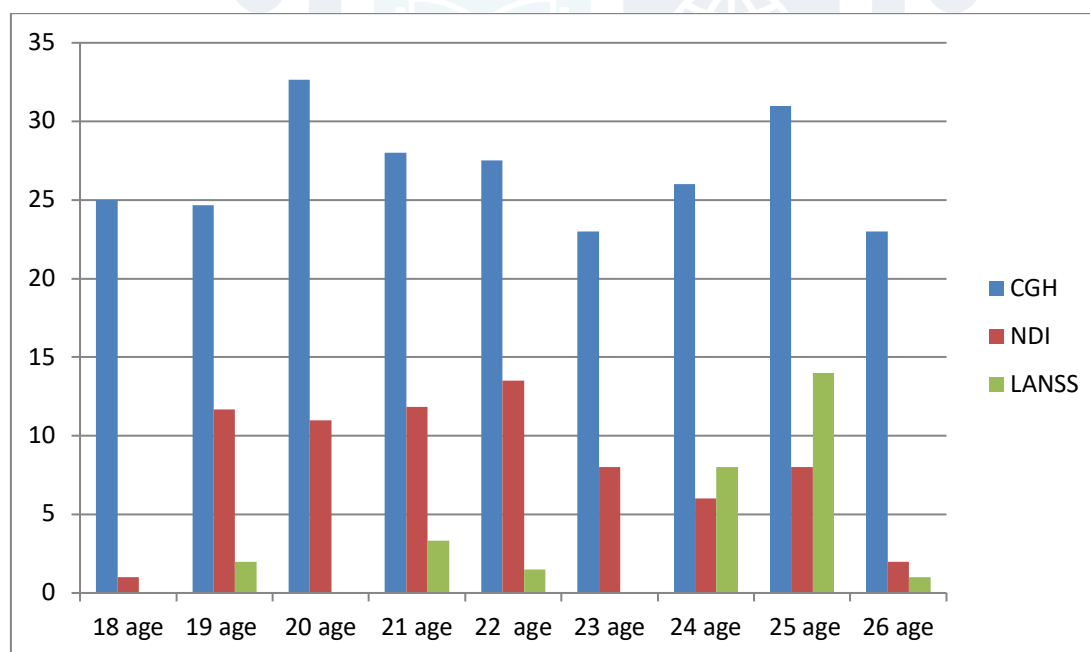
Age	CGH	NDI	LANSS
18 age	25	1	0
19 age	24.66	11.66	2
20 age	32.66	11	0
21 age	28	11.83	3.33
22 age	27.5	13.5	1.5
23 age	23	8	0
24 age	26	6	8
25 age	31	8	14
26 age	23	2	1

In this study, we utilized the Cervicogenic Headache Questionnaire, the Neck Disability Index (NDI), and the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) scale to assess the participants. A total of 117 medical students were initially screened, out of which 56 individuals met the inclusion criteria. Among these 56 participants, only one subject tested positive for cervicogenic headache, yielding a prevalence rate of approximately 1.78%. Based on this finding, it can be concluded that cervicogenic headache is not commonly prevalent among medical students. Therefore, the results of our study support the null hypothesis.

TABEL 6.2 Analysed Data

	MEAN	MEDIAN	SD	MODE
CGH	26.758	26	3.184	0
NDI	8.11	8	4.166	8
LANSS	3.314	1.5	4.466	0

Fig. Graphical representation of scoring



V. DISCUSSION

In another study, a systematic review and meta-analysis by Robinson et al. (2025) presents one of the most comprehensive evaluations to date on the prevalence and relative frequency of cervicogenic headache (CGH) in both population-based and clinical settings. The findings offer critical insights into the actual burden of CGH, a condition that has historically been underrecognized or misdiagnosed due to overlapping features with other primary headache disorders such as migraine and tension-type headache.^{5,6}

This study is similar to our study and matches our study. In a broader context, a systematic review and meta-analysis estimated the prevalence of CGH in the general population to be approximately **3.9%**, with a higher occurrence in females.^{5,7}

VI. CONCLUSION

In this study, we aimed to evaluate the prevalence of cervicogenic headache (CGH) among medical students using three validated tools: The Cervicogenic Headache Questionnaire, the Neck Disability Index (NDI), and the Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) scale. A total of 117 participants were initially screened, out of which 56 met the inclusion criteria for further evaluation. Among these 56 individuals, only one case (approximately **1.78%**) was found to be positive for cervicogenic headache.

These findings indicate a notably low prevalence of CGH among the studied population. Given the demanding nature of medical education, it is often assumed that students may experience higher rates of musculoskeletal complaints, including headaches of cervical origin. However, our results contradict this assumption, suggesting that cervicogenic headache is not commonly experienced by medical students. Thus, the hypothesis that CGH is prevalent in this group was not supported by the data, leading us to a negative conclusion in this regard.

VII. REFERENCE

- [1] Mathur, Riya & Tegh, Sukhvinder. (2024). A Cross-Sectional Study on the Prevalence of Cervicogenic Headache amongst University Students. *International Journal for Multidisciplinary Research*. Volume6. 10.36948/ijfmr2024.v06i04.24465.
- [2] A Cross-Sectional Study. *J Clin Med*. 2021 Jan 5;10(1):159. doi: 10.3390/jcm10010159. PMID: 33466533; PMCID: PMC7796513.
- [3] Anarte-Lazo E, Carvalho GF, Schwarz A, Luedtke K, Falla D. Differentiating migraine, cervicogenic headache and asymptomatic individuals based on physical examination findings: a systematic review and meta-analysis. *BMC Musculoskelet Disord*. 2021 Sep 3;22(1):755. doi: 10.1186/s12891-021-04595-w. PMID: 34479514; PMCID: PMC8417979.
- [4] Findings: a systematic review and meta-analysis. *BMC Musculoskelet Disord*. 2021 Sep 3; 22 (1):755. doi: 10.1186/s12891-021-04595-w. PMID: 34479514; PMCID: PMC8417979.
- [5] Widhiyanto, Alwin & Munawir, Al & Prayitno, Hadi. (2017). The Effect of Duration of Smartphone Usage on Neck Pain.
- [6] Robinson et al. (2025) Prevalence and relative frequency of cervicogenic headache in population- and clinic-based studies: A systematic review and meta-analysis, *Cephalagia* 2025 Mar;45(3):3331024251322446.doi: 10.1177/03331024251322446. Epub 2025 Mar 17.
- [7] Khilji, M., Mufti, R., Shakeel, A., Ali, W., Ishfaq, H., & Bin Afsar Jan, M.(2019). Frequency of cervicogenic headache among students of Rehman Medical Institute Peshawar Khyber Pakhtunkhwa. *Rehman Journal of Health Sciences*, 1(1), 6–8. <https://doi.org/10.52442/rjhs.v1i1.7>