

Frequency of Cervicogenic Headaches symptoms among Bankers of Islamabad: A Cross-Sectional Study

Khaleel Ur Rehman¹ , Eeman Malik², Mahpara Ali²

¹Sheffield Hallam University, England, United Kingdom

²Zulfiqar Ali Bhutto Medical University, Islamabad, Pakistan

ABSTRACT

Background: Cervicogenic headache (CGH) is a secondary headache associated with disorders of the cervical spine. Poor and sustained posture, particularly during prolonged desk work and use of electronic devices, may contribute to musculoskeletal pain, reduced cervical mobility, sleep disturbances, and fatigue. Bankers are frequently exposed to these occupational risk factors. This study aimed to determine the frequency and severity of CGH symptoms among bankers working in Islamabad.

Methods: A cross-sectional descriptive study was conducted among 61 bankers aged 25–60 years working in banks in Islamabad. Participants were recruited using convenience sampling. Data were collected from July 2025 to January 2026 using the Visual Analog Scale (VAS) to assess pain intensity and the Wiley-Blackwell Cervicogenic Headache Diagnostic Criteria Questionnaire. The questionnaire was used to assess factors associated with CGH and was not intended as a substitute for a comprehensive clinical diagnosis. Data were analyzed using frequencies and percentages in SPSS version 23.

Results: CGH was identified in 20 of 61 participants, indicating a prevalence of 32.7%. Among those meeting the criteria for CGH, 10% reported mild pain, 65% reported moderate pain, and 25% reported severe pain. Moderate pain was therefore the most frequently reported intensity.

Conclusion: A notable proportion of bankers reported symptoms consistent with CGH, with moderate pain being the predominant severity. These findings highlight the importance of workplace ergonomics, posture awareness, and preventive strategies to reduce occupational risk factors associated with CGH among desk-based professionals.

Keywords: Bankers; Cervicogenic Headache; Ergonomics; Headache Disorders; Posture.

Received: May 07th, 2026; **Revised:** June 19th, 2026; **Accepted:** June 26th, 2026

Corresponding Email: khaleelrehman797@gmail.com

DOI: <https://doi.org/10.59564/amrj/04.03/004>

INTRODUCTION

Headaches have been experienced in about 47% of people worldwide¹. Among them, 2% to 3% of people worldwide experience cervicogenic headaches (CGH)². Clinicians from a variety of specializations and professions have been describing CGH for a long time³. According to the literature, there has been a long-standing debate about whether headaches are related to cervical symptoms⁴. In comparison, some experts consider CGH as a separate condition while others contend that it is actually a part of other headache disorders like tension-type headache and migraine⁵⁻⁶.

A CGH originates from the upper cervical vertebra due to the compression of the sensory nerves supplying the scalp⁷. A typical pattern of pain is stiffness in the muscles surrounding the neck and upper cervical vertebrae, followed by a rise in headache in the posterior scalp, and later progressing to the anterior, including diplopia, dizziness, dysphagia, drop attacks, and dysarthria^{1,8}. The fascia, disc, and soft tissue surrounding the neck are all sensitive components that might cause the CGH^{9,10}. Cluster headache and migraine are frequently misdiagnosed in patients with CGH¹¹. The head



This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0), which permits others to share, copy, redistribute, and adapt the work for non-commercial purposes, provided the original author(s) and source are credited appropriately. Further details are available on the official AMRJ Open Access policy page: <https://ojs.amrj.net/index.php/1/14>.

pain experienced by many patients with cervical spondylosis is also cervicogenic¹². Certain traits help in distinguishing CGH from other headaches, including side-locked pain, which gets worse with head movement^{13,14}.

Multiple international groups, including the International Headache Society and the Cervicogenic Headache International Study Group, proposed the diagnostic criteria for CGH¹⁵. Some of the criteria include radiographic evidence of abnormalities or diagnostic nerve blocks such as ICHD3¹⁶. Physiotherapy administration also significantly impacts the treatment of CGH¹⁷. Effective treatment options for the cervical spine include manual therapy, targeted therapeutic exercises, spinal traction, and range-of-motion exercises¹⁸. Cervical pain has multiple causes, but office employees who sit for more than 6 hours are more likely to experience it due to prolonged sitting with improper posture, reduced postural control, and increased physical and mental strain from work¹⁹.

Due to the prolonged work hours and extensive computer use in the banking industry, neck pain is commonly experienced²⁰. To promote awareness, provide interventions, and enhance educational programs, it is crucial to understand the dimensions and characteristics of CGH among computer users²¹. The issue of CGH is addressed frequently among computer users, but not specifically among bankers²⁰. The current research was carried out to fill the gap in the literature on CGH among bankers in Islamabad, as very little literature exists on this musculoskeletal problem in our country. The purpose of the research was to identify the frequency of CGH among bankers. The study will add valuable information to the understanding, prevention, and management of CGH among bankers by determining its prevalence in this population, thereby enhancing bankers' quality of life.

METHODOLOGY

The research was a descriptive cross-sectional study conducted over seven months, from July 2025 to January 2026, across various banks in Islamabad. The target population was computer-using employees. The sample comprised 61 bankers, calculated using OpenEpi software 3.0. For prevalence studies, assuming an expected prevalence of 42.4% based on a previous study

among bankers, a 95% confidence level, and a 5% margin of error, sampled through a non-probability convenience sampling method. The two instruments used were the Wiley-Blackwell Cervicogenic Headache: Diagnostic Criteria questionnaire and the Visual Analog Scale (VAS) for pain assessment. The study included bank employees of both sexes, with 91.8% male, aged 25-60 years, working more than 8 hours a day, including more than 5 hours at a computer. Participants were screened for the characteristics suggestive of CGH using the Wiley-Blackwell Cervicogenic Headache Diagnostic Criteria Questionnaire. Those who had experienced a history of traumatic injuries, neck or upper limb surgery, medical conditions (neuropathy in diabetic patients or sensory loss), and chronic diseases (rheumatoid arthritis or osteoarthritis) were excluded. The diagnostic questionnaire was used to screen the participants.

Ethical approval was obtained from the ethics committee of the Foundation of Medical and Research and Laboratories (Protocol no. FMRL-IRB/2024/028). After ethical approval was obtained, bankers from different workplaces were approached during working hours. The purpose of the study had been explained previously. Written informed consent was also obtained before data collection. Participants meeting the inclusion criteria were required to complete the questionnaire.

Data had been collected between July 2025 and January 2026. The Statistical Package for the Social Sciences (SPSS) version 23.0 was used to analyze the collected data. Frequency graphs were created for qualitative variables, and descriptive statistics were computed for quantitative variables (VAS scores>3).

RESULTS

The findings showed that 61 participants were part of the sample. The age group (25 to 60) outlined in the research was further classified as follows: (25 – 32), (33-39), (40 – 46), (47- 53), and (54-60). Of the total sample size of 61 participants, the largest share, i.e., 37.7%, fell in the age group (25-32), and the smallest share, i.e., 4.92%, fell in the age group (54-60). The total number of participants by gender is shown in Figure 1. The total numbers of male and female patients were 91.8 and 8.2, respectively, indicating a higher ratio of male patients experiencing headache.

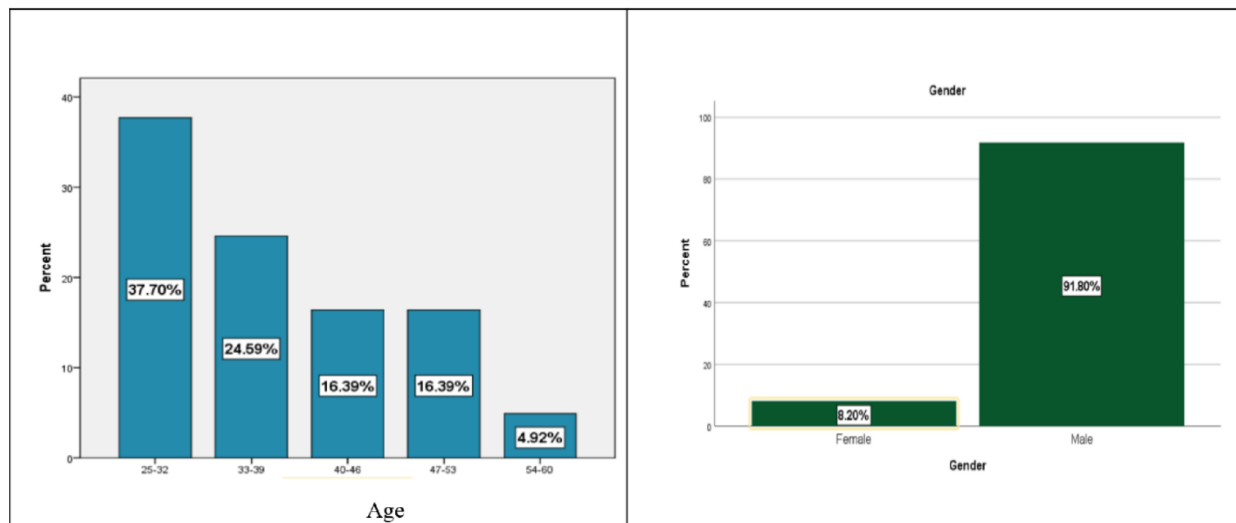


Figure 1: Demographic Variables of Participants

Table 1 presents the years of work experience and the total daily working hours of bankers in Islamabad. The work experience of bankers was assessed in four categories, ranging from 1 year to 4 years. Of 61 individuals, most bankers [n=26, 42.6%] had 1 year of work experience, whereas

at least [n=8, 13.1%] had 4 years of experience. Working hours were also assessed in three categories, ranging from 8 to 10 hours, and most bankers [n=38, 62.3%] have 9 hours of daily work; at least [n=4, 6.6%] work 10 hours.

Table 1: Working Experience and Working Hours of Bankers [N= 61]

Variable	Category	Frequency	Percent
Working Years of participants	1 year	26	42.6
	2 years	17	27.9
	3 years	10	16.4
	4 years	8	13.1
Daily working hours	8 hours	19	31.1
	9 hours	38	62.3
	10 hours	4	6.6

Figure 2a shows the distribution of pain severity among subjects who met criteria suggestive of CGH. Subjects reporting moderate pain intensity (65%), followed by severe pain (25%) and mild pain (10%).

Figure 2b shows that 20 of the 61 participants have fulfilled the criteria suggestive of CGH, yielding a prevalence of 32.7% (95% CI: 21.0%–44.6%).

Table 2 below shows the frequency distribution of the clinical characteristics of cervicogenic headache.

Factors	F (%)
1. One sided headache without side-shift	22 (36.1%)
2a. Symptoms showing the involvement of neck: Pain initiated by movement of neck/sustained awkward posture	21 (34.4 %)
2b. Involvement of neck indicating symptoms: External pressure of the posterior neck or occipital region	7 (11.5%)
2c. Symptoms and signs of neck involvement: Ipsilateral neck, shoulder, and pain in arm	14 (23%)
2d. Symptoms and signs of neck involvement: Decreased range of Motion	13 (21.3 %)
3. Pain episodes of varying duration or fluctuating continuous pain	26 (42.6%)
4. Moderate, non-excruciating pain, usually of a non-throbbing nature	28 (45.9%)
5. Pain starting in the neck, spreading to oculo-fronto-temporal areas	20 (32.8%)
6a. Various attack-related events: autonomic symptoms and signs, Nausea, vomiting, dizziness	11 (18%)
6b. Various attack-related events: autonomic symptoms and signs, Ipsilateral edema	3 (4.9%)
6c. Various attack-related events: autonomic symptoms and signs, Flushing in the peri-ocular area	22 (36.1%)
6d. Various attack-related events: autonomic symptoms and signs, Photophobia, phonophobia.	9 (14.8%)
6e. Various attack-related events: autonomic symptoms and signs, Blurred vision in the Ipsilateral eye	22 (36.1%)

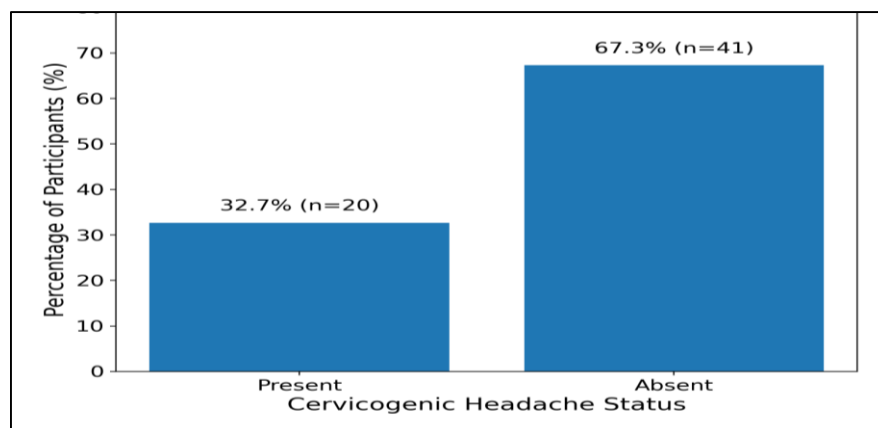


Figure 2a: Severity of Pain among Participants with Cervicogenic Headache

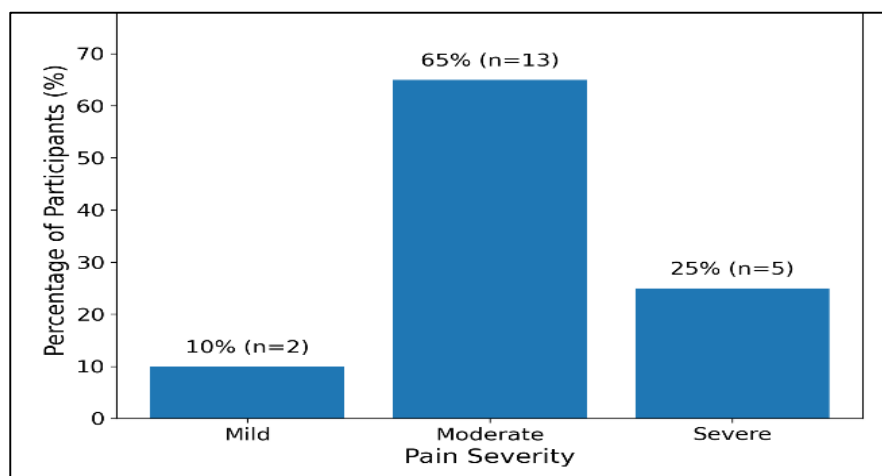


Figure 2b: Prevalence of Cervicogenic Headache among Study Participants

DISCUSSION

The results of the current study showed that CGH is prevalent among bankers working in banks in Islamabad. Current results obtained using the Visual Analog scale and the Wiley-Blackwell Cervicogenic Headache: Diagnostic Criteria indicate that CGH is present among bankers. There is evidence found regarding cervical pain among bankers due to abnormal posture, occupational hazards, and job factors that include long working hours, hectic routine, workload, age, but no such study has been found in Islamabad²².

A survey was conducted among computer users at the University of Sargodha to determine the prevalence of CGH and neck pain. Using a self-developed questionnaire distributed via email, 119 responses were collected. The findings showed that 73.1% of participants experienced pain on most days, with 58% reporting pain in the head and neck region. Additionally, 57.1% used chairs and sofas with back support, while 108 individuals attributed their pain to incorrect posture. These results indicate a growing prevalence of head and neck pain among computer users, likely due to prolonged use of laptops and computers in incorrect postures²³. A cross-sectional study was conducted to determine the prevalence of neck pain among bankers. A self-designed questionnaire was administered to 416 participants, both males and females aged 18-55 years. The bankers' work duration ranged from 8 to 12 hours per day. The study findings indicated a prevalence of 42.4% for neck pain among bankers, with 26.99% in males and 15.42% in females, reflecting the male-dominant data collection²⁴. These findings highlight the importance of addressing factors such as prolonged working hours and promoting ergonomic practices in the banking industry to reduce neck pain among bankers and improve their overall well-being. Further research is needed to explore additional contributing factors and evaluate the effectiveness of preventive measures²⁴.

Our study reported a prevalence of CGH of 32.7%, lower than that reported in the referenced study, possibly due to differences in the study population and sampling methods.

To determine the frequency and factors associated with headaches among individuals in various occupations, a cross-sectional study was conducted in four cities: Karachi, Rawalpindi, Rahim Yar Khan, and Muzaffarabad. The study

included 250 individuals aged 18-60 years from various professions, including doctors, engineers, businesspeople, executives, drivers, teachers, armed officers, laborers, and household servants²⁵. In another study conducted in 2013 by Huber et al.²⁶ titled "Reinvestigation of the Dysfunction in Neck and Shoulder Girdle Muscles as the Reason for Cervicogenic Headache among Office Workers," They conducted a comprehensive investigation to examine the association of CGH in office workers. The findings highlighted significant links between these muscular dysfunctions and the occurrence of CGH among office workers.

The research has some limitations, such as a small sample size, which can increase the risk of error; the lack of an imaging diagnostic test; and the short duration of the research, which may limit the validity of the prevalence results. Also, the number of individuals approached, declined, or excluded had not been recorded systematically, limiting the response rate. Also, the predominance of male participants (91.8%) may limit the generalizability of the findings to female bankers. Irrespective of these limitations, the research has meaningful information and can be useful to patients and physiotherapists in CGH management.

Future studies are to be done on a multi-centric, longitudinal, and cross-sectional basis with more contributing factors like depression, psychological problems, occupational hazards, and other demographic variables. In addition, CGH in female bankers who resume work after giving birth should also be investigated in the future.

CONCLUSION

The results showed that the most common related symptoms were pain episodes of varying lengths, moderate, non-throbbing pain, and neck pain extending to the oculo-fronto-temporal area, indicating that occupational posture and neck strain may be associated with the CGH.

Author Contributions

KUR: Conception and Design, Data Collection, and Supervision.

EM: Study Design, Data Analysis, and Interpretation.

MA: Literature Review, Manuscript Writing, and Critical Review.

Funding Source

No sources.

Conflict of Interest

The authors declared no conflict of interest.

Data Availability

Data will be available on request.

Ethical Approval

It was obtained from the ethical committee of Foundation of Medical and Research and laboratories (Protocol no. FMRL-IRB/2024/028).

REFERENCES

1. Al Khalili Y, Ly NK, Murphy PB. Cervicogenic Headache. [Updated 2022 Oct 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK507862/>
2. de Wijer A, de Leeuw JRJ, Steenks MH, Bosman F. Temporomandibular and cervical spine disorders: self-reported signs and symptoms. *Spine*. 1996;21(14):1638-46. doi: <https://doi.org/10.1097/00007632-199607150-00005>
3. Jin X, Zhang Q, Lin J, Sun Y, Dong Z, Jin W, et al. Minimally Invasive Interventions for Cervicogenic Headache: A Systematic Review of Targeted Anatomical Approaches and Clinical Outcomes. *J Pain Res*. 2026 Jan 8;19:549239. doi: <https://doi.org/10.2147/JPR.S549239>
4. Vicente BN, Oliveira R, Martins IP, Gil-Gouveia R. Cranial Autonomic Symptoms and Neck Pain in Differential Diagnosis of Migraine. *Diagnostics (Basel)*. 2023 Feb 5;13(4):590. doi: <https://doi.org/10.3390/diagnostics13040590>
5. Onan D, Younis S, Wellsgatnik WD, Farham F, Andruskevicius S, Abashidze A, et al. Debate: differences and similarities between tension-type headache and migraine. *J Headache Pain*. 2023 Jul 21;24(1):92. doi: <https://doi.org/10.1186/s10194-023-01614-0>
6. Pescador Ruschel MA, De Jesus O. Migraine Headache. [Updated 2024 Jul 5]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK560787/>
7. Aabrooi S, Shafique S, Javed A, Fatima A, Khan O, Riaz S. Frequency of cervicogenic headache in students due to usage of smart devices-cross sectional survey. *Pak J Rehabil*. 2022;11(2):36-41. doi: <https://doi.org/10.36283/pjr.zu.11.2/007>
8. Graff-Radford SB. Facial pain, cervical pain, and headache. *Continuum (Minneap Minn)*. 2012;18(4):869-82. doi: <https://doi.org/10.1212/01.con.0000418648.54902.42>
9. Afzal F, Atif MM, Kumar A, Rasul A, Islam A, Nadeem I. Cervicogenic headache and neck pain among computer users. *Rawal Med J*. 2020;45(2):370-2. Available from: <https://api.semanticscholar.org/CorpusID:219434371>
10. Šedý J, Rocabado M, Olate LE, Vlna M, Žižka R, et al. Neural Basis of Etiopathogenesis and Treatment of Cervicogenic Orofacial Pain. *Medicina (Kaunas)*. 2022 Sep 21;58(10):1324. doi: <https://doi.org/10.3390/medicina58101324>
11. Jain H, Pachpute S. Prevalence of Cervicogenic Headache in Computer Users. *AIJR Abstr*. 2022;56. Available from: <https://api.semanticscholar.org/CorpusID:251515250>
12. Yabuki S, Takatsuki K, Otani K, Nikaido T, Watanabe K, Kato K, et al. Headache in Patients with Cervical Spondylotic Myelopathy. *Pain Res Manag*. 2020 Sep 28;2020:8856088. doi: <https://doi.org/10.1155/2020/8856088>
13. Lefel N, van Suijlekom H, Cohen SPC, Kallewaard JW, Van Zundert J, et al. Cervicogenic headache and occipital neuralgia. *Pain Pract*. 2025 Jan;25(1):e13405. doi: <https://doi.org/10.1111/papr.13405>
14. Li J, Wu B, Wang X, Zhao L, Cui J, Liu J, Guo K, Zhang, et al. Clinical features, risk factors, and a nomogram for predicting refractory cervicogenic headache: a retrospective multivariate analysis. *Front Neurol*. 2025 Mar 24;16:1531180. doi: <https://doi.org/10.3389/fneur.2025.1531180>
15. McGough S, Fernandes L, Idrovo L. Peripheral nerve blocks for primary and secondary headache disorders: review of current evidence and a practical approach. *J Oral Facial Pain Headache*. 2026 Jan;40(1):25-31. doi: <https://doi.org/10.22514/jofph.2026.002>
16. Li D, Jin X, Li J, Li M, Jin S, Jin W. Combined ultrasound-guided C2 DRG pulsed radiofrequency and suboccipital myofascial plane block for cervicogenic headache: a retrospective study. *Front Pain Res (Lausanne)*. 2026 Jan 26;7:1725798. doi: <https://doi.org/10.3389/fpain.2026.1725798>
17. Jung A, Carvalho GF, Szikszay TM, Pawlowsky V, Gabler T, Luedtke K. Physical Therapist Interventions to Reduce Headache Intensity, Frequency, and Duration in Patients With Cervicogenic Headache: A Systematic Review and Network Meta-Analysis. *Phys Ther*. 2024 Feb 1;104(2):pzad154. doi: <https://doi.org/10.1093/ptj/pzad154>
18. Al Khalili Y, Ly NK, Murphy PB. Cervicogenic Headache. [Updated 2022 Oct 3]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK507862/>
19. Umer M, Motuma A, Ahmed N, Letta S. Prevalence and Associated Factors of Work-Related Spinal Pain Among Bank Workers in Harar, Eastern Ethiopia: A Cross-Sectional Study. *SAGE Open Nurs*. 2025 Aug 21;11:23779608251371100. doi: <https://doi.org/10.1177/23779608251371100>
20. Marzban H, Rezaei E, Shahmahmoudi F, Zangiabadi Z, Sahebi A, Makki F, et al. Musculoskeletal disorders among bank workers: a systematic review and meta-analysis. *BMC Musculoskelet Disord*. 2024 Nov 25;25(1):951. doi: <https://doi.org/10.1186/s12891-024-08077-7>
21. Verville L, Dc PC, Grondin D, Mior S, Moodley K, Kay R, et al. Using technology-based educational interventions to improve knowledge about clinical practice guidelines. *J Chiropr Educ*. 2021 Mar 1;35(1):149-57. doi: <https://doi.org/10.7899/jce-19-17>
22. Shabbir M, Rashid S, Umar B, Ahmad A, Ehsan S. Frequency of neck and shoulder pain and use of adjustable computer workstation among bankers. *Pak J Med Sci*. 2016 Mar-Apr;32(2):423-6. doi: <https://doi.org/10.12669/pjms.322.9067>
23. Boota M, Shaban S, Munawar A, Ahmed A. Prevalence of neck pain in bankers of Lahore. *Malays J Med Res*. 2018;2(1):30-6. Available from: <https://ejournal.lucp.net/index.php/mjmr/article/view/243>
24. Herekar AA, Ahmad A, Uqaili UL, Ahmed B, Effendi J, Alvi SZ, et al. Primary headache disorders in the adult general population of Pakistan - a cross sectional nationwide prevalence survey. *J Headache Pain*. 2017 Dec;18(1):28. doi: <https://doi.org/10.1186/s10194-017-0734-1>

25. Huber J, Lisiński P, Polowczyk A. Reinvestigation of the dysfunction in neck and shoulder girdle muscles as the reason of cervicogenic headache among office workers. *Disabil Rehabil.* 2013 May;35(10):793-802.
doi: <https://doi.org/10.3109/09638288.2012.709306>