Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/17489
DOI URL: http://dx.doi.org/10.21474/IJAR01/17489

*RESEARCH ARTICLE*

# PREVALENCE, PREDICTORS ،TRIGGERS ،AND COPING STRATEGIES OF TENSION HEADACHE AMONG MEDICAL STUDENTS AND IN KSAU-HS RIYADH, SAUDI ARABIA

**Malek S. Alshammari, Mohammed N. Aldosari, Omar Alzaid, Abdulmajeed Alharbi, Naif Alzaid and Ahmed Sharahili**

## Manuscript Info

***Manuscript History***
Received: 27 June 2023
Final Accepted: 31 July 2023
Published: August 2023

## Abstract

This study aimed to investigate the prevalence of primary headaches, specifically tension-type headaches (TTH), among medical students at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) in Riyadh, Saudi Arabia, and to identify the factors that contribute to the occurrence and relief of headaches. A cross-sectional study was conducted among second to sixth-year medical students at KSAU-HS from October 2022 to February 2023. Participants with chronic headaches who volunteered to participate were included. The International Classification of Headache Disorders, third edition (ICHD-3), was used to classify and differentiate between different types of headaches. Additional questions were included to assess factors that exacerbate or alleviate headaches, headache management strategies, and the impact of headaches on academic performance. Data were collected using electronic self-administered questionnaires and analyzed using SPSS version 21. A total of 303 participants were included in the study, with a mean age of 22 ± 1.7 years. The majority of participants were male (59.4%), and most were in clinical years (61.1%) with a GPA of 4.5 to 5 (57.1%). Nearly all participants reported experiencing at least one episode of headache in the past year, and 60.7% met the criteria for TTH. The most commonly reported headache characteristics were bilateral location (71.3%), frequent occurrence (53.8%), duration of more than one hour (84.5%), and frontal site (61.7%). Lack of sleep (62.4%) was identified as the most common trigger, while taking simple analgesics like Paracetamol (72.3%) and sleep (50.5%) were the most commonly used therapies to manage headaches. The majority of participants (75.9%) reported that their headaches did not significantly affect their academic performance. A significant association was found between gender and tension-type headaches, with male students being at a higher risk (p-value < 0.001). In conclusion, primary headaches, particularly tension-type headaches, are prevalent among medical students at KSAU-HS, potentially impacting their academic performance. Further research is warranted to raise awareness among students regarding effective headache management strategies.



**Corresponding Author:- Malek S. Alshammari**

## Introduction:-

"Headache refers to a pain in the head that can occur in different areas such as the back of the head, sides of the head, frontal region, or around the eyes [1]. Headaches can be broadly categorized into two types: primary headaches, including cluster headaches, migraines, and tension-type headaches, and secondary headaches, which arise as a result of underlying conditions or diseases [2]. Among primary headaches, tension-type headache is the most common type overall [3,4]. In a Saudi study, tension-type headache accounted for 34.1% of all primary headaches, making it the most prevalent type [5].

The term tension-type headache (TTH) was coined by the International Classification of Headache Disorders (ICHD) [6]. TTH was previously referred to by various terms such as simple headache, stress headache, psychogenic headache, or muscle contraction headache. Currently, the term tension-type headache (TTH) is commonly used [7]. TTH is characterized by bilateral band-like pain or tightness extending from the forehead to the back of the head and sometimes radiating to the neck muscles. Unlike other primary headaches, TTH does not usually present with symptoms such as nausea, sensitivity to light (photophobia), pulsating pain, electric-like pain, or tearing (lacrimation). The duration of a TTH episode typically ranges from 30 minutes to 4 hours [8]. According to a study, the common presentation of TTH is a mild-to-moderate dull aching pain around the temporal region, resembling a tight band around the forehead, neck, shoulders, and occasionally behind the eyes [9].

The exact pathophysiology of TTH remains unclear, but current understanding suggests an increased sensitivity to myofascial pain due to central factors such as sensitization of neurons in the supraspinal region and second-order neurons in the spinal dorsal horn/trigeminal nucleus [10]. The ICHD classifies TTH into two forms: episodic tension-type headache (ETTH) and chronic tension-type headache (CTTH). ETTH is further divided into infrequent and frequent subtypes. These types of tension-type headaches share similar clinical features, with the main difference being frequency [4].

Medical students, in particular, are more susceptible to developing primary headaches, especially tension-type headaches, due to various physical and psychological stressors compared to the general population [11]. Previous studies in Saudi Arabia among medical students have shown a high prevalence of tension-type headaches, ranging from 28.9% to 41.66% [12,13]. Common triggering factors reported include stress, exposure to loud sounds, and lack of sleep, while rest and sleep were found to be effective in relieving symptoms. Coping strategies for tension-type headaches include over-the-counter medications like non-steroidal anti-inflammatory drugs (NSAIDs) for episodic headaches, and medications like amitriptyline and topiramate for chronic cases. Other coping strategies involve avoiding triggers, relaxation therapy, and ensuring sufficient sleep. Self-medication, simple analgesics, sleep, and caffeine intake were reported as commonly practiced coping strategies among Saudi Arabian students [14-17].

While previous studies have examined the prevalence and coping strategies of tension-type headaches in Saudi Arabia, there is currently no research specifically focusing on coping strategies among KSAU-HS students in Riyadh. Given the impact of stress and headaches on students' academic performance and psychological well-being, this study aims to estimate the prevalence of tension-type headaches and identify aggravating and relieving factors among KSAU-HS students in Riyadh. The findings can contribute to raising awareness and improving students' ability to manage this condition effectively, thereby creating an optimal environment for their academic success and well-being."

## Materials and Methods:-

### Study Design and Setting:

This cross-sectional study was conducted at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) in Riyadh, Saudi Arabia, from October 2022 to February 2023. KSAU-HS comprises five colleges: the College of Medicine, Science and Health Profession, Dentistry, Pharmacy, and Applied Medical Science. The study focused on medical students who undergo a 2-year pre-medical program followed by 4 years of medical education (pre-clinical and clinical phases) and a 1-year internship.

### Subjects, Data Collection, and Sampling Techniques:

An electronic self-administered questionnaire with a consent form was distributed among second to sixth-year medical students. The target sample size was determined to be 278, with a 5% margin of error and a 95% confidence

level, based on an estimated population size of 1000 medical students enrolled in the College of Medicine. To account for a potential low response rate, the sample size was increased to 303. The survey link was shared with all male and female students via the WhatsApp application. Only medical students with chronic headaches who voluntarily agreed to participate were included. Students who did not complete the survey were excluded. The final study sample consisted of 303 participants. Among them, 184 participants met the criteria for tension-type headache as defined by the study.

To ensure participant confidentiality, the survey did not collect any identifying information. Serial numbers were assigned to participants for identification purposes. The study objectives and the voluntary nature of participation were clearly communicated to the students. Ethical approval was obtained from the Institutional Review Board of King Abdullah International Medical Research Center (KAIMRC) in Riyadh, Kingdom of Saudi Arabia (IRB approval NO: IRB/2124/22).

**Outcome Measurements:**

The survey questionnaire was developed based on validated questionnaires used in previous studies. Data collection was conducted randomly using an online Google Form. The questionnaire consisted of three parts. The first part collected information on socio-demographic characteristics, medical history, and health-related habits such as physical activity, smoking, eating, and sleeping habits. The second part focused on the characteristics of headaches, following the criteria outlined in the International Classification of Headache Disorders, third edition (ICHD-3b) by the International Headache Society (IHS). The third part included questions related to factors that worsen or alleviate headaches, headache management strategies, and the impact of headaches on academic performance, including Grade Point Average (GPA).

**Statistical Analysis:**

The collected data was entered into Microsoft Excel and coded for analysis using SPSS version 21. Categorical variables were presented as percentages and frequencies, while numerical data were summarized as means and standard deviations. The chi-square test was performed to examine associations between tension-type headache and other categorical variables, such as gender, academic year, GPA, marital status, employment status, and family income. A p-value less than 0.05 was considered statistically significant.

## Results:-

The number of participants who completed the survey was 303 participants.The mean age of all participants was 22+1.7 years old, 59.4% of them were males, and 40.6% were females. The majority of the participants 61.1% were in clinical years, 57.1% had a GPA of 4.5 to 5, 29.7% had 4 to 4.49, and 13.2% had Below 4. Only 4.6 % had a job, 95.7% were Never married, 96.4% were living with their families, 75.2% had a level of income more than 15000 SR, while the rest were 15000 or less, and 21.1% were smokers. (Table 1)

**Table 1:-** Demographics.

| | |
|---|---|
| Age Mean+SD | 22.00+1.7 years |
| Gender: | N(%) |
| Male | 180 (59.4%) |
| Female | 123 (40.6%) |
| Academic year: | |
| Preclinical years | 118(38.9%) |
| Clinical Years | 185(61.1%) |
| GPA : | |
| 4.5 to 5 | 173 (57.1%) |
| 4 to 4.49 | 90 (29.7%) |
| below 4 | 40 ( 13.2%) |
| Job : | |
| No | 289 (95,4%) |
| Yes | 14 (4.6 %) |
| marital status: | |
| Never married | 290 ( 95.7%) |
| Other | 13 (4.3%) |

| | |
|---|---|
| Living with family : | |
| No | 11(3.6%) |
| Yes | 292 (96.4%) |
| Level Of Income: | |
| More than 15000 | 228 (75.2%) |
| 15000 or less | 75 (24.8%) |
| Smoking Status: | |
| not a smoker | 239 (78.9%) |
| smoker | 64 (21.1%) |

Almost all the sample reported they experienced at least one episode of headache during the last 365 days and 60.7% of the students met our Tension Type Headache (TTH) criteria. The headache characteristics were bilateral 71.3%, frequent 53.8%, lasting more than 1 hour 84.5% . The most common site of the headache was frontal 61.7% followed by temporal 29.7%. Most of the students describe their headache as pressing/tightening 60.4% or Throbbing/pulsating 53.8%. Some of the students reported that their headache was associated with other symptoms, commonly light sensitivity and phonophobia. (Table 2).

**Table 2:-** Characteristics.

| | |
|---|---|
| Headache during the last 365 days | 299(98.7%) |
| Tension Headache | 184(60.7) |
| How often : | |
| Infrequent | 130 (42.9%) |
| Frequent | 163 (53.8%) |
| Chronic | 9 (3%) |
| Duration of the headache | |
| less than 1 hour | 4(1.3%) |
| one to three hours | 134 (44.2%) |
| more than three hours | 122 (40.3%) |
| Site of the headache : | |
| frontal | 187(61.7%) |
| Occipital | 51(16.8%) |
| Vertical | 32(10.6%) |
| Temporal | 90(29.7%) |
| Orbital | 79(26.1%) |
| Headache is usually : | |
| Bilateral | 216(71.3%) |
| Unilateral | 86(28.4%) |
| Character of the headache : | |
| Throbbing_pulsating | 150(49.5%) |
| Heaviness | 82(27.1%) |
| Pressing/tightening | 183(60.4%) |
| Sharp/Stabbing | 42(13.9%) |
| Headache severity: | |
| Mild | 118(38.9%) |
| moderate | 161(53.1%) |
| severe | 24(7.9%) |
| Associated symptoms: | |
| vomiting | 11(3.6%) |
| nausea | 54(17.8%) |
| light sensitivity | 92(30.4%) |
| loud sounds sensitivity | 78(25.7%) |
| Pain in the neck | 56(18.5%) |

**Table 3:-** Triggers of the headache.

| | |
|---|---|
| Lack of sleep | 189(62.4%) |
| stress | 165(54.5%) |
| exam | 121(39.9%%) |
| emotional | 92(30.4%) |
| sleeping | 88 (29.0%) |
| computer | 79(26.1%) |
| noise | 71 (23.4%) |
| Fasting | 63 (20.8%) |
| mobile use | 62 (20.5%) |
| deprivation | 59(19.5%) |
| nothing | 45(14.9%) |
| Oders | 43 (14.2%) |
| watching tv | 38 (12.5%) |
| Reading | 37(12.2%) |
| exposure | 36(11.9%) |
| menstruation | 35 (11.6%) |
| weather changes | 24(7.9%) |
| smoking | 13(4.3%) |
| eating | 7(2.3%) |
| bath | 4 (1.3%) |

Table 3 shows the list of headache triggers, Lack of sleep, stress, and exam were the most common reported triggers of the headache among the medical students 62.4%, 54.5%, and 39.9 % respectively. Only 12.2% of participants visited a physician for their headache. Taking simple analgesics like paracetamol 72.3%, sleeping 50.5%, Caffeine 34.0% were the most common therapies to treat headache among medical students, and 70.2 % of students reported a significant improvement after the treatment. (Table 4).

**Table 4:-** Treatment of the headache.

| | |
|---|---|
| Panadol | 219(72.3%) |
| sleeping | 153(50.5%) |
| Caffeine | 103(34.0%) |
| Doesn't Take Medication | 68(22.4%) |
| Aspirin | 11(3.6%) |
| Herbs | 11(3.6%) |
| Physical | 8(2.6%) |
| Sedatives | 4(1.3%) |
| Triptan | 4(1.3%) |
| Ergot | None |

Among the male students 70,6% had headache while in female students only 46,3% had headache. There was a higher number of students who had TTH in clinical years which was 62,2% than in preclinical years which was 58,5%. Students with of GPA(4.5-5) had a prevalence of TTH of 61,8% ,which is more than other students, students with GPA of 4-4.4 who had TTH were 60% compared to students who didn't. Students with GPA below 4 who had TTH were 57,5% compared to students who didn't had TTH, but there was no difference statistically p-value 0,867. Most of the students 75.9% reported that their headache did not affect their academic performance. Among the total students, 60,2% who didn't have jobs had TTH while 71,4% who had jobs had TTH. The number Students who smoke and had TTH was 68,2% compared to students who smoke and didn't had TTH 32,8%. In our study, only the gender of the students were found to be related to TTH, with male students being at higher risk ( p- value ,000). None of the other characteristics, namely being pre-clinical year student or clinical year student, GPA, marital status, job, living with family, smoking status, level of income. Were statistically related to TTH (p>0.05)(Table 5).

**Table 5:-** Associations.

| Characteristics | TTH present (%) | p-value |
|---|---|---|
| Gender | | .000 |

| | | |
|---|---|---|
| Male | 127(70.6) | |
| Female | 57(46.3) | |
| Academic level | | ,552 |
| Pre-clinical | 69(58.5) | |
| Clinical | 115(62.2) | |
| GPA | | ,867 |
| 4.5 to 5 | 107(61.8) | |
| 4 to 4.4 | 54(60) | |
| Below 4 | 23(57) | |
| Marital status | | ,951 |
| Never married | 176(60.7) | |
| Other | 8(61.5) | |
| Job | | ,401 |
| Yes | 10(71.4) | |
| No | 174(60.2) | |
| Living with family | | ,145 |
| Yes | 175(59.9) | |
| No | 9(81.8) | |
| Level of income | | ,882 |
| More than 15000 | 139(61) | |
| 15000 or less | 45(60) | |

## Discussion:-

In terms of gender differences, the study found notable variations. Among the participants, 30.6% (55) of males were smokers, compared to only 7.3% (9) of females, indicating a significant disparity in smoking prevalence. Additionally, 57.1% (173) of students with a GPA between 4.5 and 5 were female, which was significantly higher than the percentage of males. When examining treatment choices, sleeping was identified as a gender-specific option, with 59.3% (73) of females reporting its use. Furthermore, the use of simple analgesics, such as paracetamol, was slightly but significantly higher among females, with 78% (96) reporting its consumption.

The primary objective of our study was to estimate the prevalence of tension-type headache (TTH) among medical students at KSAU-HS, along with identifying aggravating and relieving factors, as well as assessing their impact on the students' GPA. TTH is known to be the most frequently encountered headache type worldwide, with lifetime prevalence ranging from 46% to 78% [20]. In a study conducted at Umm Al-Qura College of Medicine in Makkah, Saudi Arabia, the one-year prevalence of headaches among medical students was reported as 89.6% [14]. Another study conducted in Riyadh among medical students found that 41.66% of participants experienced TTH [12]. In our study, we observed a prevalence of tension-type headache among medical students of 60.7%, which closely aligns with the prevalence reported among medical students at Isfahan University in Iran [11]. However, it is important to note that the prevalence of tension-type headache (60.7%) was higher than the rate reported in local studies, such as the prevalence of tension-type headache at Taif University in Saudi Arabia, which was found to be 29.5% [18].

Traditionally, females have exhibited a higher propensity for developing TTH compared to males [21]. In our study, tension-type headache was prevalent in both genders, with a prevalence of 70.6% in males and 46.3% in females. However, the prevalence rates of tension-type headache have shown considerable variability in multiple studies, ranging from 5.9% to 34.5% in males and 11.1% to 40.8% in females [11]. Numerous studies have consistently demonstrated a higher prevalence of headaches among females compared to males. Although this gender difference

was not observed in our study, it is possible that the slightly higher male-to-female participant ratio influenced our results.

Interestingly, we found that the prevalence of TTH was slightly higher among clinical year medical students compared to preclinical students. This could potentially be attributed to the continuous stress experienced by clinical students due to their preparation for the Saudi Medical Licensing Exam and their involvement in the hospital environment. Additionally, a higher proportion of students with a GPA above 4.5 suffered from TTH, suggesting that headache may not necessarily be reducing GPA by affecting studying. On the contrary, it is possible that intensive studying and prolonged work hours are provoking TTH. A similar study conducted in Jeddah reported comparable findings [13].

Identifying the triggers for TTH is crucial for effective management, as avoiding these triggers may help reduce the frequency and severity of attacks and provide insights into the underlying causes of headaches. Medical students commonly experience emotional stress and poor sleep due to their demanding academic life, which are recognized triggers for headaches [22]. In our study, lack of sleep was found to have the highest impact on the severity of TTH (62.4%), followed by stress as the second most common trigger (54%). These results contradict the findings of a study conducted on 3rd year female medical students at Taibah University in Saudi Arabia, which reported no significant relationship between stress and TTH [23]. However, our results align with numerous previous studies on tension-type headache in general [24,25]. Exams were also identified as a common trigger (39.9%). Furthermore, smoking was associated with the presence of TTH, with 68.2% of smoking students experiencing TTH compared to only 32.8% of non-smoking students. This finding is supported by a study conducted at Tabuk University in Saudi Arabia, which revealed a significant association between smoking and TTH [19].

We found that Most of the medical students are taking different types of analgesics as a self-medication specifically paracetamol (Panadol) (72,2%). Many non-pharmacological therapies were practiced by the students to relieve headache, including sleep (50,5%), and caffeine(34,0%). Another study reported that majority of TTH students reported no increase in headache frequency after analgesic use or increase in the analgesic dose used over time. The most common analgesic used was paracetamol (46.5%), followed by ibuprofen, acetaminophen, aspirin, and diclofenac sodium (33.8%, 13.9%, 3%, and 2.8%, respectively) [18]. The cause of paracetamol and acetaminophen being common was explained in the previous studies by their low price, safety, and less GIT side effects, in addition to their availability as a non-prescription medication [19]. Another study in Abha showed that Most participants reported that the T.T.H. attacks were relieved by resting (lying down and sleeping) [26].

## Conclusion:-

This study documents that tension type headache is common among medical students at King Saud bin Abdulaziz University for Health Science (KSAU-HS), Riyadh, Saudi Arabia. There is strong association between male gender and tension type headache. Stress was the second most reportable trigger among the medical students. furthermore, tension headache could affect student academic performance. Based on these finding, educating the medical students about their condition, when to seek medical advice and stress management strategies is needed to improve their life quality and create a good environment for their studying.

## References:-

1
**Website**
- medical definition of headache [Internet]. MedicineNet. [cited. https://www.rxlist.com/headache/definition.htm.

2
**Website**
- Headache disorders [Internet]. Who.int. [cited. https://www.who.int/news-room/fact-sheets/detail/headache-disorders.

3
**Article within a journal**
Csaba E, Máté M, Tamás G, Eszter B, György B: Tension type headache and its treatment possibilities. Clinical Neuroscience [Internet. 2019202226.

4
**Article within a journal**
Bendtsen, Lars; Jensen: Rigmor: Tension-type headache: the most common, but also the most neglected, headache disorder. Current Opinion in Neurology 19(3): p 305-309, June. 2006, 10.1097/01.wco.0000227043.00824.a9

5
**Article within a journal**
Al Jumah M, Al Khathaami AM, Kojan S, Hussain M, Thomas H, Steiner TJ: The prevalence of primary headache disorders in Saudi Arabia: a cross-sectional population-based study. J Headache Pain [Internet. 20202023, 29:11.

6
**Article within a journal**
- Headache classification committee of the international headache society (IHS) the international classification of headache disorders. Cephalalgia [Internet. 2018, 1-211.

7
**Article within a journal**
Ashina, M: Neurobiology of chronic tension-type headache: Cephalalgia : an international journal of headache vol. 24,3. 2004, 161-72. 10.1111/j.1468-2982.2003.00644.x

8
**Article within a journal**
Millea PJ, Brodie JJ: Tension-type headache. Am Fam Physician [Internet. 20022022, 26:797-804.

9
**Article within a journal**
Turkistani A, Shah A, Jose AM, et al.: Effectiveness of manual therapy and acupuncture in tension-type headache: A systematic review. Cureus [Internet. 20212023, 29:17601.

10
**Website**
Clinical Case. Tension headache [Internet]. Medscape.com. https://emedicine.medscape.com/article/792384-overview..

11
**Video within a journal**
Ghorbani A;AbtahiSM;Fereidan-EsfahaniM;AbtahiSH;ShemshakiH;AkbariM;Mehrabi-Koushki A: Prevalence and clinical characteristics of headache among medical students, Isfahan, Iran [Internet]. U.S. National Library of Medicine; [cited. 2023, Accessed: Jun 23]. Available from: https://pubmed.ncbi.nlm.nih.gov/23961279/..

12
**Article within a journal**
Almesned IS, Alqahtani NG, Alarifi JA, Alsaawy TN, Agha S, Alhumaid MA: Prevalence of primary headache among medical students at King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia. J Family Med Prim Care [Internet. 20182023, 29:1193-6.

13
**Article within a journal**
Nabeel Qutub W, Shakir Magharbel R, Walid Adham S, Mahmoud Bardisi W, Abdulkader Akbar N: Prevalence and determinants of tension headache among medical students during their clinical years at King Abdulaziz University in. Jeddah, 2019. J Community Health Manag [Internet. 2020:14-21.

14
**Article within a journal**
Khairoalsindi OA, Saber WK, Althubaiti NA, Alshareef EF, Almekhlafi MA: Primary headache characters and coping strategies among medical students of Umm Al-Qura University in the Western Region of Saudi Arabia. Neurosciences (Riyadh) [Internet. 20182022, 26:308-13.

15
**Article within a journal**
Cho S-J, Song T-J, Chu MK: Sleep and tension-type headache. Curr Neurol Neurosci Rep [Internet. 2019197, 1007:11910-019. 10.1007/s11910-019-0953-8

16
**Article within a journal**
Steel SJ, Robertson CE, Whealy MA: Current understanding of the pathophysiology and approach to tension-type headache. Curr Neurol Neurosci Rep [Internet. 20212110, 56.

17
**Article within a journal**
Bendtsen L, Jensen R: Tension-type headache: the most common, but also the most neglected, headache disorder. CurrOpin Neurol [Internet. 2006, 305:9.

18
**Article within a journal**
Desouky DE, Zaid HA, Taha AA: Migraine, tension-type headache, and depression among Saudi female students in Taif University. J Egypt Public Health Assoc [Internet. 20192023, 22:7.

19
**Article within a journal**
Mirghani HO, H. Altemani RF, J. Alharthi YH, et al.: Prevalence of Tension-Type Headache among medical students in Tabuk University, Saudi Arabia. J Pharm Res Int [Internet. 2021110,

20
**Article within a journal**
Chowdhury D: Tension type headache. Ann Indian Acad Neurol [Internet. 20122023, 1:83-8. 10.4103/0972-2327.100023

21
**Article within a journal**
Bayraktutan OF, Demir R, Ozel L, Ozdemir G, Ertekin A: Prevalence of tension-type headache in individuals aged between 18-65 years in the Eastern parts of Turkey. Eurasian J Med [Internet. 20142023, 22:78-83.

22
**Article within a journal**
Deleu D, Khan MA, Humaidan H, Al Mantheri Z, Al Hashami S: Prevalence and clinical characteristics of headache in medical students in oman. Headache [Internet. 20012023, 22:798-804.

23
**Article within a journal**
Al-Jabry NT, Abduljabbar Z, Maqsud AN: Prevalence and risk factors of tension headache among 3rd year female medical students at Taibah University in Saudi Arabia. International Journal of Academic Scientific Research. 2015, 3:46-53.

24
**Article within a journal**
Ong JC, Stepanski EJ, Gramling SE: Pain coping strategies for tension-type headache: possible implications for insomnia?. J Clin Sleep Med. 2009, 5:52-6. 10.5664/jcsm.27392

25
**Article within a journal**
Cathcart S, Winefield AH, Lushington K: Stress and tension-type headache mechanisms. Cephalalgia [Internet. 20102023, 22:1250-67.

26
**Article within a journal**
Sabah ZU, Aziz S, Narapureddy BR, et al.: Clinical-epidemiology of tension-type headache among the medical and dental undergraduates of King Khalid University, Abha, Saudi Arabia. J Pers Med [Internet. 20222023, 2064:2075-4426. 10.3390/jpm12122064.