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Original

# Primary headache in academics: a cross-sectional study

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## Abstract

Headache is a frequent, long-standing and universal neurological disorder with high prevalence worldwide.

**Objective**

To verify the prevalence of headache and self-medication among healthcare academics

**Methods**

This was a cross-sectional, descriptive and quantitative study, carried out with 165 healthcare academics. A questionnaire was used as a methodological instrument to collect data.

**Results**

The academics were mostly female, aged between 18 and 54 years, from the State of Paraiba and single. The lifetime prevalence of headaches was 98.2%. Most volunteers (62.4%) have a probable diagnosis of primary headache. Of these, the most prevalent was migraine, especially with aura, and tension-type headache (TTH). Of the group under analysis, the majority have not had consultations because of the pain and therefore have no medical diagnosis and no treatment. Some treated the pain only in a crisis. Of these, most practiced self-medication, mainly with dipyrone and paracetamol. Stress, worry and sleep deprivation were the most cited factors among those that usually cause pain.

**Conclusion**

Clarifications, preventive measures, correct diagnosis and appropriate treatment can reduce the emotional, socioeconomic and academic losses of this frequent neurological complaint among students.

**Keywords:**
Migraine
Tension-type headache
Self-medication
Dipyrone
Stress

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## Introduction

Headache is a universal neurological disorder with worldwide prevalence and high potential to generate physical and psycho-emotional suffering, socio-economic, work and academic losses.[1,2]

Headaches are classified into primary and secondary. Primary headache is the most common, it has no secondary cause and its aetiology is not identified in usual clinical or laboratory tests, in this way, the symptoms and characteristics of the pain define the disease. In this group are migraine and tension-type headache (TTH)[2,3], indicated among the eight chronic diseases that affected more than 10% of the world's population in 2015.

Among students, headache is a common complaint and impairs academic performance due to absenteeism, learning deficits and impacts on quality of life. Research shows the prevalence of headache and self-medication in the daily lives of health students at UFPB and other institutions.[4-8]

The literature reports the association between headache and temporomandibular disorders (TMD), emotional tension, stress, anxiety and depression, menstruation, sleep disorders, myofascial pain and trigger points, fibromyalgia, sudden discontinuation or abuse of analgesics, caffeine abuse[7,9-11], obesity[12,13] and excessive computer use[14] are common variables among many young people.

Considering that headache is a worldwide public health problem, most often without adequate diagnosis and treatment, it is necessary to know the prevalence of headache and its respective characteristics, because its understanding and diagnosis will allow correct management and improvement in the quality of life of those affected. This justifies the need to know the prevalence and diagnosis of headache among students, as well as the profile of self-medication.

In view of the above, it is important to evaluate the history of headache and make a diagnosis according to its phenotype, thus helping in the implementation of adequate prevention and treatment projects, thus avoiding self-medication and emotional distress. Therefore, the aim of the research was to verify the prevalence of headache and self-medication among healthcare academics.

## Methods

The research followed an observational design of transversal and quantitative nature using a convenience sample. The data collection occurred between the months of November 2016 to May 2017 at the Centre for Health Sciences (CCS), Federal University of Paraíba (UFPB), João Pessoa-PB, Brazil.

The project was approved by the Research Ethics Committee (CEP) of the CCS/UFPB (protocol no. 1,757,878, CAAE 56777816.3.0000.5188). The volunteers were informed about the research objectives and the anonymity of the questionnaire, signing an Informed Consent Form (ICF) when they opted to participate.

The data were stored and analysed in the Epi Info programme. The statistical analysis consisted of: 1) description of the prevalence; 2) analysis of the relationship between the variables with the chi-square test or Fisher's exact test; 3) the Student t or ANOVA test was used in the comparison of the age means.

### *Population and Sample*

The target population of the research consisted of healthcare academics regularly enrolled in the disciplines of Anatomy and Neuroanatomy, 1st and 2nd periods, of the Department of Morphology, CCS/UFPB (Table 1). The sample was composed of volunteer academics aged 18 years or over. Before signing the Informed Consent Form (ICF), the volunteers received clear instructions regarding the research.

**Table 1.** Distribution of the population and sample according to the course

| Course | Academic Semester | | Sample |
|---|---|---|---|
| | 2016.1 | 2016.2 | |
| 1. Nursing (1st and 2nd periods) | 79 | 79 | 30 |
| 2. Phonoaudiology (1st and 2nd periods) | 67 | 57 | 35 |
| 3. Occupational Therapy (1st and 2nd periods) | 52 | 58 | 33 |
| 4. Medicine | 53 | 54 | 27 |
| 5. Pharmacy | 48 | 58 | 11 |
| 6. Physical Education (Undergraduate) | 28 | 38 | 13 |
| 7. Nutrition | 30 | 34 | 16 |
| TOTAL | 357 | 378 | 165 |

Source: SIGAA (2017)

The questionnaire for data collection used the criteria proposed by the International Headache Society (IHS)[2]

and adapted questions from instruments used in other studies.[15-17] The instrument prepared with 53 questions made it possible to collect socio-geographic and health data and information on the presence of headache, its semiological characteristics and the consumption of medication. The probable diagnosis of headache was made based on the criteria of the International Classification of Headaches.[2]

## Results

A total of 165 voluntary male and female students from the seven courses assessed took part in the research. Data analysis showed a predominance of female subjects, aged between 18 and 54 years, average of 21.3 (± 4.9) years, and the men were a little older (22.3 ± 5.3 years) (Table 2).

The data revealed that the majority of volunteers are from Paraíba (64.8%), single (93.3%), without children (96.2%), with a preference for Christian religions, did not work (78.8%), did not practice physical activity (64.8%), did not smoke (87.9%) and did not know their blood pressure (53.9%). Table 1 presents the characterisation of the sample.

**Table 2.** Sample characterization of the volunteers (n=165)

| Variables | Levels | N | % | Average age |
|---|---|---|---|---|
| **Sex** | Female | 117 | 70.9 | 20.8±4.7 |
| | Male | 48 | 29.1 | 22.3±5.3 |
| **Self-declared colour/ race** | Brown | 77 | 46.7 | 21.7±5.8 |
| | White/Caucasian | 70 | 42.4 | 20.3±2.9 |
| | Black | 15 | 9.1 | 24.2±6.8 |
| | Indian | 1 | 0.6 | 18.0±00 |
| | Asian/yellow | 1 | 0.6 | 18.0±00 |
| | Other | 1 | 0.6 | 21.0±00 |
| **Course** | Phonoaudiology | 35 | 21.2 | 21.0±4.0 |
| | Occupational Therapy | 33 | 20.0 | 21.7±5.1 |
| | Nursing | 30 | 18.2 | 21.7±6.8 |
| | Medicine | 27 | 16.4 | 20.6±3.6 |
| | Nutrition | 16 | 9.7 | 20.1±4.1 |
| | Physical Education | 13 | 7.9 | 23.9±6.3 |
| | Pharmacy | 11 | 6.7 | 19.4±1.2 |
| **Academic semester** | 1st | 97 | 58.8 | 21.2±5.2 |
| | 2nd | 68 | 41.2 | 21.4±4.6 |

Source: Research data

In the medical history, there were self-reported diagnosis of allergy (55.3%), sinusitis (19.3%) and insomnia (5.3%) among the participants. The lifelong prevalence of headache in the academics was of 98.2%, that is, the academics, in the course of their lives, referred to some episodes of headache. The majority of the academics (71.0 %) stated that there are cases of headache in the personal, with maternal inheritance being the most prevalent (58.6%). In the present research, it was registered in the Medicine, Nursing, Occupational Therapy, Nutrition and Physical Education courses a 100% prevalence of headache throughout life.

The answers to the questionnaire associated with the ICHD-32 diagnostic criteria allowed the probable diagnosis of headache to be established. The distribution of the sample, according to the established criteria, will be presented in the following paragraphs and tables.

*Classification and Characteristics of the Headache*

When asked about how long they have had headaches, the majority (53.9%) have lived with the symptom for more than 2 years. As for the typical characteristics of pain, the volunteers qualified the headache as pulsatile (73.3%), located mainly in the supraorbital or temporal (80.7%) areas and variable laterality, with a tendency to the unilateral pattern (Table 2). Self-reported pulsatile pain was significantly higher among participants with a probable diagnosis of migraine ($p < 0.05$).

As for pain intensity, when not taking medication, most volunteers considered their pain as moderate (69.1%), while the others as mild pain (13.9%) or severe pain (11.5%). See table 3 for the distribution of typical headache features used for diagnosis.

**Table 3.** Distribution of volunteers as to typical headache characteristics (N=162).

| Usual laterality of the headache | n | % |
|---|---|---|
| Variable | 65 | 40.1 |
| Bilateral | 27 | 16.7 |
| I am not able to inform | 26 | 16.0 |
| Alternately bilateral and unilateral | 23 | 14.2 |
| Unilateral | 21 | 13.0 |
| **Duration of headache when not taking medication** | **n** | **%** |
| From 30 minutes to 4 hours | 71 | 43.8 |
| Between 4 and 24 hours | 41 | 25.3 |
| Less than 30 minutes | 23 | 14.2 |
| Between 24 and 72 hours | 9 | 5.6 |
| Not applicable | 4 | 2.5 |
| Between 3 and 7 days | 3 | 1.8 |
| Ignored | 3 | 1.8 |
| Varies from less than 30 minutes to more than 7 days | 3 | 1.8 |
| More than 7 days | 1 | 0.6 |
| **Days with headache in the last year** | **n** | **%** |
| 1 to 7 days | 70 | 43.2 |
| 8 to 14 days | 29 | 17.9 |
| 15 to 30 days | 22 | 13.6 |
| 31 to 180 days | 19 | 11.7 |
| 0 day | 15 | 9.3 |
| More than 180 days | 7 | 4.3 |
| **Preference during the crisis** | **n** | **%** |
| Staying still in a quiet place | 139 | 85.8 |
| Move around | 2 | 1.2 |
| Change activity | 21 | 13.0 |
| **Physical effort during the crisis** | **n** | **%** |
| Aggravates the pain | 122 | 75.3 |
| Does not aggravate the pain | 40 | 24.7 |

Headache, according to the respondents, was accompanied by different phenomena, mainly phonophobia and photophobia. Symptoms were more prevalent among those with a probable diagnosis of migraine. Rotational dizziness and visual changes were the most reported among those preceding or accompanying headache lasting between 4 and 60 minutes. Table 4 presents all the signs and symptoms indicated by the volunteers.

**Table 4.** Distribution of signs and symptoms referred that precede or accompany headache (N=162).

| Signs and symptoms accompanying headache | n | % |
|---|---|---|
| Phonophobia | **130** | **80.3*** |
| Photophobia | **125** | **77.2*** |
| Nausea | 77 | 47.5 |
| Feeling of restlessness or agitation | 68 | 42.0 |
| loss of appetite | 59 | 36.4 |
| Tears in the eyes | **54** | **33.3*** |
| Drooping eyes | 48 | 29.6 |
| Blocked nose | **44** | **27.1*** |
| Red eyes | **37** | **22.8*** |
| Sensation of ear fullness | 31 | 19.1 |
| Rhinorrhoea | 31 | 19.1 |
| Facial and frontal region flushing | 29 | 17.9 |
| Vomit | 23 | 14.2 |
| Swelling of the eyelid | 13 | 8.0 |
| **Signs and symptoms preceding or accompanying the headache lasting between 4 and 60 minutes** | **n** | **%** |
| Rotational dizziness | 66 | 40.7 |
| Visual alterations | 51 | 31.5 |
| Aggravation by movement | **43** | **26.5*** |
| Other changes in sensitivity | 30 | 18.5 |
| Tinnitus | 25 | 15.4 |
| Hearing loss (hypoacusis) | 12 | 7.4 |
| Local tingling sensation | 12 | 7.4 |
| Difficulty speaking | 11 | 6.8 |
| Diplopia | 10 | 6.2 |
| Other motor alterations | 9 | 5.6 |
| Alterations in consciousness | 9 | 5.6 |
| Local buffering | 8 | 4.9 |
| Motor incoordination | 7 | 4.3 |
| Loss of sight | 5 | 3.1 |

*Significant in students with a probable diagnosis of migraine ($p \leq 0.05$)

The majority of students (62.4%), according to the data, have a probable diagnosis of primary headache. Of these, migraine, mainly with aura, and TTH were prevalent (Tables 5 and 6).

**Table 5.** Prevalence of headache, according to sex, among healthcare academics

| Diagnosis | Sex | | n | % |
|---|---|---|---|---|
| | Female | Male | | |
| Migraine | 50 | 11 | 61 | 37.0 |
| Does not meet criteria for headache diagnosis | 39 | 20 | 59 | 35.8 |
| Tension-type headache (TTH) | 22 | 13 | 35 | 21.2 |
| Fulfils criteria for more than one type of headache | 3 | 2 | 5 | 3.0 |
| No complaints of headache | 1 | 2 | 3 | 1.8 |
| Trigeminal autonomic cephalgia | 2 | 0 | 2 | 1.2 |
| **Total** | **117** | **48** | **165** | **100** |

**Table 6.** Distribution of probable headache diagnosis according to the international classification of headache disorders

| Probable diagnosis | | n | % |
|---|---|---|---|
| **Migraine (n=66)** | Migraine with aura | 26 | 61.1 |
| | Chronic migraine with aura | 18 | |
| | Migraine without aura | 10 | |
| | Probable migraine without aura | 5 | |
| | Chronic migraine without aura | 5 | |
| | Migraine with typical aura | 1 | |
| | Migraine without aura, probable | 1 | |
| **TTH(n=40)** | Infrequent episodic tension-type headache | 27 | 37.0 |
| | Frequent episodic tension-type headache | 12 | |
| | Chronic tension-type headache | 1 | |
| **Trigeminal autonomic cephalalgias (n=2)** | Chronic cluster headache | 1 | 1.9 |
| | Episodic cluster headache | 1 | |
| **TOTAL** | | **108** | **100.0** |

Regarding the period, fact or event related to the onset of the headache, studies (41.4%) and adolescence (19.7%) were the most cited among the respondents (N=157).

As for the triggering factors, those that cause the headache, stress (77.6%), worry (67.3%), sleep deprivation (66.1%), fasting (55.2%), exam period (51.5%), nervousness (50.9%) and studying (44.2%) were the most frequent among the academics. Among the female participants (n=117) the majority (n=64; 54.7%) indicated menstruation as one of the triggering factors. Of these factors, fasting and nervousness were significant ($p < 0.05$) among those with a probable diagnosis of migraine.

### *Medical Diagnosis and Treatment of Headache*

It was detected that headaches in the group studied, in general, do not have medical monitoring or diagnosis (88.9%). Thus, many participants (N=58; 35.8%) treated the pain only in crises and do not know the name or dose of the medicine. Others used dipyrone, paracetamol, cold compresses on the head, teas (chamomile, holy grass, mint, lavender), acupuncture and herbal medicines.

A profile of self-medication was registered among the students, including among those who declared they did not undergo treatment, as only 12 academics administered medicine with a medical prescription, while 68 practiced self-medication. Therefore, considering the population that reported headache (N=162) 42.0% practiced self-medication in the treatment of headache, of these 48 (70.6%) were female.

Headache impaired mood (72.2%), ability to concentrate (71.6%), evaluations (44.4%) and social, recreational and family activities (40.7%).

As for absenteeism, 41 academics (25.8%) of the 159 who answered the item, missed classes at the university because of headache.

## Discussion

In general, the data from this study showed similar results to those found in the literature regarding the prevalence of headache throughout life, in general, is above 90%.[17-20] Previous epidemiological studies have demonstrated a 34.5% prevalence of headache among nursing students at the Federal University of Goiás[17] and 98.8% in medical and psychology students at the University of Taubaté.[17]

The occasional headache is considered by many to be a normal event, however, this "occasional" disturbance can, in the long term, result in socio-economic and psycho-emotional damage and are often incapacitating.[21]

Moderate or severe pain, pulsatility, unilaterality and aggravation by routine physical activity are typical features of migraine. The crisis may course with nausea, vomiting, photophobia and phonophobia[2,22], characteristics with high prevalence in the results presented. Therefore, the frequency of the aforementioned characteristics corroborates with the results obtained in the present research, in which migraine was more prevalent, especially in the female gender.

The TTH is typically bilateral, with mild or moderate intensity, in pressure or tightness, with or without pericranial tenderness on palpation and does not worsen with routine physical activity.[23] These characteristics were observed resulting in high prevalence of TTH among the assessed academics.

The results presented are similar to others found in the literature, in which psycho-emotional factors such as stress, are the most prevalent triggers in migraines.[9,22,24]

Among the risk factors for migraine are female gender, white skin colour and hormonal changes.[9] Recent research confirms the prevalence of cephalalgia in women[9,10] and highlight among the associated factors: depression, stress, exhaustion, hormonal factors, social pressure and family demands.[13] The data presented now showed a higher prevalence of migraine in the female gender, menstruation being one of the most cited triggering factors.

In the present study, self-medication in the treatment of headache was verified, dipyrone and paracetamol were the most used active principles, therefore, corroborates with the data from other institutions.[9,25] It is important to highlight that self-medication in the present study is that related to the treatment of headache and, therefore, does not involve self-medication to treat other pathologies. In addition, the medicines used, mainly painkillers, do not require a medical prescription, are exempt from prescription and therefore available over-the-counter.

The prevalence of self-medication in Brazil was 16.1%, with a higher frequency of analgesics, mainly dipyrone.[24] Self-medication was reported by 88.3% of the students at the State University of Londrina, Paraná, with headache standing out among the signs/symptoms that led to the practice of self-medication.[24] Therefore, self-medication among UFPB students was higher than the national average and lower than that found in other educational institutions.[24,25]

The inadequate use of medication to treat headache symptoms can result in secondary headache, attributed to occasional or prolonged use of medicines not indicated for headache or excessive use of analgesics.[25]

The activities most affected by headache were mood, ability to concentrate and evaluations. Literature suggests that the different impairments arising from headache contribute to lower academic performance.[24]

Most volunteers with a probable diagnosis of migraine stated the presence of headache in family members, and maternal inheritance was the most prevalent. This suggests a correlation between the prevalence of migraine in close relatives with the cases evaluated and therefore, the results presented now corroborate the genetic predisposition cited in the literature.[24,25]

To provide a history of the headache through a questionnaire makes it possible to draw up a profile with a probable diagnosis of cephalgia, which is carried out considering a minimum number of episodes and previously established criteria.[26-28]

The results indicate a high prevalence of primary headache, mainly migraine, without adequate diagnosis and treatment. Clarifications, preventive measures, correct diagnosis and appropriate treatment can reduce the emotional, socioeconomic and academic damage of this frequent neurological complaint among young people.

The limits or disadvantages of the research were low adherence, the impossibility of verifying incidence or making a causal inference and recall bias.

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