

Prevalence and Risk Factors of Tension Headache among 3rd Year Female Medical Students at Taibah University in Saudi Arabia

Nedaa Talee Al-Jabry, Abeer Zaki Abduljabbar, Abrar Nasser Maqsud, Baraah Abdolrahman Alhadad, Najah Muhmmad Almukhtar, Salwa Awad Al-Mutairy, Shoroog Mohammad Sahla, Waad Saleh Raji Al-Harbi, and Wesam Alsihaty.

College of Medicine, Taibah University, KSA.

Abstract:

Background: Tension-type headache (TTH) is the most costly and common form of headache. This study aims to estimate the prevalence of TTH among 3rd year female medical student at Taibah University in Saudi Arabia and identify its risk factors.

Methodology: A cross sectional study has been conducted in duration from 1st of September to the end of November 2012. Two questionnaires, DASS scale and a self generated questionnaire including socio-demographic data and other risk factors of tension headache, have been distributed over all 3rd year female medical students at Taibah University, however 70.4% returned completed questionnaires.

Results: This study has been conducted over 50 female medical students, their mean age was 21.14 ± 0.49 . History of headache has been reported in 92% of students, however 58% of students had history of tension headache. No Significant differences ($p > 0.05$) have been found between both groups of students with and without history of tension headache regarding 3 components of DASS scale, depression, anxiety, and stress. Students with history of tension headache reported higher percentage of daily mobile use more than 1hour, daily continuous setting on TV more than 3hours, daily continuous setting on computer more than 3hours, visual errors, and chronic sinusitis (41.4% vs. 19%), (20.7% vs. 14.3%), (69% vs. 66.7%), (89.7% vs. 66.7%), and (24.1% vs. 19%), respectively.

Conclusion: Headache and TTH were prevalent among 3rd year female medical students at Taibah University, however no significant risk factors for TTH have been observed in this study.

Key words: Prevalence, Risk Factors, Tension Headache

I. INTRODUCTION

Headache is one of the most common neurological complaints of the young population [1]. Fifty percent of the general population have headache during any given year, and more than 90 % report a lifetime history of headache [2].

Tension-type headache (TTH) is the most costly and common form of headache. It's caused by muscle tightening in the back of the neck and/or scalp [3]. The International Headache Society (IHS) defines tension headache as being bilateral and having a pressing or tightening quality of mild to moderate severity [4]. Although the headaches themselves are not accompanied by symptoms, patients with chronic tension-type headache often have other somatic complaints. In chronic tension-type headache, patients may experience nausea, generalized myalgia and arthralgia, difficulty falling asleep or staying asleep, chronic fatigue, irritability, and disturbed memory and concentration [5].

In the Danish Glostrup Population Studies, the prevalence of episodic tension-type headache was 63% (56% in men and 71% in women), the prevalence of chronic tension-type headache was 3% (2% in men and 5% in women). The gender difference was statistically significant. The prevalence of tension-type headache decreased with increasing age [6].

Among medical students, high rates of psychological morbidity such as anxiety and depressive symptoms have been reported in several studies from different western countries [7-9]. Previous names for tension-type headache reflected its presumed causes, including muscle contraction, anxiety, depression and stress [10]. High emotional stress in medical students has been observed in Estonian study, where 21.9% students had symptoms of anxiety, and 30.6% had symptoms of depression. The frequency of anxiety and depressive symptoms was higher in females [11].

As being medical students, it was important to investigate the phenomenon of tension headache among 3rd year female medical students at Taibah University to be able to determine its prevalence and identify its risk factors among this group of vulnerable students.

Review of literature:

In a study conducted over medical students at University of Zagreb Medical School in 2003, the prevalence of Tension Headache was 60.13% in first year students and 57.69% in sixth year students [12].

In another study done over medical students of Santa Catarina's Federal University, the study included 408 medical students who were interviewed by a questionnaire from October 1997 to August 1998. The frequency of headache in this group was 33%, with women and students in the five last semesters of the medical course experiencing increased headache frequency. The prevalence of episodic tension-type headache was (32.1%), chronic tension-type headache was (7.5%), and tension-type headache combined with migraine without aura was (3%) [13].

Telephone survey conducted 1993 to 1994 in Baltimore County, Maryland. The overall prevalence of episodic tension-type headache (ETTH) in the past year was 38.3%. Women had a higher 1-year ETTH prevalence than men in all age, race, and education groups. Whites had a higher 1-year prevalence than African Americans in men (40.1% vs. 22.8%) and women (46.8% vs 30.9%). Prevalence increased with increasing educational levels in both sexes, reaching a peak in subjects with graduate school educations of 48.5% for men and 48.9% for women. The 1-year period prevalence of Chronic Tension-Type Headache was 2.2%; prevalence

was higher in women and declined with increasing education. Of subjects with ETTH, 8.3% reported lost workdays because of their headaches, while 43.6% reported decreased effectiveness at work, home, or school [14].

The epidemiology of headache in Arab countries was systematically reviewed through Medline identification of four papers reporting headache prevalence in the Arab nations of Qatar, Saudi Arabia (2 papers) and Oman. The prevalence of headache varied from 8 to 12% in Saudi Arabia to 72.5% in Qatar and 83.6% in Oman. Headache was commoner in females and younger people. The prevalence of tension headache was 3.1-9.5% in Saudi Arabia and the 1-year prevalence in Qatar was 11.2% [15].

II. METHODOLOGY

This cross sectional study has been conducted over the 3rd year female medical students at Taibah University in Al-Madinah Al-Munawarah city in Saudi Arabia in the duration from 1st of September to the end of November 2012. An informed verbal consent had been taken from all participating students. The participation rate was 70.4%. Data has been collected by using 2 questionnaires. The first is DASS scale, the Depression, Anxiety, and Stress Scales, that was developed by researchers at the University of New South Wales (Australia) [16].

In addition to a self generated questionnaire for identifying socio-demographic data and other risk factors of tension headache among studied group of students. Tension headache was diagnosed using International Headache Society criteria [3]. Pilot study had been done to check feasibility of study and test questionnaires before actual start of data collection. Data has been collected and entered to the computer using SPSS (Statistical Package for Social Science) program for statistical analysis, (version 13; Inc., Chicago. IL).

Data from questionnaires has been entered as numerical or categorical, as appropriate. Two types of statistics have been done: 1) Descriptive statistics; where quantitative data was shown as mean, SD, and qualitative data was expressed as frequency and percent. 2) Analytical statistics: where Chi- square test was used to measure association between qualitative variables. P-value was considered statistically significant when it was less than 0.05.

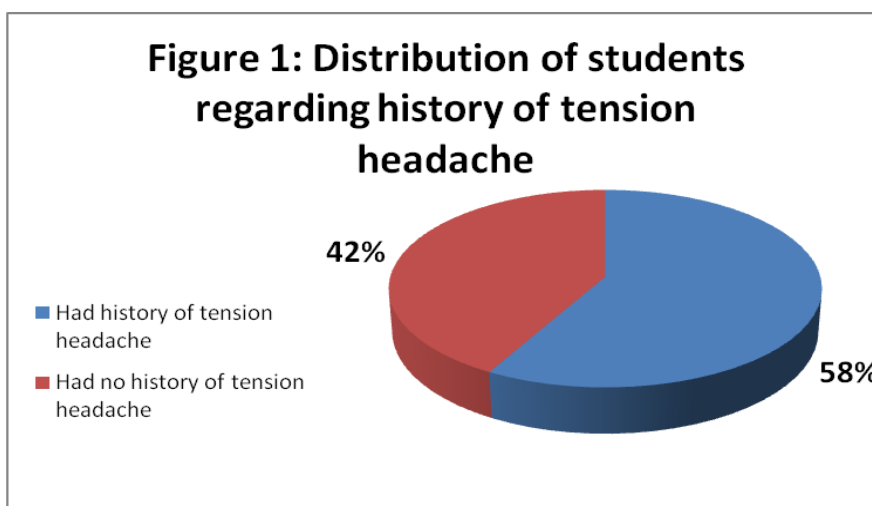
III. RESULTS

This study has been conducted over 50 female students in the 3rd year of College of Medicine at Taibah University, KSA. Their mean age was 21.14 ± 0.49 , all of them (100%) were resident in urban area, majority (92%) were single, all of them have perceived their socioeconomic standard as being either high (8%) or moderate (92%), and history of headache has been reported in 92% of students (Table 1). Figure 1 shows that 58% of students had history of tension headache.

Table 1: Socio-demographic data and history of headache among studied group of students.

Variables	Number=50	%
Marital state:		
-Married	4	8.0
-single	46	92.0
Living with:		
-Parent	47	94.0
-Friend	1	2.0
-Husband	2	4.0
Residence:		
-Urban	50	100.0

-Rural	0	0.0
Perceived Socioeconomic standard:		
-High	4	8.0
-Moderate	46	92.0
-Low	0	0.0
History of headache:		
-Yes	46	92.0
-no	4	8.0
History of tension headache:		
-Yes	29	58.0
-no	21	42.0
	Mean	SD
Age	21.14	0.49



No Significant differences ($p>0.05$) have been found between both groups of students with and without history of tension headache regarding presence of family, friendship, or study problems. Visual errors were more prevalent among students with history of tension headache than those without history of tension headache (89.7% vs. 66.7%), respectively. Students with history of tension headache reported higher percentage of daily mobile use more than 1hour, daily continuous setting on TV more than 3hours, daily continuous setting on computer more than 3hours, presence of chronic sinusitis, and family history of chronic headache than those without history of tension headache (41.4% vs. 19%), (20.7% vs. 14.3%), (69% vs. 66.7%), (24.1% vs. 19%), and (48.3% vs. 28.6%), respectively. No significant differences ($p>0.05$) have been found between both groups of students with and without history of tension headache regarding the three components of DASS scale, depression, anxiety, and stress (Table 2).

Table 2: Risk factors of tension headache among studied group of students.

Variable	Student with history of tension headache (n= 29)		Student with no history of tension headache (n=21)		Total (n=50)		Chi-square	P-value
	No	%	No	%	No	%		

Presence of family problems:								
- Yes	4	13.8	2	9.5	6	12.0	0.21	0.45
- No	25	86.2	19	90.5	44	88.0		
Presence of friendship problems:								
- Yes	5	17.2	3	14.3	8	16.0	0.08	0.62
- No	24	82.8	18	85.7	42	84.0		
Presence of difficulties in studying:								
- Yes	8	27.6	7	33.3	15	30.0	0.19	0.18
- No	21	72.4	14	66.7	35	70.0		
Presence of uncorrected visual error:								
- Yes	26	89.7	14	66.7	40	80.0	4.02	0.79
- No	3	10.3	7	33.3	10	20.0		
Type of visual error:								
- Myopia	20	68.9	10	47.6	30	60.0	2.25	0.24
- Hyper myopia	3	10.3	0	0.0	3	6.0		
- Astigmatism	3	10.3	3	14.3	6	12.0		
Current wear of glasses:								
- Yes	23	79.3	13	61.9	36	72.0	1.83	0.32
- No	6	20.7	8	38.1	14	28.0		
Presence of chronic Sinusitis:								
- Yes	7	24.1	4	19.0	11	22.0	0.18	0.28
- No	22	75.9	17	81.0	39	78.0		
Family history of chronic headache:								
- Yes	14	48.3	6	28.6	20	40.0	1.97	0.09
- No	15	51.7	15	71.4	30	60.0		
Daily continuous setting on TV more than 3hours:								
- Yes	6	20.7	3	14.3	9	18.0	0.34	0.71
- No	23	79.3	18	85.7	41	82.0		
Daily use of mobile for 1hour:								
- Yes	12	41.4	4	19.0	16	32.0	2.79	0.16
- No	17	58.6	17	81.0	34	68.0		
Daily continuous setting on Computer more than 3hours:								
- Yes	20	69.0	14	66.7	43	68.0	0.30	0.76
- No	9	31.0	7	33.3	16	32.0		
Daily drinking of 4 cups of caffeine:								
- Yes	5	17.2	3	14.3	8	16.0	0.79	0.37
- No	24	82.8	18	85.7	42	84.0		
Diagnosed as having anxiety:								
- Yes	16	55.2	12	57.1	28	56.0	0.02	0.81
- No	13	44.8	9	42.9	22	44.0		
Diagnosed as having stress:								
- Yes	14	48.3	9	42.9	23	46.0	0.14	0.87
- No	15	51.7	12	57.1	27	54.0		
Diagnosed as having depression:								
- Yes	14	48.3	11	52.4	25	50.0	0.08	0.31
- No	15	51.7	10	47.6	25	50.0		

IV. DISCUSSION

Headache is the commonest neurological condition in terms of number of people affected [17]. A number of studies have reported that list of precipitating or triggering factors of headache is not a short one (stress, emotion, flickering light, noise, fatigue, food, season, etc.) [18, 19]. But studies devoted to specific triggers related to tension type headache (TTH) are rare.

This study aimed to estimate the prevalence of tension headache among 3rd year female medical students at Taibah University in Saudi Arabia and identify its risk factors.

In the current study, 58% of students had history of tension headache, if taken in to consideration various population-based studies which have estimated the life-time prevalence of tension headache between 12-78% [20], our finding lies within that range.

No significant differences ($p > 0.05$) have been found between both groups of students with and without history of tension headache regarding history of daily use of mobile more than 1hour, daily continuous setting on TV more than 3hours, and daily continuous setting on computer more than 3hours, however students with history of tension headache have reported higher percentages of these practices than those without history of tension headache (41.4% vs. 19%), (20.7% vs. 14.3%), and (69% vs. 66.7%), respectively.

Several studies have investigated the associations between use of electronic media and headache, and have focused on computer and mobile phone use. Most of them found adverse associations for frequent use of computers and tension headache [21, 22], however results of one study were consistent with ours that did not find a statistically significant association [23].

Visual errors and chronic sinusitis were more prevalent among students with history of tension headache than those without history of tension headache (89.7% vs. 66.7%), (24.1% vs. 19%), respectively, which evokes the issue of importance of health appraisal among university students.

There was no significant association between drinking café and presence tension headache in this study, although an Australian study found a statistically significant association between headache and caffeine use [24].

This study results revealed no significant differences ($p > 0.05$) between both groups of students with and without history of tension headache regarding the presence of depression, anxiety, and stress. In contrast, *Rasmussen, 1993*, has reported stress and mental tension as most frequent precipitants for tension type headache [25].

These insignificant differences could be due to the fact that our study population was limited to medical students that substantial number of them commonly suffer from emotional stress, poor sleeping and feeding habits (including abusive use of caffeine and other psychoactive substances) than general population for reasons related to academic life. In addition, it was found that medical students rarely consult a physician concerning their headaches because of rapid self medication once experience complain which could lead to under estimation of the magnitude of the problem among this group of students [26].

Conclusion:

The majority (92%) of 3rd year female medical students at Taibah University have reported history of headache, however only 58% of students reported history of Tension Type Headache (TTH). No significant risk factors for TTH have been observed in this study.

Recommendations:

The careful monitoring of the risk factors of headache could be an important step in treatment, because their avoidance may lessen the frequency and severity of attacks, so it is recommended if health education sessions could be conducted to such university students to increase their awareness of risk factors of this phenomenon. Regular health appraisal could facilitate early identification and management of risk factors. Further search in precipitating and relieving factors of TTH should be continued in the future.

Acknowledgement:

We would like to express thanks to Dr Fawzeya Habib, dean of College of Medicine, Taibah University, for facilitating our work, to our supervisor Dr. Ayat Abdallah, for her patient guidance through this study, and to all participating students for their kind cooperation.

REFERENCES

- [1] Bicakci S, Over F, Aslan K, Bozdemir N, Saatci E, Sarica Y. Headache characteristics in senior medical students in Turkey. *Tohoku J Exp Med.* 2007 Nov; 213(3):277-82.
- [2] Abu"Arafah I, Razak S, Sivaraman B, and Graham C. Prevalence of headache and migraine in children and adolescents: a systematic review of population-based studies. *Dev Med Child Neurol* 2010; 52:1088–97.
- [3] Ashina M. Neurobiology of chronic tension-type headache. *Cephalalgia* 2004; 24(3):161–72.
- [4] Headache Classification Committee of the International Headache Society. Classification and diagnostic criteria for headache Disorders cranial neuralgias, and facial pain. *Cephalalgia* 1988, 8 (suppl 7):1–96.
- [5] Solomon GD. Pharmacology and use of headache medications. *Cleve Clin J Med* 1990; 57:627–635.
- [6] Rasmussen BK, Jensen R, and Olesen J. Epidemiology of tension-type headache in a general population. In: Olesen J, Schoenen J, editors. *Tension-type Headache: Classification, Mechanisms, and Treatment*. New York: Raven Press; 1993:9–13.
- [7] Firth-Cozens J. Stress in medical undergraduates and house officers. *Br J Hosp Med* 1989;41:161-4.
- [8] Rosal MC, Ockene IS, Ockene JK, Barrett SV, Ma Y, and Hebert JR. A longitudinal study of students' depression at one medical school. *Acad Med* 1997;72:542-6.
- [9] Peterlini M, Tiberio IF, Saadeh A, Pereira JC, and Martins MA. Anxiety and depression in the first year of medical residency training. *Med Educ* 2002; 36:66-72.
- [10] Bech P, Langemark M, and Loidrup D. Tension-type headache: psychiatric aspects. In: Olesen J, Schoenen J, editors. *Tension-type Headache . Classification, Mechanisms, and Treatment*. New York: Raven Press; 1993:143–146.
- [11] Eller T, Aluoja A, Vasar V, and Veldi M. Source, Symptoms of anxiety and depression in Estonian medical students with sleep problems. *Depress Anxiety.* 2006;23(4):250-6
- [12] Galinović I, Vuković V, Troselj M, Antić S, and Demarin V. Migraine and tension-type headache in medical students: a questionnaire study. *Coll Antropol.* 2009 Mar;33(1):169-73.
- [13] Da Costa MZ, Soares CB, Heinisch LM, and Heinisch RH. Frequency of headache in the medical students of Santa Catarina's Federal University. *Headache.* 2000 Oct; 40(9):740-4.
- [14] Schwartz BS, Stewart WF, Simon D, and Lipton RB. Epidemiology of tension-type headache *JAMA.* 1998 Feb 4;279(5):381-3.
- [15] Benamer HT, Deleu D, and Grosset D. Epidemiology of headache in Arab countries ,Neurology Department, New Cross Hospital, Wolverhampton, *J Headache Pain.* 2010 Feb;11(1):1-3. Epub 2009 Dec 1.
- [16] DASS Scale: <http://www.depression-test.net/depression-anxiety-and-stress-scale.html> . The Depression, Anxiety, and Stress Scales were developed by researchers at the University of New South Wales (Australia).
- [17] WHO report on South East Asia: http://www.searo.who.int/LinkFiles/Information_and_Documents_facts.
- [18] Martin PR. Psychological management of chronic headaches. New York: Guilford; 1993.

- [19] Scopp AL. Headache triggers: Theory, research and clinical application, Part I. *Headache Quarterly* 1992, 3:32–38.
- [20] Stovner Lj, Hagen K, Jensen R, Katsarava Z, Lipton R, and Scher A. The global burden of headache: a documentation of headache prevalence and disability worldwide. *Cephalalgia*. 2007;27(3):193–210.
- [21] Bener A, Uduman SA, Qassimi EMA, Khalaily G, Sztriha L, Kilpelainen H, and Obineche E. Genetic and environmental factors associated with migraine in schoolchildren. *Headache* 2000, 40:152-157.
- [22] Oksanen A, Metsähonkala L, Anttila P, Aromaa M, Jäppilä E, Viander S, Salminen J, Helenius H, and Sillanpää M. Leisure activities in adolescents with headache. *Acta Paediatr* 2005, 94:609-615.
- [23] Smith L, Louw Q, Crous L, and Grimmer-Somers K. Prevalence of neck pain and headaches: impact of computer use and other associative factors. *Cephalalgia* 2009, 29:250-257.
- [24] Shirlow MJ, and Mathers CD. A study of caffeine consumption and symptoms; indigestion, palpitations, tremor, headache and insomnia. *Int J Epidemiol* 1985, 14: 239–248.
- [25] Rasmussen BK. Migraine and tension-type headache in a general population: precipitating factors, female hormones, sleep pattern and relation to lifestyle. *Pain* 1993, 53:65–72.
- [26] Deleu D, Khan Ma, Humaidan H, Al Mantheri Z, and Al Hashamis. Prevalence and clinical characteristics of headache in medical students in oman. *Headache*, 41 (2001) 798.