

Association of tension type headache with depression and its Impact on academic performance of University students

Sehrish Usma, Misbah Ghous, Fauzia Latif, Mahrukh Naeem, Irum Yaqoob

Department of Physical Therapy, Railway General Hospital, Riphah College of Rehabilitation Sciences
Riphah International University Islamabad, Pakistan

Objective: To find the association of tension type headache with depression in university students and its impact on their academic performance.

Methodology: This correlational study was conducted from January to June 2018 at Riphah International University, Shifa Tameer-e-Milat University, Islamic International Medical and Dental College and National University of Science and Technology, Islamabad. A total of 805 medical, engineering and social sciences students participated through non-probability convenience sampling technique with age 17-24 years. We used Headache impact Test version 6 (HIT-6) for tension type headache and depression, anxiety, stress scale (DASS). Chi square was used to determine association between DASS and HIT-6.

Results: Out of 805 students, 330 (41%) were males and 475 (59%) females. Mean age was 21.3 ± 1.2 years. 254 (32%) students had headache due to loud

noise, 243 (30%) had anxiety, 131 (16%) had headache due to exam stress, 153 (19%) due to projectors light in classes and 24 (3%) reported associated symptoms due to menstrual cycle. Association of academic performance with HIT-6 was negative, ($r = -1.28$; $p < 0.05$), whereas r values for depression, anxiety and stress with headache were positively correlated $r = 0.61$, $r = 0.35$, $r = 0.47$ ($p < 0.05$). Comparison between genders showed non-significant ($p > 0.05$) results of HIT-6 and DASS.

Conclusion: Tension type headache was frequent and influenced the academic performance of students and they were prone to depression, anxiety and stress. Many students avoid social gathering and extracurricular activities due to headache.

Keywords: Tension type headache, depression, stress, anxiety, students, academic performance.

INTRODUCTION

The most common type of headache encountered by general population is tension type headache (TTH), and affects posterior muscles of neck and back, extending bilaterally back from forehead.¹ TTH and migraine were found to be the second and third most prevalent disorders in world.² There can be more than 15 episodes occur per month with mild nausea³ and phonophobia or photophobia.^{4,5}

Many students complained about disturbed sleep, tiredness and, lack of energy and trouble thinking.⁵ TTH may be associated with psychiatric disorders and negative mood behaviors, poorer performance on working memory and semantic memory tasks, and slower psychomotor performance.⁶ These factors may adversely affect the health and academic records of the students. This study aimed to find the association of TTH with depression and its impact on academic performance of university students.

METHODOLOGY

This correlational study was conducted from January to June 2018. Data were collected from Riphah

International University, Shifa Tameer-e-Milat University, Islamic International Medical and Dental College, National University of Science and Technology, Islamabad. Diagnosis was based on International Classification of Headache Disorders (ICHD), on criteria B through D for frequent and infrequent TTH (code 2.1, 2.2). An informed consent was taken from all participants.

Sample size calculator was used for sample calculation with 80% type II error and 95% confidence interval (CI) and the expected correlation coefficient was $r = 0.082$. Age, gender, study hours, sleep time, leisure time, daily study hours were recorded. We used headache impact Test version 6 (HIT-6) which tells effect of headaches on normal daily life and ability to function. HIT-6 questionnaire describes the individual's feelings and activity limitations while experiencing headache. If the patient scores 60 or more, headache is having a very severe impact on one's life.⁹ The Depression, Anxiety and Stress Scale (DASS-21) were also used. It is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress.¹⁰

Statistical Analysis: The data were analyzed by SPSS version 21. Bivariate analyses were conducted using the Spearman's correlation for ordinal variables and Pearson correlation for continuous variables, in order to verify factors related to headache and depression. Comparison between genders was done through independent sample t test. $P < 0.05$ was considered significant.

RESULTS

Out of 805 students, 330 (41%) were males and 475 (59%) females. Mean age was 21.3 ± 1.2 years. Medical students were 394 (49%), engineering students were 161 (20%) and social sciences 247 (31%). Those students who studied 2-4 hours daily were 625 (78%) and 5-6 hours were 180 (22%). Students with CGPA more than 3 were 357 (44%) and number of students with < 3 CGPA were 447 (56%). 490 (61%) students were physically active and 302 (38%) had sedentary lifestyle. 105 (13) were in moderate depression, 11 (1.2%) in severe depression and 10 (1%) in extremely severe. In

Table 1: Factors of headache.

Variable	Yes (n)%	No (n)%
Do you take Anti-depressants	79 (9)	725 (90)
Do you take Analgesics	97 (12)	708 (88)
Do you have sleep disturbance	246 (30)	559 (69)
Do you feel absent minded in class	353 (44)	452 (56)
Retake exam due to headache	95 (12)	710 (88)
Bunk class due to headache	191 (24)	614 (76)
Academics performance towards downfall	205 (26)	600 (74)
Avoid extracurricular activities	381 (47)	423 (53)
Avoid Gathering	399 (50)	405 (50)

Table 2: Bivariate correlations of different variables with HIT-6.

Variable	r-value	p-value
Academic Performance towards downfall	-1.28	0.001
Fell absent minded in class	-0.7	0.04
Bunk class due to headache	-0.15	0.001
Depression	0.61	0.01
Anxiety	0.45	0.01
Stress	0.57	0.01

anxiety, 400 (50%) were normal, 118 (15%) had mild anxiety, 216 (27%) moderate anxiety, 65 (8%) severe anxiety and 6 (0.7%) extremely severe anxiety.

In stress, 701 (88%) were normal population, 70 (9%) had mild stress, 19 (2%) moderate stress, 4 (0.2%) severe stress and 2 (0.1%) extremely severe stress. Table 1 shows Factors of headache and Table 2 shows correlation of different variables and Table 3 shows comparison between genders with HIT-6 and DASS.

Table 3: Comparison between Genders with HIT-6 scale & DASS.

Variable	Gender	Mean \pm SD	p-value
HIT-6	Males	2.86 \pm 1.15	0.68
	Females	2.93 \pm 1.16	
Depression	Males	1.56 \pm 0.75	0.52
	Females	1.53 \pm 0.77	
Anxiety	Males	1.92 \pm 1.01	0.48
	Females	1.97 \pm 1.12	
Stress	Males	1.11 \pm 0.40	0.09
	Females	1.16 \pm 0.44	

DISCUSSION

In student population headaches are serious concerned.¹⁰ In present study, majority (56%) students had CGPA less than three. There was high frequency of TTH leading to high level of stress. Stress and anxiety may might activate mechanisms that cause headaches.^{11,12} Headache is the most common indication for the use of analgesics. Most students used the pain killers without doctor's advice.¹¹ In young adult's depression, anxiety and stress level is not characterized by exact features, it is often presents with persistent irritable, sad or bored mood and difficulty with university.^{9,12,13} Depression can lead to concentration loss and cognitive impairments in students which can badly affect the academic records of the students.^{12,16}

We found a clear association of TTH with depression in university students, as reported by other studies.^{13,15} There are very few studies in literature which that have documented the association of TTH with depression and or have addressed the working abilities and social activities of students.¹⁶

This study showed that there was an association between headache severity with working ability and social effect, as 47% students avoided extracurricular activities and 50% avoided social gathering. The results of HIT-6 scale have shown that severe headaches

significantly affect the students quality of life leading to absence from university. Proper diagnosis and management with coping strategies in young adults is the only way to minimize this burden.

CONCLUSION

There was a close relationship between TTH and depression in university students. Tension type headache influenced the academic performance of students, and the sufferers were more prone to depression, anxiety and stress. Many students avoided social gathering and extracurricular activities due to headache.

Author Contributions:

Conception and design: Misbah Ghous.
Collection and assembly of data: Sehrish Usma, Fauzia Latif, Mahrukh Naeem.
Analysis and interpretation of data: Misbah Ghous.
Drafting of the article: Misbah Ghous.
Critical revision of article for important intellectual content: Misbah Ghous.
Statistical expertise: Misbah Ghous.
Final approval and guarantor of the article: Misbah Ghous.
Corresponding author email: Misbah Ghous.
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REFERENCES

- Desouky DE, Zaid HA, Taha AA. Migraine, tension-type headache, and depression among Saudi female students in Taif University. *J Egypt Public Health Assoc.* 2019; 94: 1-9.
- Birru EM, Abay Z, Abdelwuhab M, Basazn A, Sirak B, Teni FS. Management of headache and associated factors among undergraduate medicine and health science students of University of Gondar, North West Ethiopia. *J Headache Pain*, 2016; 17: 1-9.
- Lampl C, Thomas H, Tassorelli C, Katsarava Z, Láñez JM, Lantéri-Minet M, et al. Headache, depression and anxiety: associations in the Eurolight project. *J Headache Pain*, 2016; 17: 59-64.
- 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. *Neurosci J.* 2018; 23: 308-13.
- Ibrahim NK, Alotaibi AK, Alhazmi AM, Alshehri RZ, Saimaldaher RN, Murad MA. Prevalence, predictors and triggers of migraine headache among medical students and interns in King Abdulaziz University, Jeddah, Saudi Arabia. *Pak J Med Sci.* 2017; 33: 270-4.
- Valença MM. Commentary: acute tension-type headaches are associated with impaired cognitive function and more negative mood. *Front Neurol.* 2016; 7: 103-5.
- Alshehri AA, Alaskar FA, Albahili FK. Stress, depression and anxiety among medical students of Imam Mohammed Ibn Saud Islamic University, KSA. *Egypt J Hosp Med.* 2018; 70: 869-71.
- Tomé-Pires C, Solé E, Racine M, Galán S, Castarlenas E, Jensen MP, et al. The relative importance of anxiety and depression in pain impact in individuals with migraine headaches. *Scand J Pain*, 2016; 13: 109-13.
- Torres-Ferrus M, Vila-Sala C, Quintana M, Ajanovic S, Gallardo VJ, Gomez JB, et al. Headache, comorbidities and lifestyle in an adolescent population (The TEENS Study). *Cephalalgia*, 2019; 39: 91-9.
- Zarea K, Rahmani M, Hassani F, Hakim A. Epidemiology and associated factors of migraine headache among Iranian medical students: A descriptive-analytical study. *Clin Epidemiol Glob Health*, 2018; 6: 109-14.
- Hassan M, Asaad T. Tension-type headache, its relation to stress, and how to relieve it by cryotherapy among academic students. *Curr Psychiatry Rep.* 2020; 27: 1-11.
- Gu X, Xie Y. Migraine attacks among medical students in Soochow University, Southeast China: a cross-sectional study. *Eur J Pain*, 2018; 11: 771-4.
- Falavigna A, Teles AR, Braga GL, Conzatti LP, Ruschel LG, da Silva PG. Association between primary headaches and depression in young adults in southern Brazil. *AMB Rev Assoc Med Bras*, 2013; 59: 589-93.
- Blaauw BA, Dyb G, Hagen K, Holmen TL, Linde M, Wentzel-Larsen T, et al. Anxiety, depression and behavioral problems among adolescents with recurrent headache: the Young-HUNT study. *J Headache Pain*, 2014; 15: 38-42.
- Chu HT, Liang CS, Lee JT, Yeh TC, Lee MS, Sung YF, et al. Associations between Depression/Anxiety and Headache Frequency in Migraineurs: A Cross-Sectional Study. *Headache*, 2018; 58: 407-15.
- Shuaibi S, AlAshqar A, Ahmed SF, Alroughani R, Al-Thufairi H, Owayed S, et al. Prevalence of primary headache disorder among primary and middle school students in Kuwait. *Res Square*, 2020; 10: 621017.