

Proportion and Associated Factors of Chronic Headache in Bangladesh Armed Forces Personnel

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ABSTRACT

Background: Armed forces personnel are exposed to several stressful training followed by combat, non-combat injuries throughout their lifetime. Chronic headache has become frequently reported complaints in military hospitals. Considering the paucity of data among these special group of population, this study was designed to find the proportion of chronic headache and associated risk factors among the active Bangladesh Armed Forces personnel.

Methods: After receiving ethical approval from the CMH Dhaka, a cross-sectional study was conducted in the Neurology outpatient department of the Combined Military Hospital in Dhaka from April 2022 to March 2023. There were 208 individuals in all who complained of headache. Each patient gave their signed, informed consent before giving a thorough history that included information about their clinical history, anthropometric measurements, demographic characteristics, and headache. A semi-structured questionnaire was used to gather data. SPSS 24 was used to analyze the data.

Results: Mean age of the study population was 42.38 ± 14.93 years with male predominance (74.5%). Maximum study participants were not officer (75%) and resided outside cantonment (52.9%). 26.4% had history of caffeine intake, 8.2% had recent history of traumatic event and 8.2% had positive smoking history. The overall proportion of chronic headache was 19.2% (n=40). Headache was significantly associated with residence, caffeine intake and smoking ($p < 0.05$).

Conclusion: Almost one-fifth of the serving military personnel with headache are suffering from chronic headache. Frequency of headache may be decreased by encouraging them to avoid smoking and moderation of caffeine intake.

Keywords: Chronic Headache, Armed Forces Personnel.

INTRODUCTION

Chronic daily headache (also known as CDH) are defined by the International Headache Society as "15 or more headache episodes per

month for at least 3 months." More than 200 headache related diseases are included in the International Classification of Headache diseases (ICHD), which categorizes them into three groups: primary, secondary, and painful

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cranial neuropathies.¹ In the general population, 1% to 4% of people experience chronic headaches.² Women are affected 3-5 times more than men.³ The military is not immune to increase in major headache disorders, but active-duty members face additional risk factors than the general population.⁴

The armed forces personnel in Bangladesh have to undergo immense training during their professional life. To maintain the sovereignty of the country they have to face nerve-racking conditions often. Though they maintain highly disciplined life, communicable, non-communicable diseases may affect them too. Chronic headache due to different etiologies may impact their quality of life and restrict their daily activities. This study was designed to find out the proportion of chronic headache and associated risk factors among Bangladesh Armed Forces Personnel. The findings will generate new evidence for the physicians who work on military hospitals and help them to provide prompt treatment.

MATERIALS AND METHODS

This cross-sectional study was carried out at department of Neurology, Combined Military Hospital, Dhaka from April 2022 to March 2023 after proper ethical approval. Serving military personnel of both sex attending out-patient department of Neurology, Combined Military Hospital, Dhaka with the complaints of headache were included in the study. Two hundred and eight patients were selected by purposive sampling. Informed written consent was taken from each patient. Socio-demographic data such as Age, Sex, Designation, Length of service and Residence was collected. Different Factors like Stress, Hormonal change during menstruation, History of traumatic events, Sleep disturbance, Caffeine intake, Over-medication and Smoking was considered. Site, onset, relieving factor and medication history related

to headache was also noted. Data were collected using a semi structured questionnaire containing all the variables of interest. Data analysis was done SPSS 24 windows 10 version. Frequency distribution of all continuous variables was calculated and expressed as Mean $\pm$ SD. Categorical variables was expressed by frequency and percentage. To establish the association in categorical variable chi-square (χ^2) was used. A p value of <0.05 is considered significant.

RESULTS

Most study participants were male (74.5%) with a male to female ratio about 3:1. The mean age of the study patients was 42.38 ± 14.93 years ranging from 19-59 years. 50.5% patients were aged between 19-39 years. 1/4th study participants (25%) were commissioned officer and rest 3/4th were soldiers (75%).

The mean BMI of the study patients was 24.15 ± 3.76 kg/m². Most (63.9%) patients had normal BMI, while 25% were overweight and 6.7% were obese. More than half study patients (55.77%) had no comorbidity, while 27.4% had hypertension, 21.4% had diabetes mellitus, 15.4% had chronic kidney disease, 9.6% had coronary heart disease, 5.8% had asthma/COPD.

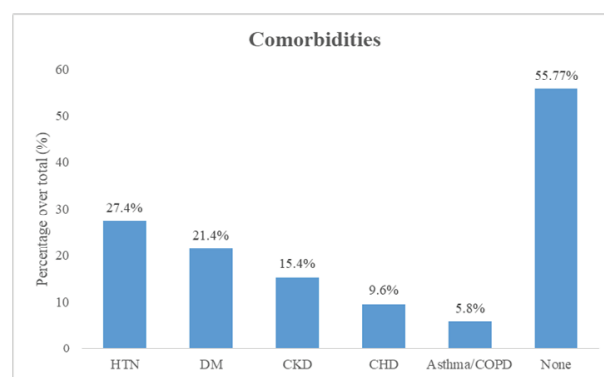


Figure-1: Comorbidities of the study participants. (n=208)

8.2% had chronic post-traumatic headache but majority of the study patients had no history of traumatic events (91.8%).



Figure-2: History of traumatic events among study participants. (n=208)

More than 1/4th of the study patient intake caffeine (26.4%). There was significant association between caffeine and type of headache as $p > 0.05$. 40% of the patients with chronic headache had history of caffeine intake while 23.2% of occasional headache had caffeine intake.

TABLE-I: Association between caffeine intake and type of headache of study patients (n=208)

Caffeine intake	Type of headache		p-value*
	Chronic (n=40)	Occasional (n=168)	
Yes	16 (40)	39 (23.2)	0.031
No	24 (60)	129 (76.8)	

*Chi-Square test

Maximum study patients were non-smoker (91.8%), while rest 8.2% were current or ex-smoker. Table 2 shows that there was significant association between smoking history and type of headache as $p > 0.05$. About 18% of the patients with chronic headache were smoker while only 6% of occasional headache were smoker.

TABLE-II: Association between smoking and type of headache of study patients (n=208)

Smoking History	Chronic (n=40)	Occasional (n=168)	p-value*
Smoker	7 (17.5)	10 (6)	0.025
Non-smoker	33 (82.5)	158 (94)	

*Chi-square test

Figure-3 shows that major part of the study patients resided outside cantonment (52.9%). Table 3 shows that there was significant association between residence and type of headache as $p > 0.05$. Maximum patients with chronic headache resided inside cantonment (65%) while 57.1% patients with occasional headache were hailed from outside cantonment.

TABLE-III: Association between residence and type of headache of study patients. (n=208)

Residence	Type of headache		p-value*
	Chronic (n=40)	Occasional (n=168)	
Inside cantonment	26 (65)	72 (42.9)	0.012
Outside cantonment	14 (35)	96 (57.1)	

*Chi-square test

DISCUSSION

The study comprised 208 patients with headaches, of whom 19.2% reported having a chronic headache. In a similar vein, Ahmed et al.'s earlier study from Bangladesh revealed that 25% of all headache patients suffered from chronic headaches.⁵ Additionally, compared to civilians, military personnel have a higher risk of developing migraine or other chronic headache problems.⁶ The prevalence of chronic headaches worldwide, however, is far lower than this study. It is because the study is conducted in a hospital, which may not reflect the general population.

The study's participants had an average age of 42 years, and 74.5% of them were men. Similar to the results of this research, a number of studies have found that the incidence of chronic headaches peaks around age 35 and then again around age 50, following which it starts to fall as people age.⁷ However, contrary to the results of this study, other research has found that women are more likely to experience chronic headaches as a result of changes in ovarian steroid hormones, particularly estrogen and

progesterone, though the precise mechanisms are still unclear.⁸ The reason for the discrepancy among the studies may be the high proportion of men in Bangladesh military, coupled with their demanding physical jobs, heavy workloads, stressful work environments, and shift work, which forces them to work during their biological resting phase and sleep during their biological active phase.

This study found that majority headache patients were not officer (75%), and maximum patients with chronic headache resided inside cantonment (65%). Similarly, in a previous study on US military also found that soldiers are more prone to develop chronic headache due to traumatic brain injury,¹⁰ stress-related triggers, sleep deprivation, fasting, and dehydration.⁶

In present study, more than 1/4th of the study patient intake caffeine (26.4%). Caffeine intake was found to be associated with chronic headache, which is also evident in previous studies that chronic consumption of caffeine seems to increase the burden of migraine.¹¹ Caffeine trigger chronic headache mainly by two ways; First, coffee causes magnesium to be lost through the urine and lowers the level of magnesium in the serum, which can cause headaches since magnesium influences nerve transmission and neuromuscular conduction and helps with migraines and chronic pain.¹² Second, because greater amounts of caffeinated coffee provide an immediate diuretic impact, which can then result in dehydration, dehydration is one potential migraine trigger.¹³

This study also found smoking as the associated factor of chronic headache. About 18% of the patients with chronic headache were smoker while only 6% of occasional headache were smoker. My study's findings that smokers are more prone to experience headaches frequently are also supported by a number of other studies.¹⁴ There are several logical explanations

for why smoking increases the frequency and intensity of headaches. Nicotine may increase the propensity for head discomfort by stimulating the nerves that are sensitive to pain as they travel down the back of the throat. Additionally, smoking may raise oxidative stress, which may be a common underlying cause of many migraine triggers.¹⁵

As per results of this study we shall encourage our armed forces personnel to stop smoking and limit the intake of caffeine. This will help in decreasing their frequency of headache and thus increase their proficiency.

LIMITATIONS

Limitation of our study was low number of study sample owing to the fact that all personnel do not report to Neurology department with headache. A prospective longitudinal study incorporating more patients from multiple Combined Military Hospital nation-wide will provide better information and reliable results.

CONCLUSION

This study found that almost one-fifth of the military personnel with headache are suffering chronic headache. Besides, inside cantonment residence, caffeine intake and smoking exposure is significantly associated with chronic headache. However, further study with larger sample size is recommended, which could give us more information about the triggering factors of chronic headache, which may be useful for developing strategies that reduce headache occurrence in the military personnel of Bangladesh.

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