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Clinical Profile and Patterns of Headache in Patients Attending a Tertiary Care Hospital

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Abstract **Original Research Article**

Introduction: Headache, or cephalagia, is a prevalent neurological disorder affecting individuals worldwide. It significantly impacts quality of life, work productivity, and overall well-being. Despite its high incidence, headache disorders remain underreported and often inadequately managed in clinical settings, particularly in developing countries like Bangladesh. ***Materials and Methods:*** This observational descriptive, hospital-based research was conducted in the Department of Neurology, Dhaka Medical College Hospital (DMCH), from July to December 2013. Of 100 consecutive patients with complaints of headaches and enrolled using a purposeful, non-probability sampling strategy, none were patients with severe mental illness, ongoing stroke, fever, sinusitis, or critical comorbidities. Structured questionnaire interviewing evaluated data, processed using SPSS software. P<0.05 was used as the measure of statistical significance. ***Results:*** 50% of the 100 patients were between 21 and 30 years old. 75% of the study population consisted of female patients. Housewives represented the most affected working population (57%), followed by students (13%) and businessmen (12%). 46% of them had headaches for 1–5 years, and 64% of them had attacks for 1–6 hours. 63% of the patients had recurrent headaches, and the most common (61%) were compressive-type headaches. The most common co-morbid symptoms were nausea (60%), vertigo (34%), and photophobia (33%). ***Conclusion:*** Headaches, particularly among females and young adults, are a major public health concern in Bangladesh. The study highlights the importance of increased awareness, diagnosis, and management strategies that cater to the specific needs of the Bangladeshi population. Future research should explore the etiologies and develop targeted interventions to decrease the burden of headache disorders.

Keywords: Headache, Cephalalgia, Neurological disorder, Quality of life, Work productivity.

INTRODUCTION

Headache, more formally referred to as Cephalalgia, stands out as one of the most frequently encountered medical issues affecting nearly every individual across the globe, regardless of age, gender, or geographical location. The manifestations of a headache can vary significantly in intensity, ranging from mild discomfort that is barely noticeable to severe pain that can incapacitate an individual and drastically affect their daily activities [1]. It is recognized as one of the most prevalent neurological disorders, with a high incidence across diverse populations and demographic groups, making it a significant concern in both clinical and public health contexts. In the United States alone, about 99% of young women and approximately 91% of young men report experiencing at least one episode of a headache each year, which underscores the widespread nature of this ailment [2,3]. On an international scale, headaches are ranked among the top 20 most debilitating health conditions, emphasizing their profound impact on individuals' quality of life, overall well-being, and

productivity levels in various aspects of daily living [4]. Headaches can be broadly categorized into two main types: primary headaches and secondary headaches. Primary headaches, in contrast to being categorized as a medical illness, are typically understood as discomfort arising from inherent structural or functional issues within the brain itself, with common manifestations including migraine, tension-type headache, cluster headache, and several other related forms [5]. On the other hand, secondary headaches are recognized as medical conditions that stem from a variety of underlying issues such as trauma, infections, vascular disorders, neurological conditions, and other related health problems [6]. Among the various types of primary headaches, tension-type headaches remain the most prevalent, affecting a staggering 30% to 90% of the general population, indicating a widespread issue that warrants attention [7]. In comparison, secondary headaches, while they are less common than their primary counterparts, are frequently associated with other medical conditions and can, at times, lead to life-threatening situations, making them a serious concern in medical practice. In particular, headaches, especially migraines, represent a considerable health threat to the population of Bangladesh, as they affect a wide range of demographic groups and have significant implications for different aspects of quality of life. The prevalence of migraine among university students in Bangladesh is alarmingly high, with research indicating a prevalence rate of 21.4%, predominantly driven by female students, whereas the prevalence rate specifically among medical students stands at 19% [8,9]. Although the data on the general population is not extensive, studies show that nearly 29.75% of the reported cases of headaches and migraines can be connected to the overall population, indicating a major public health concern in Bangladesh [10]. The goal of our study is to thoroughly evaluate the clinical profiles and patterns observed in patients who visit the hospital with symptoms that suggest the presence of headache disorders.

METHODS AND MATERIALS

From July through December 2013, the Neurology Department at Dhaka Medical College Hospital (DMCH) carried out this hospital-based observational descriptive study with a focus on headache patients from the Headache Clinic. Patients having headaches as their principal complaint who were 18 years of age or older and did not have a serious mental disease, an active stroke, fever, sinusitis, or significant co-morbidities were eliminated using a purposeful, non-probability sampling technique. A standardized questionnaire that was meticulously examined for correctness was used to collect the data. Registration, editing, coding, and computerization were used to process the data. SPSS/PC software was used for analysis, and MS Excel tables, graphs, and charts were used to display the findings. Statistical significance was defined as a p-value of less than 0.05. A systematic work manual was created and the questionnaire was pretested for clarity in order to guarantee the quality of the data. Strict adherence to ethical principles was maintained, including participants' voluntary involvement, informed permission in Bangla, confidentiality, and private interviews held at a time and location that worked for them.

RESULTS

Table 1: Distribution of study population based on Basic characteristics (n=100)

Basic characteristics	Number of patients (n)	Percentage (%)
Age (in years)		
≤20	6	6%
21-30	50	50%
31-40	28	28%
>40	16	16%
Sex		
Male	25	25%
Female	75	75%
Occupational status		
Housewife	57	57%
Student	13	13%
Businessman	12	12%
Textile mill worker	5	5%
Service	4	4%
Garments worker	4	4%
Tailors	3	3%
Taxi Driver	2	2%
Religion		
Islam	98	98%
Hinduism	2	2%
Marital status		
Unmarried	16	16%
Married	84	84%

Table 1 provides a comprehensive overview that elucidates the basic characteristics of the overall study population, encompassing various aspects such as age, occupational status, religious affiliations, and marital status, which together paint a detailed picture of the demographic involved in this study. The information presented in Table 1 reveals that a striking 50 individuals, representing exactly half of the patients experiencing headache symptoms, fall within the age range of 21 to 30 years old, thereby highlighting the significant observation that symptomatic headaches are predominantly prevalent among the younger population. Within the subsequent age category of 31 to 40 years, there are 28 respondents, accounting for 28% of the total population, while those under the age of 20 comprised 6 respondents, which is equivalent to 6%, and for individuals over the age of 40, there are 16 respondents, translating to 16% of the total participants. Analyzing the gender distribution, it becomes evident that a substantial majority of 75 respondents, or 75%, identified as female, thus making a clear statement regarding the higher prevalence of headache symptoms among females, in contrast to the 25 respondents, which represent 25%, who are male. In terms of occupational status, the data indicates that housewives constitute the predominant group with a total of 57 respondents, equating to 57% of the sample, followed by students who represent 13 individuals, or 13%, and businessmen, who account for 12 respondents, representing 12%, while textile mill workers number 5 respondents, which is 5%, and garment workers contribute 4 respondents, amounting to 4%, with tailors comprising 3 respondents and taxi drivers numbering 2 individuals, which corresponds to 2%. The data was collected from the geographical region of Bangladesh, so it is noteworthy that the overwhelming majority of respondents, totaling 98 individuals, or 98%, identify as Muslim, while only 2 respondents, amounting to 2%, are affiliated with Hinduism. The analysis of marital status reveals that a significant majority of 84 respondents, equivalent to 84%, are married, contrasting with the 16 respondents, which represents 16%, who are unmarried, thereby providing additional context to the demographic composition of the study population.

Table 2: Distribution of the study patients based on pattern of headache (n=100)

Pattern of Headache	**Number of patients (n)**	**Percentage (%)**
Duration of illness		
Under 1 year	25	25%
1-5 years	46	46%
6-10 years	19	19%
>10 years	10	10%
Mean±SD	**4.6±3.3**	
Range (min, max)	**(15 days, 12 years)**	
Duration of headache(hours)		
<1 hours	16	16%
1-6 hours	64	64%
7-23 hours	4	4%
24-48 hours	13	13%
>48 hours	3	3%
Mean±SD	**5.48±3.31**	
Range (min, max)	**(15 mins, 240 hours)**	
Periodicity		
Continuous	63	63%
Periodic	25	25%
Occasional	12	12%
Radiation		
Left side of head	3	3%
Neck	9	9%
Whole body	3	3%
Whole head	2	2%
No radiation	83	83%
Character		
Compressive	61	61%
Pulsatile	33	33%
Heavy	14	14%
Dull	11	11%
Penetrating	6	6%
Tingling	4	4%
Burning	3	3%
Electric shock	2	2%

Table 2 represents a comprehensive analysis of the various aspects related to the duration of illness, the length of headache episodes, the frequency of occurrence, the radiation of pain, and the nature of the headache itself, all of which are assessed to evaluate the headache patterns exhibited by the patients involved in this study. Based on the duration of illness data, it has been determined that a significant majority of patients endure their afflictions for an average period ranging from 1 to 5 years, a finding that is substantiated by the responses of 46 individuals, which constitutes approximately 46% of the total respondents; furthermore, it has been observed that 19 respondents, representing about 19% of the total population surveyed, reported experiencing suffering for an average duration between 6 and 10 years, while a smaller subset of 10 respondents, accounting for 10% of the total, indicated that their suffering has persisted for over 10 years; in contrast, there were also 25 respondents, making up around 25% of the surveyed group, who reported that their duration of suffering was less than a year. The data pertaining to the duration of headaches reveals that the majority of respondents, totaling 64 individuals, which is equivalent to 64%, experience headaches that last, on average, between 1 to 6 hours; furthermore, 16 respondents, representing 16%, report headache durations of less than 1 hour, while 13 respondents, or 13%, indicate that their headaches persist for a duration ranging from 24 to 48 hours, and an additional 4 respondents, making up 4%, experience headaches lasting between 7 to 23 hours, with 3 respondents, accounting for 3%, suffering from headaches that exceed 48 hours in duration, resulting in an average mean headache duration of 5.48 hours with a standard deviation of 3.31 hours, where the total range spans from a minimum of 15 minutes to a maximum of 240 hours. The periodicity data indicates that a total of 63 respondents (63%) report experiencing continuous headaches, while 25 respondents, or 25%, indicate that their headaches occur periodically, and 12 respondents, representing 12%, report that their headaches are occasional. In terms of radiation associated with the headaches, the data reveals that 3 respondents, or 3%, experience pain localized to either the left or right side of the head, 9 respondents, equivalent to 9%, report neck pain, while 3 respondents, or 3%, experience pain that radiates throughout the entire body, and 2 respondents, accounting for 2%, report pain affecting the entirety of their head, with a remarkable 83 respondents, which forms the majority at 83%, indicating that they do not experience any radiation of pain at all. Lastly, the character of the headaches is categorized as follows: 61 respondents, constituting 61%, describe their headaches as having a compressive quality, 33 respondents, or 33%, report a pulsatile sensation, 14 respondents, representing 14%, experience a feeling of heaviness, 11 respondents, which is 11%, describe their headaches as dull, 6 respondents, or 6%, report a penetrating sensation, 4 respondents, accounting for 4%, indicating that they experience tingling sensations, 3 respondents, which is 3%, report a burning sensation, and finally, 2 respondents, or 2%, describe their headache sensations as similar to electric shocks.

Table 3: Distribution of the study patients by presenting symptoms (n=100)

Co-existing symptoms	Number of patients (n)	Percentage (%)
Nausea	60	60%
Vertigo	34	34%
Photophobia	33	33%
Visual disturbance	17	17%
Vomiting	9	9%
Insomnia	6	6%
Discomfort	5	5%
Stiffness	2	2%
Chest Tightness	3	3%
Tinnitus	2	2%

The observation represented in Table 3 precisely categorizes the assortment of co-existing symptoms reported by patients during episodes of headache, thus playing a crucial role in deepening our understand ding of the complex dynamics of this condition. A thorough examination of the data reveals that among the cohort of patients exhibiting nausea as a symptom, an overwhelming majority, specifically 60 individuals which constitute 60% of the surveyed population, report this symptom, whereas symptoms such as vertigo and photophobia rank as the second and third most prevalent co-existing symptoms with 34 respondents, representing 34%, and 33 respondents, corresponding to 33%, respectively, thereby underscoring the assertion that individuals afflicted with headaches predominantly endure the challenges posed by nausea, vertigo, and photophobia. Furthermore, an assortment of additional symptoms is observed to impact patients suffering from headaches, with 17 individuals, or 17% of the total respondents, reporting experiences of visual disturbances, while a smaller subset of 9 respondents, which makes up 9% of the population, indicate instances of vomiting, alongside 6 respondents, accounting for 6%, who report difficulties with insomnia, and further including 5 respondents, or 5%, who experience discomfort, 2 respondents, representing 2%, who report stiffness, 3 respondents, or 3%, who experience sensations of chest tightness, and finally, 2

respondents, which also equates to 2%, who suffer from tinnitus.

DISCUSSION

Headache is a prevalent symptom that significantly affects patients' quality of life. This study explores headache patterns and clinical profiles at a Bangladeshi tertiary care facility. Findings reveal notable demographics, duration, frequency, and comorbidities within the Bangladeshi population. The study identified a higher prevalence of headaches in younger adults, particularly those aged 21 to 30, who made up 50% of participants. This aligns with global trends indicating that headache disorders affect primarily working-age individuals [11]. The study also reported a predominance of females (75%), consistent with previous research indicating a higher susceptibility in women. Additionally, the prevalence of headaches among housewives (57%) suggests an impact of lifestyle and stress factors related to domestic responsibilities. A majority of patients (64%) reported headaches lasting 1 to 6 hours, typical for tension-type headaches and migraines. A lesser proportion experienced headaches lasting 24 to 48 hours or longer, potentially indicative of severe primary or secondary headaches that necessitate further evaluation. The high incidence of chronic headaches (63%) indicates that conditions such as chronic migraine and chronic tension-type headaches are prevalent in this demographic. This finding is concerning, as chronic headaches are known to adversely affect productivity and overall well-being. Regarding pain characteristics, a notable portion of respondents (61%) described their headaches as compressive, typical of tension-type headaches. Pulsatile headaches, indicative of migraines, were reported by 33% of the participants, highlighting the prevalence of both primary headache types in this cohort. The variability in pain characteristics underscores the heterogeneous nature of headache disorders and the necessity for tailored diagnostic and therapeutic strategies [12]. The co-occurring symptoms of headache, notably nausea, vertigo, and photophobia, merit discussion. A significant 60% of patients reported nausea, the predominant symptom associated with migraines. Vertigo and photophobia were observed in 34% and 33% of patients, respectively, highlighting the link between headaches and neurological issues, particularly in migraine cases. Visual symptoms (17%) and nausea (9%) support the hypothesis that many headaches are migraines or primary headache disorders with neurological manifestations. There exists a notable association between headaches and co-morbidities such as insomnia (6%) and chest tightness (3%), reflecting the influence of headache disorders on sleep and overall health. Insomnia is particularly prevalent among chronic headache patients and correlates with increased headache frequency and intensity [13]. Although less common, chest tightness warrants further examination as it may indicate connections to other conditions like anxiety or stress, known to trigger headaches [14]. Lastly, the clinical characteristics and headache patterns identified in this study underscore the diversity and intricacy of headache disorders within the Bangladeshi demographic. The predominance of females, the youthful population, and elevated rates of chronic headaches highlight the significance of primary headache disorders, specifically migraines and tension-type headaches, as major public health issues. The presence of notable co-existing symptoms emphasizes the necessity for a comprehensive headache management strategy that addresses not only the primary headache but also the accompanying symptoms. This study offers crucial data for developing tailored diagnostic and treatment approaches that provide unique requirements of the Bangladeshi population. Further study into headache etiology, along with targeted interventions, is essential to alleviate the impact of this common neurological condition.

Limitations of the study

The study was conducted exclusively to analyze the dynamics of headache patients in a single hospital in Dhaka. Therefore, the findings should not be generalized to the entire Bangladeshi population. Additionally, as the study focused only on hospital outpatients, its results may not be applicable to the wider public.

CONCLUSION

Our study reveals a significant prevalence of headache disorders in young adults, especially women, with frequent continuous headaches and associated symptoms. The results indicate that primary headache disorders, mainly migraines and tension-type headaches, constitute significant health issues necessitating focused intervention. A multidisciplinary strategy in diagnosis and management is essential to enhance patient outcomes and mitigate the daily impact of headaches. Future studies will be focusing on identifying risk factors and creating effective prevention and treatment methodologies within the Bangladeshi context.

RECOMMENDATION

Large, controlled multicenter randomized surveys are necessary to classify the true dynamics of headache sufferers. Future studies might utilize larger sample sizes.

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