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Aggravating and Relieving Factors of Migraine and Tension Type Headache in the Adult General Population of Karachi, Pakistan

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ABSTRACT

OBJECTIVE: To determine the common aggravating and relieving factors among tension-type headache patients.
METHODOLOGY: This is a cross-sectional study design & the data was gathered from the patients who frequently visited the outpatient neurology clinic at M. Rab Medical Center and the neurology clinic. The study duration was one year, and the sample size was calculated using the online software Open Epi. At a 95% confidence level, the resulting sample size is 500 of both sexes, and the data collection instrument was a structured questionnaire.
RESULTS: 100% of the study's responses included both male (30.6%) and female (69.4%). It revealed that the most common aggravating factors increasing the intensity of headaches were Stress and anxiety (64%) along with sleep deprivation (61.4%) as well as exposure to loud noise. Regarding the reliving factors, it was revealed that 71.2% of individuals showed a significant reduction in headache intensity with Sleep, while Tea was identified as a relieving factor among 258 individuals (51.6%). Other interesting factors were also identified, including Ablution and recitation of the Holy Quran.
CONCLUSION: The study revealed that migraine and tension-type headaches in Karachi's adult population are exacerbated by factors such as anxiety, bright lights, hunger, loud noises, family problems, and insufficient Sleep. These causes differ among genders, age groups, and individuals. Women are more sensitive to anxiety, loud noises, and family problems, while younger individuals are more affected by bright lights and excessive Sleep.

KEYWORDS: Migraine, Tension, Headache, Anxiety

INTRODUCTION

Headache is the most common neurological condition in terms of number of individuals affected. Headache is defined as a continuous or persistent pain in the head caused by dilution of cerebral arteries or muscle contractions. It can be classified into two categories: Primary headache and Secondary headache. Any medical disorder does not usually cause primary headaches. The most prevalent primary headaches are migraine and tension-type headaches (TTH)[1]. According to the 2016 Worldwide Burden of Malady (GBD), tension-type headache is the third most prevalent condition in the world, and migraine headache is the Sixth[1]. Many studies have discussed the prevalence of headache in Pakistan, Europe[2], China[3], Iraq[4] and India[5]. Factors that increase or decrease the severity of headaches play a core role in patient treatment. Aggravating and relieving factors of headache types should be identified to reduce the prevalence of these headaches.

The perception of the general population in Karachi about how they try to relieve their symptoms related to headache types could enhance the treatment strategies and help cement the knowledge gaps. Literature indicates that by properly investigating headache diaries and lifestyle, approximately 50–75% of migraine and tension-type headache patients could identify factors that provoked and subsided their headaches[6]. Similarly the article published in China shows many common reasons that can trigger migraine and tension-type headache[7]. As far as the investigator's knowledge is concerned, scarce work has been done to know the provoking and alleviating factors of migraine and tension type headache in adult population of Karachi. The objectives of this study are to determine the common aggravating factors and relieving factors among the patients of tension type headache, to determine the common aggravating factors and relieving factors among the patients of migraine and to compare the gender differences in the Aggravating factors and relieving factors among the patients of migraine and tension type headache.

METHODOLOGY

This cross-sectional study collected data from patients who regularly attend the outpatient neurology clinic at M. Rab Medical Center and the neurology private clinic. The data collection and study duration was 1 year, and the IRB of Jinnah Sindh Medical University approved the project. The sample size was calculated using the online software Open Epi. We took 76.6% prevalence, taking the confidence level of 95% and the bound of error of 4%, the sample size came out to be 431, with an account 10% non-response rate, and the final size came out to be around 500 with the convenience sampling technique was used. The study population included male and female participants between the ages of 18 and 23. Participants who provided informed consent and visited the neurology clinic and individuals over 18 years were included in this study. At the same time, patients with other medical conditions like hypertension, diabetes and other comorbidities were excluded.

DATA COLLECTION TOOL AND ANALYZATION

A structured questionnaire comprising three sections was distributed, including demographic enquiry, screening and diagnostic questions for headache and aggravating and relieving factors. The first section covered basic demographic and socio-economic details, including age, gender, marital status, and occupation. The second section consisted of a diagnostic part constructed according to The International Classification of Headache Disorders (ICHD-III). The third section has questions regarding aggravating and relieving factors. Questionnaires have taken approximately 20-30 minutes to be filled. The data were analyzed by using the software SPSS 21. Frequency and percentage were used to show the common factors, and the Chi-square test was used to see the relationship between gender and factors.

RESULTS

The response rate of the research was 100%. The majority of the participants included in this study were between 18-23 years old. Among these 500 participants, 347 (69.4%) were females and 153 (30.6%) were males. 369 (73.8%) participants were single, 127 (25.4%) were married and 4 (0.8%) were widows. The participants of the research were students and people from different professions.

Demography		Frequency	Percent
Gender	Male	153	30.6
	Female	347	69.4
Age Group	<=24	354	70.8
	> 24	146	29.2
Marital status	Single	369	73.8
	Married	127	25.4
	Widow	4	0.8
Have you ever had a headache?	Yes	492	98.4
	No	8	1.6
Have you had a headache in the last 3 months?	Yes	467	93.4
	No	33	6.6
How often did you have a headache in the last 3 months?	>= 3 times a week	123	24.6
	once a month	202	40.4
	More than twice a month	175	35.0
	Total	500	100.0

Table I: Demographic descriptive analysis of participants

When asked whether they had experienced a headache ever in their life, 492(98.4%) people gave an affirmative response, while 8(1.6%) people refused to experience any headache. 467(93.4%) people reported having a headache in the last 3 months, while 33(6.6%) people didn't experience it. When participants were questioned about the frequency of headaches in the previous 3 months, 202(40.4%), people reported headaches once a month, 175(35%) people reported headaches more than twice a month and 123(24.6%) reported headaches three or more than three times a week.

AGGRAVATING FACTORS OF HEADACHE

People were assessed for the aggravating factors of headaches. Interestingly, anxiety or Stress was found at the top of the list, with 320(64%) reporting it to be their sole reason for the increase in the intensity of headaches. 306(61.4%) people experienced too little Sleep as their primitive aggravating factor of headache. 267(53.4%) people reported loud noises as their aggravating headache factor. Hot weather aggravates headaches among 196(39.2%) people. Surprisingly, 178(35.6%) people demonstrated allergy/flu as their aggravating headache factor. Sunlight exposure was the fifth most common aggravating factor of headache, with 173(34.6%). Meanwhile, 153 (30.6%) people reported hunger to be their aggravating factor for headaches. Exposure to bright light was also a causative factor for the increased headache among 140 (28%) people. Furthermore, 130(26%) people marked family problems, while 128(25.6%) marked too much Sleep as the aggravating factor of their headache. 114(22.8%) people reported an increase in their headaches from the fragrance of perfume. 113(22.6%) people observed headaches due to travelling. 42(8.4%) people experienced increased headaches with domestic activities and driving. Physical exertion was also aggravating among 40(8%) people. School-going children also experienced aggravation in headaches, which was 39(7.8%) among the study population.

Figure I: Graphical presentation of Aggravating factors of Headache

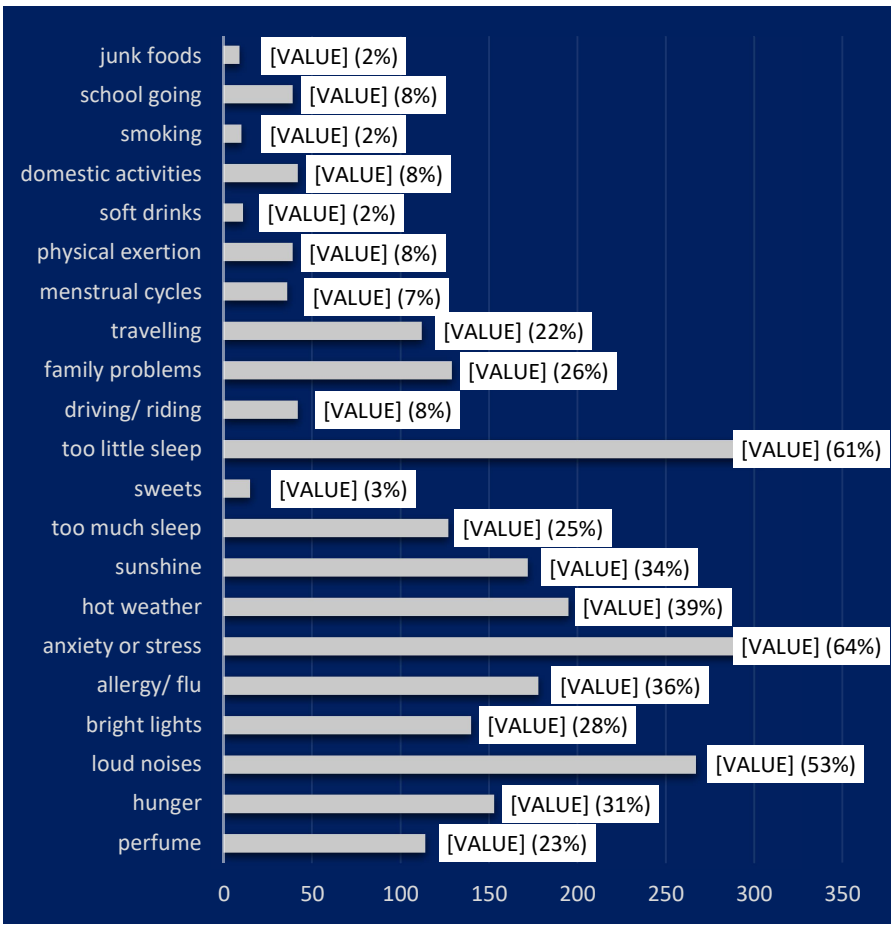


Table II: Factors Involved in Aggravation of Headache

Table 2: Things That Increase Headache		Age Group			Gender		
		<=24	> 24	P-Value	Male	Female	P-Value
Perfume	Yes	75 (21.2%)	39 (26.7%)	0.181	31 (20.3%)	83 (23.9%)	0.369
	No	279 (78.8%)	107 (73.3%)		122 (79.7%)	264 (76.1%)	
Hunger	Yes	116 (32.8%)	37 (25.3%)	0.101	30 (19.6%)	123 (35.4%)	0.001
	No	238 (67.2%)	109 (74.7%)		123 (80.4%)	224 (64.6%)	
Loud Noises	Yes	195 (55.1%)	72 (49.3%)	0.240	63 (41.2%)	204 (58.8%)	0.001

	No	159 (44.9%)	74 (50.7%)		90 (58.8%)	143 (41.2%)	
Bright Lights	Yes	116 (32.8%)	24 (16.4%)	0.001	33 (21.6%)	107 (30.8%)	0.033
	No	238 (67.2%)	122 (83.6%)		120 (78.4%)	240 (69.2%)	
Allergy/ Flu	Yes	122 (34.5%)	56 (38.4%)	0.408	58 (37.9%)	120 (34.6%)	0.474
	No	232 (65.5%)	90 (61.6%)		95 (62.1%)	227 (65.4%)	
Anxiety Or Stress	Yes	225 (63.6%)	95 (65.1%)	0.749	79 (51.6%)	241 (69.5%)	0.001
	No	129 (36.4%)	51 (34.9%)		74 (48.4%)	106 (30.5%)	
Hot Weather	Yes	131 (37%)	64 (43.8%)	0.155	52 (34%)	143 (41.2%)	0.127
	No	223 (63%)	82 (56.2%)		101 (66%)	204 (58.8%)	
Sunshine	Yes	116 (32.8%)	56 (38.4%)	0.232	45 (29.4%)	127 (36.6%)	0.119
	No	238 (67.2%)	90 (61.6%)		108 (70.6%)	220 (63.4%)	
Too Much Sleep	Yes	107 (30.2%)	20 (13.7%)	0.001	38 (24.8%)	89 (25.6%)	0.848
	No	247 (69.8%)	126 (86.3%)		115 (75.2%)	258 (74.4%)	
Sweets	Yes	8 (2.3%)	7 (4.8%)	0.131	3 (2%)	12 (3.5%)	0.570
	No	346 (97.7%)	139 (95.2%)		150 (98%)	335 (96.5%)	
Too Little Sleep	Yes	221 (62.4%)	85 (58.2%)	0.380	100 (65.4%)	206 (59.4%)	0.205
	No	133 (37.6%)	61 (41.8%)		53 (34.6%)	141 (40.6%)	
Driving/ Riding	Yes	34 (9.6%)	8 (5.5%)	0.131	14 (9.2%)	28 (8.1%)	0.688
	No	320 (90.4%)	138 (94.5%)		139 (90.8%)	319 (91.9%)	
Family Problems	Yes	75 (21.2%)	54 (37%)	0.001	30 (19.6%)	99 (28.5%)	0.036
	No	279 (78.8%)	92 (63%)		123 (80.4%)	248 (71.5%)	
Travelling	Yes	65 (18.4%)	47 (32.2%)	0.001	34 (22.2%)	78 (22.5%)	0.950
	No	289 (81.6%)	99 (67.8%)		119 (77.8%)	269 (77.5%)	

Menstrual Cycles	Yes	29 (8.2%)	7 (4.8%)	0.181	0 (0%)	36 (10.4%)	NA
	No	325 (91.8%)	139 (95.2%)		153 (100%)	311 (89.6%)	
Physical Exertion	Yes	30 (8.5%)	9 (6.2%)	0.381	14 (9.2%)	25 (7.2%)	0.455
	No	324 (91.5%)	137 (93.8%)		139 (90.8%)	322 (92.8%)	
Soft Drinks	Yes	8 (2.3%)	3 (2.1%)	0.887	4 (2.6%)	7 (2%)	0.743
	No	346 (97.7%)	143 (97.9%)		149 (97.4%)	340 (98%)	
Domestic Activities	Yes	27 (7.6%)	15 (10.3%)	0.332	10 (6.5%)	32 (9.2%)	0.318
	No	327 (92.4%)	131 (89.7%)		143 (93.5%)	315 (90.8%)	
Smoking	Yes	9 (2.5%)	1 (0.7%)	0.177	5 (3.3%)	5 (1.4%)	0.179
	No	345 (97.5%)	145 (99.3%)		148 (96.7%)	342 (98.6%)	
School Going	Yes	38 (10.7%)	1 (0.7%)	0.001	13 (8.5%)	26 (7.5%)	0.700
	No	316 (89.3%)	145 (99.3%)		140 (91.5%)	321 (92.5%)	
Junk Foods	Yes	6 (1.7%)	3 (2.1%)	0.783	5 (3.3%)	4 (1.2%)	0.140
	No	348 (98.3%)	143 (97.9%)		148 (96.7%)	343 (98.8%)	

Females of reproductive age also experienced aggravation in their headache during the Menstrual cycle 37(7.4%) women. 16(3.2%) people marked sweet intake as the causative factor for increased headaches. In comparison, 11(2.2%) participants reported some increase in headaches with the usage of soft drink intake, while 10(2%) people experienced headaches due to smoking. Junk food was also noticed as a cause of the increase in headaches among 9(1.8%) people.

When checked for the site of pain during headache, 327(65.4%) people reported frontal headache, 194(38.8%) people reported left temporal headache, 150(30%) people reported right temporal headache, while 124(24.8%) people reported occipital headache.

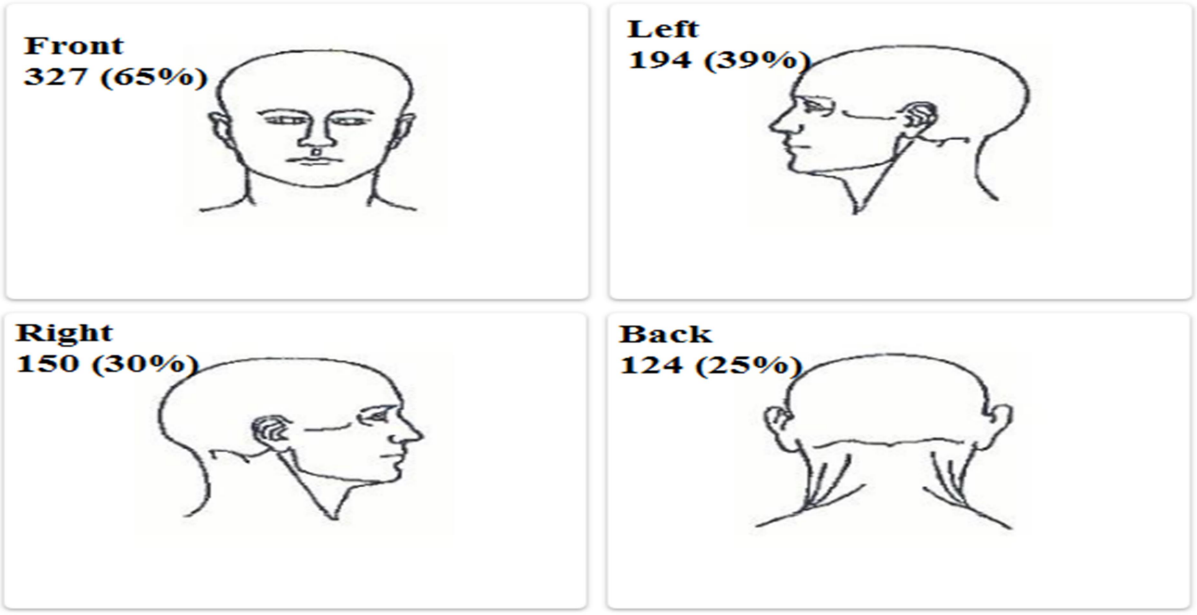
According to the survey, 250(50%) people used to take medications to relieve their headaches, while 250(50%) people didn't do so.

Perfume caused headaches for 20.3% of males and 23.9% of females. Hunger significantly affected headaches more common in females (35.4%) than males (19.6%), with a significant p-value of 0.001. Loud noises more frequently trigger headaches for females (58.8%) than males (41.2%), showing a significant gender difference (p=0.001). Bright Lights are also more common among females (30.8%) than males (21.6%) for creating headaches, with a p-value of 0.033. Anxiety or Stress was reported by 69.5% of females compared to 51.6% of males, showing a statistically significant difference (p=0.001). Family Problems more common in females (28.5%) reported family issues as a headache trigger than males (19.6%), with a p-value of 0.036. Other causes, such as hot weather, sunshine, too much/little Sleep, driving, physical

Exercise, domestic activities, smoking, soft drinks, and junk food, did not show statistically significant gender differences.

Perfume: Triggered headaches for 21.2% of those aged 24 or younger and 26.7% of those older than 24, with a non-significant difference (p=0.181). Hunger was more common in younger participants (32.8%) compared to the older group (25.3%), although not statistically significant (p=0.101). Loud noises were slightly more common in the younger age group (55.1%) than those over 24 (49.3%), with no significant age difference (p=0.240). Bright lights were much more common in participants less than 24 years old (32.8%) than in the older group (16.4%), with a significant age difference (p=0.001). Too much Sleep was caused by 30.2% of those under 24, but only 13.7% of participants were 24 years of age, with a significant difference (p=0.001). Family problems frequently cited by older people (37%) compared to those less than 24 years old (21.2%) show a considerable difference (p=0.001). Travelling is particularly more of a trigger for the older group (32.2%) than the younger age group (18.4%), with a significant p-value of 0.001. Other triggers like allergy/flu, hot weather, sunshine, physical Exercise, smoking, school, and junk food are those factors that displayed statistically non-significant differences by age group.

Figure II: Regional Localization of headache



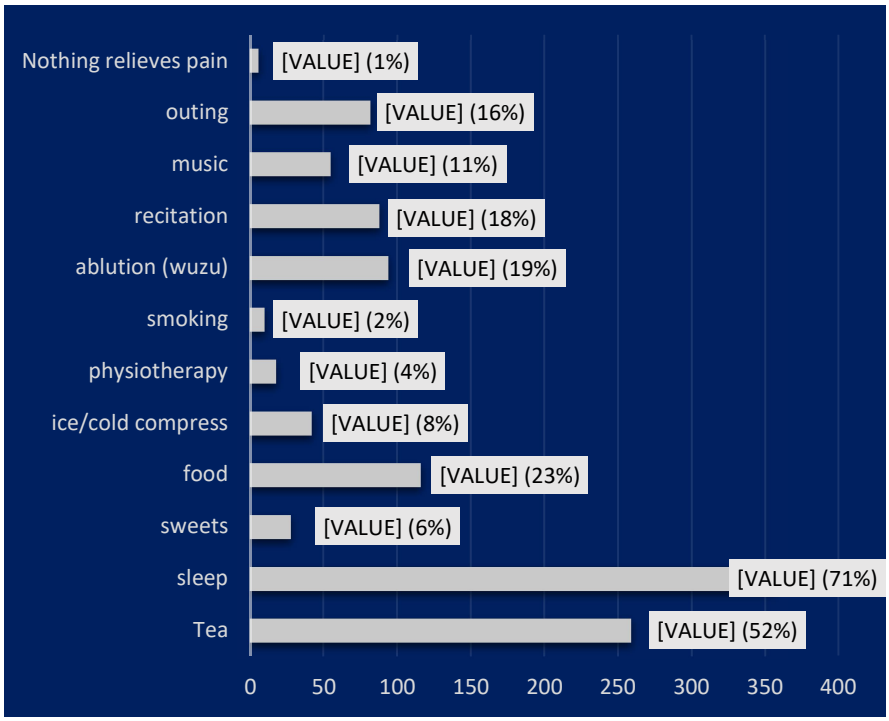
RELIEVING FACTORS OF HEADACHE

People were also assessed for the relieving factors of headaches. Surprisingly, 356(71.2%) people significantly improved headache intensity with Sleep. Tea was a relieving factor among 258(51.6%) people. 115(23%) people reported decreased headache intensity with food intake. Ablution (wuzu) was also considered a relieving factor among 95(19%) people. 88(17.6%) people marked recitation as their relieving factor of headache.

82(16.4%) people experienced some relief from headaches with the outing. 55(11%) people observed improvement in headaches with music. The use of cold compresses to decrease headache pain was also seen among 42(8.4%) people. 27(5.4%) people improved their headaches with the intake of sweets. 18(3.6%) participants responded positively with physiotherapy as their relieving factor, while 11(2.2%) people marked smoking as the reason for significant improvement in their headaches. Only 6(1.2 %) people reported no improvement in headaches with any remedies.

Interestingly, 426(85.2%) people didn't consult a doctor regarding their headache, while 74(14.8%) did so. People were asked about the reliability of investigations for headaches in their view. The Eye test was at the top of the list, with 299(59.8%) people marking it. 202(40.4%) people selected an MRI brain as a reliable headache investigation. 102(20.4%) people ticked blood sugar while 88(17.6%) people ticked complete blood count (CBC) to be a dependable investigation for headaches. According to 79(15.8%) people, EEG was a definitive investigation for headache. Surprisingly, 30(6%) people had no idea about the investigations for headaches. 22(4.4%) people marked lumber puncture, while only 5(1%) people were in favor of liver function test (LFT).

Figure III: Graphical presentation of Relieving Factors of Headache



DISCUSSION

Headache is one of the most frequent complaints of patients seen in the outpatient clinic. Pain perception changes with age and is different in very young and very old patients, but this was conducted in the young population, so the responses were recorded accordingly. The study response resulted in 100%, and among 500 respondents, 69.4% were female, and 30.6% were males of an adult sample population of Karachi. 98.4% of the study population experienced a headache in their lifetime, which corresponded with a study that revealed that between 64 and 77 % of individuals had had a headache at some point in their life[8]. The frequency related to the headache episodes revealed is 93.4% once in the last three months, and 40.2% of them have experienced it twice monthly, which agrees with the review conducted in 2022[8]. It also aligned with the study conducted on Iranian students, which revealed that only 7.5% of the subjects spent fewer than 3 days a week without headache[9].

The study population reported anxiety or Stress (64%) as the common factor for the aggravation of the primary headache, while 61.4%people experienced too little Sleep as their primitive aggravating factor of headache. That is in agreement with a study conducted in Malaysia, which revealed the most common trigger factors for migraines and TTHs were sunlight, sleep deprivation and Stress. Although the ethnic variations played a vital role in the aggravation, the focus of our study was other than ethnicity[10]. Another study by Zivadinov R et al. [11] revealed that the most common trigger factors for TTHs were sleep deprivation, Stress and change in weather. In addition, the most common trigger factors for migraines in previous studies were stress, sleep deprivation and changes in weather.

The study revealed that 53.4% of people reported loud noises as the aggravating factor of their headache, which is correlated with the study conducted by Straube A 2019[12], which revealed that some sufferers identified certain factors that exacerbate headaches, with the most significant being loud noise, reported by 48.1% of them. By comparing the triggering factors in chronic and episodic migraines, the study demonstrated that noise was a more significant trigger for patients with chronic migraines as compared to those with episodic migraines[13]. Another factor identified in the study was hot weather, which aggravated headaches in 196 individuals (39.2%) of the sample population. Another study showed that the hot and dry climate moving towards the ocean is reported to trigger migraines that also correlated with the results of our study that along with the hot weather, Sunlight exposure was identified as the fifth most common aggravating factor of headaches as reported by 173 individuals (34.6%). Additionally, 153 people (30.6%) reported hunger as their aggravating factor of headaches[14]. The study conducted on university students also showed the aggravation of primary headaches caused by missed meals, as revealed (59.8%) in the students. Another study also revealed that various triggers of headache attacks[15]. The majority of participants cited sleep disturbance (86.2%), noise exposure (83.3%), excessive studying (81.6%), and fatigue (75.9%) as significant factors. The present study revealed that bright light was an aggravating factor in 28% of the study population, which was in agreement with the study conducted on university students that showed more than half (60.9%) were affected by the bright light[15].

The present study also showed that 114 individuals, constituting 22.8% of the participants, reported that their headaches worsened due to the fragrance of perfume. The study mentioned above indicated that nearly half of the participants (48.9%) indicated certain odors as their triggering factor for headaches[16]. Another study by Zarea K 2018 [16] reported that among Iranian medical students, triggering factors for headaches included Stress (63%), sunlight or fluorescent

light (55.6%), loud noise (48.1%), fatigue (77.8%), odors such as cigarette smoke or perfume (37%), and overheating (51.9%). This study also showed physical exertion as an aggravating factor among 40 individuals, representing 8% of the study population. Additionally, 39 school-going people (7.8%) of the participants reported experiencing aggravation in headaches, which agrees with the study that showed that only 17.2% of the population found physical activity as a triggering factor for their headache in the younger population[16].

The present study also showed that women of reproductive age experienced aggravation in their headaches during the Menstrual cycle 37 (7.4%) women. These findings agree with the previous study that showed that the prevalence of headaches and the average pain intensity were evaluated according to gynecological age. As gynecological age increased, the headache incidence significantly rose from 60% to 73% ($p = 0.004$), and the mean pain intensity score increased from 1.6 to 1.9 ($p = 0.03$) [18]. Another scoping review regarding the factor to determine whether the menstrual cycle phase (menstruation, luteal phase, ovulation, or follicular phase) was considered a confounding factor in studies comparing pressure pain sensitivity between patients with tension-type headache (TTH) or migraine and healthy controls. The review found that the menstrual cycle phase has not been consistently considered in existing studies on pressure pain sensitivity in primary headaches like TTH or migraine, despite evidence suggesting its potential importance in pain perception. Only one study on TTH patients and one on migraine patients included data on the last day since menstruation. Still, they did not specify further details or compare these data with other variables that disagreed with the present study; more research is required in this perspective[19]. These findings are also similar to the previously indicated significant relationship between migraine and female sex hormones. Women with migraines outnumber men by at least a 2:1 ratio, with many of them experiencing their first attacks at menarche and throughout menstruation. In a studied population, 58% of women reported menses and related hormonal disturbances as triggers for migraines, particularly those aged between 30-49 years[19]. Literature also reported that climacteric factors, including the final menstrual period, menstruation, ovulation, oral contraceptives, hormone replacement therapy (HRT) and menopause, can all trigger migraine attacks in women[20].

The study on eating habits revealed that 16(3.2%) people reported that sweet intake was the causative factor for increased headaches. In comparison, 11 participants reported (2.2%) some increase in headaches with the usage of soft drink intake, while 10(2%) people experienced headaches due to smoking. Junk food was also noticed as a cause of the increase in headaches among 9(1.8%) people. These findings were correlated with findings of another study that revealed headaches were trigged in 28.2% of the study population after the intake of ice cream. In comparison, after receiving certain drugs and certain types of foods, they were reported aggravated by (10.9%) and (8%) respectively[16].

In our study, we observed the location of pain during headaches: 327 participants (65.4%) reported frontal headaches, 194 participants (38.8%) reported left temporal headaches, 150 participants (30%) reported right temporal headaches, and 124 participants (24.8%) reported occipital headaches. The study revealed that approximately a quarter of the participants (24.1%) experienced frontal headaches regarding the headache site. This was followed by undetermined headache sites (22.4%), occipital headaches (17.8%), temporal headaches (17.8%), bilateral headaches (15.5%), vertex headaches (10.3%), and occipital headaches again (9.8%) respectively[16].

According to the current survey, 250 participants (50%) used medications to relieve their headaches, while the other 250 participants (50%) did not. The study conducted by Al-Shimmery

is also aligned with the result, which revealed that the use of NSAIDs was reported to terminate migraine attacks in 50% of both male and female participants[4]. In the present study, people were also assessed for factors that relieve headaches. Surprisingly, 356 individuals (71.2%) significantly improved headache intensity with Sleep. Al-Shimmery also reports that many authors have described Sleep as a relieving factor for migraine attacks. However, both excess Sleep and sleep deprivation are thought to initiate migraine attacks[4]. Another study revealed that Tea was a headache-relieving factor among 258 individuals (51.6%).

Additionally, 115 individuals (23%) reported decreased headache intensity with food intake. The findings are in alignment with the review studies as Caffeine has been shown to effectively stop migraine attacks when combined with aspirin and acetaminophen in combination analgesics. However, it can also trigger headaches when withdrawn by habitual caffeine consumers[21].

This study also reported novel findings that Ablution (wuzu) was considered a relieving factor among 95 individuals (19%). Additionally, 88 people (17.6%) found recitation to be a relieving factor for headaches. The studies revealed that listening to deep Qur'an recitations has a positive effect on reducing anxiety as well as having a positive impact on the mental health of personnel in medical science universities, reducing headache episodes[22]. A similar research on an EMG-based study showed a more significant decrease in relaxation compared to non-training tasks of clients. After training, using Salah reported a substantial reduction in headaches and less exhaustion after a day's work[23]. Meanwhile, research on Wadu's effect on headaches is still lacking.

Another factor was identified in the study: 82(16.4%) participants experienced some relief from headaches with outings, while 55(11%) observed improved headaches with music. A study showed similar results in the randomized trial. The participant received either medical therapy alone or medical therapy combined with music therapy. The primary outcome was a decrease in headache severity one hour after treatment[24]. Another study conducted in the adult population showed a similar finding as participating in outdoor activities reported a reduction in psychological symptoms (depression, irritability, anxiety) and somatic distress (headache)[25].

This study also showed that cold compression decreases headaches' intensity among 42(8.4%) study population. A similar finding in another study has shown that the relieving factors identified for alleviating headaches include Sleep, meditation, relaxation, lying down, eating, massage, ice/cold application, Exercise, and vomiting[26].

The study revealed that 27(5.4%) people improved their headaches with the intake of sweets. This disagrees with the study conducted on the 3-month trial of diet restriction; headache intensity was significantly reduced following the low glycemic index diet[27]. The study also showed that 18(3.6%) participants responded positively to physiotherapy as their relieving factor. These findings align with the Systematic review evaluating the most effective physiotherapy interventions, which revealed that headache frequency was a reduction of 7.5 headache days per month. For headache duration, it was a reduction of 7.3 hours[28].

Smoking is indeed recognized as a significant risk factor for headaches. In our study, 11(2.2%) people marked positively smoking as the reason for substantial improvement in their headaches, which is in disagreement with the various studies. According to a national survey conducted in the UK, a significant number of people who frequently complain of headaches are active smokers or ex-smokers, as well as a study conducted in Norway found that heavy smokers under the age of 40 have a higher prevalence of headaches compared to nonsmokers[29], while another study by Roslan MZ 2020[30] regarding the association between smoking per day and headache, revealed a non-significant (p-value of 0.624) relationship between the number of cigarettes

smoked per day and headache intensity among the 2016 batch of Faculty of Medicine students at Universitas Sumatera Utara.

This has been interesting in the study, as 426(85.2%) people didn't consult a doctor regarding their headaches, while only 74(14.8%) sought medical help. Another study conducted on medical assistance due to migraine and headaches revealed the contrary result that 41% of the study population consulted for their headache with the healthcare providers, and out of them, only 25% of the participants received the inaccurate diagnosis[31].

Research also revealed that among the research population, 78.9% consulted at least one lifetime medical for headaches/migraine. Among them, 70.3% of consultations were in primary care, followed by consultations in neurology (28.1%) and headache specialists (15.6%). 31.0% had consulted at least once at an emergency department or urgent care centre[32].

In this study, regarding the reliable and relevant investigations for headaches, the appropriate responses were revealed as 299(59.8%) people responded to eye tests as a reliable investigation, and MRI Brain was considered a reliable investigation by 202(40.4%) individuals. Blood sugar was considered by 102(20.4%) people, and 88(17.6%) chose a complete blood count (CBC) as a dependable investigation for headaches. According to 79(15.8%) participants, EEG was a definitive investigation for headaches. Surprisingly, 30(6%) people were unsure about the investigations for headaches. Additionally, 22(4.4%) individuals marked lumbar puncture, while only 5(1%) favored a liver function test (LFT). Most research recommends diagnosing headaches and migraines in a primary healthcare setting based on history and physical examination. In contrast, research conducted for the diagnosis of primary headache and migraine disorders for the diagnostic criteria by the International Headache Society (ICHD-3-beta) in 2016 and the European Headache Alliance invited to review and comment on the consensus before the final draft that revealed the diagnostic criteria as per the conditions recommended consensus recommends brain MRI for the case of migraine with aura that persists on one side or in brainstem aura[33].

CONCLUSION

Our study briefly describes that migraines and headaches in the Karachi adult population have more or less similar findings related to the aggravating and relief factors compared to other populations and studies. At the same time, less data is available on the Recitation of Quran and Wadu as a relieving factor for headaches; further extended research is required in this perspective. In contrast, the diagnostic test agreement finding is still less about the primary headache in the PHC setting.

RECOMMENDATION

The study suggests several strategies to manage headaches, including public awareness campaigns, healthcare guidance, lifestyle modifications, and further research. It suggests educating the public about common roots and focusing on gender and age-specific sensitivities. Clinicians should consider patients' age and gender when advising on headache management and encourage lifestyle adjustments to minimize exposure to triggers. Further research could help develop targeted interventions for migraine and tension-type headaches across diverse populations.

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AUTHOR CONTRIBUTION

Khan UA: Conception, data collection
Sarwat S: Data interpretation, drafting
Amin M: Data collection
Hamid S: Data collection
Hussain MA: Analysis

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