

PREVALENCE & MANAGEMENT of HEADACHE & its ASSOCIATED FACTORS among FEMALE UNDERGRADUATE PHARMACY & NON-PHARMACY STUDENT POPULATION of LAHORE COLLEGE for WOMEN UNIVERSITY, LAHORE

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Abstract- Objectives: the aim of study was to observe clinical characteristics of headache, assessment of possible contributing factors, pharmacotherapy and trend of self-medication among students.

Methodology: This observational study presents the prevalence, impact of headache in undergraduate students ,demographic details, headache patterns and its clinical characteristics, associated factors, family history, its relation with studies and its management strategies among female pharmacy and non- pharmacy students of Lahore College for Women University.

Results: The study found that 35% of respondents experienced monthly headache, 54% of total respondents on weekly basis while 11% on daily basis .of all subjects, 55% experienced difficulty concentrating, 43% experienced irritability while 26% experienced nausea and vomiting along with headache. Stress and sleep disturbances were two major headache triggering factors. The overall self-medication rate among subjects was 74% for pharmacy students and 56% for non -pharmacy students.

Conclusion: Headache has high prevalence among pharmacy students. Analgesics were commonly used by students to self-medicate themselves. Students found difficulty in performing daily activities and missed classes or work due to headache. Headache negatively impact student's quality of life.

Index Terms- Headache, Prevalence, Pharmacotherapy, Pharmacy Students, Non-Pharmacy Students

I. INTRODUCTION

Headache, or its medical term "cephalgia", is one of the common medical ailments that is not only considered a nuisance but also has a negative impact on the quality of life, making the person too ill to perform his routine daily activities properly. Although headache is a prevalent disorder, especially among adolescents and young adults, but it is also counted as the most common presenting complaints of students, predictably due to various physical and psychological stress factors which students are more prone to facing as opposed to general population and other groups of specific population.

Overall, 47% of the adult population presents an active headache disorder, tension-type headache and migraine being the most frequent disorders, with a prevalence of 38% and 10%, respectively. The global burden of headache is very large but paradoxically, a burden of headache widely ignored which will still increasingly affects quality of life and routine activities. The World Health Organization (WHO) reports that almost half of all adults worldwide will experience a headache in any given year.

[1]

According to the Global Burden of Disease Survey 2010, headache disorders are among the top 10 causes of disability worldwide. Headache is a highly prevalent condition among students at University than other population. Economic burden of

headache is substantial especially due to its peak prevalence in the most productive years of life and results from work-related disability than the direct medical cost for treating it.

Recurrent headache is a risk factor for future chronic headache and other pain syndromes. The risk of developing headache is greater in individuals with a family history, smoking, high body mass index, sleeping problems, substance abuse, oversleeping, premenstrual period, stressful life events, hot/cold weather, menstruation, hunger and others. [2]

Headache terminology is unfortunately inconsistent, owing to the fact that headache is a *chronic disorder with episodic manifestations*. Headache disorders, are considered as major global health problems due to their high prevalence, chronicity and their substantial disability burden upon the sufferers. Headache disorders especially in student populations are usually under-diagnosed and under-treated conditions and thus the headache attacks lead to loss of days of study and worse academic performance. [3]

Reasons for headache are: hormonal shifts including hormonal changes during a woman's menstrual cycle, premenstrual syndrome, peripartum procedures, intracranial disorders, systemic disorders such as hypertension, blood clots, psychological; factors such as fatigue, anxiety, depression, stress, prolonged tension, changes in sleep or lack of sleep, hangovers, medications to treat other disorders, overuse of pain medications, panic attacks, strokes, dehydration, influenza, hypertension, strong odours, allergies, excessive intake of caffeine, changes in chemical activity in brain, over activity of pain sensitive structures in brain, blood clots, brain freeze, concussion, caffeine withdrawal, smoked meats, skipping a meal, mechanical factors such as neck strain and cigarette smoking.[4,10-12]

The International Headache Society (IHS) categorize headaches as primary, when they are not caused by another condition, or secondary, when there is a further underlying cause. Primary headaches are stand-alone illnesses caused directly by the over activity of, or problems with, structures in the head that are pain-sensitive. Secondary headaches are symptoms that happen when another condition stimulates the pain-sensitive nerves of the head.

Headache types include; Tension headaches which are the most common form of primary headache. Such headaches normally begin slowly and gradually in the middle of the day. Migraines cause a pulsating, throbbing pain usually only on one side of the head. Rebound headaches or medication-overuse headaches stem from an excessive use of medication to treat headache symptoms. They are the most common cause of secondary headaches. Cluster headaches usually last between 15 minutes and 3 hours, and they occur suddenly once per day up to eight times per day for a period of weeks to months. Hormone headache, women can get headaches from changing hormone levels during their periods, pregnancy, and menopause. The hormone changes from birth control pills also trigger headaches in some women.

Headache treatment depends upon the frequency, severity, and symptoms of headache. Acute treatment refers to medicines you can take when you have a headache to relieve the pain immediately. It includes pain relievers containing codeine or meperidine, NSAIDs, ergot derivatives (e.g., ergotamine), serotonin agonists called "triptans" (e.g., sumatriptan, zolmitriptan), dopamine antagonists (e.g., metoclopramide, prochlorperazine). Preventive treatment refers to medicines you can take on a regular (usually daily) basis to prevent headaches in the future. It includes serotonin blockers such as pizotifen, tricyclic antidepressants such as amitriptyline and nortriptyline, avoiding headache triggers. [5, 13]

Headache is often treated with analgesics and is the most common reason for analgesic use in the general population. In the current scenario of the increased prevalence of headache, most of the victims have been found to practice self-medication

leading to irrational treatment and even possibly induction of refractory type of headache as well as analgesic over use headache. Very high percentage (88.2 %) of students was reported to take over the counter drugs without the consultation of physicians in most countries. The use of analgesics is common among adolescents with headache, especially among girls. Internationally, self-medication has been reported as being on the rise. The drugs most commonly taken for relief of either migraine or tension-type headaches included aspirin alone or in combination with codeine and acetaminophen alone or in combination with codeine. [6]

A high level of self-medication with small percentage of patients visiting consultants also present among headache patients, particularly younger generation. Severe and frequent episodes of headache have a greater impact on academic performance and quality of life, thus bringing about limitation to daily activities and work, as well as significantly influencing students' personal and professional behaviour and ultimately academic records. [1]

The pharmacist can play several roles in the management of headache. The pharmacist can screen patients for headache, provide information, diagnose the headache subtype, manage the conditions by giving the patients OTC, pharmacy or other medicines or refer them to general physician for management of headache. Pharmacist can also play an important role in provision of some clinical complementary therapies and treating patients as part of professional headache team. [7] The Pharmacist can engage the patient in a discussion that includes the patient's description of the headache history including pain type, location, intensity, quality, frequency and duration. Pharmacist can also explain the risk of medication induced headache and prevention principles to the patient. Pharmacist can help the patient in understanding about the level of severity of their headache especially migraine attacks. [8] Pharmacist can counsel the patients regarding precipitating factors, risk of medication overuse headache to the people who are using acute treatments for their headache disorders, reasons of headache and prevention strategies. The pharmacist must be duly qualified to undertake the management of headache and provide support and reassurance to the patients. [9]. Pharmacist are likely to have an enhanced role in the headache management in the future after the switch of drugs from prescription only to pharmacy medicines [7]

II. MATERIALS AND METHODS

Questionnaire-based observational cross-sectional study was conducted from May to June, 2017 to observe prevalence, characteristics, triggering factors and pharmacotherapy of headache among undergraduate pharmacy and non-pharmacy students. A convenient sampling of 100 undergraduate students was done in which 50 were pharmacy students and 50 were non-pharmacy students. Undergraduate students with primary headache taking self medications or prescribed medication for relieve of headache were included in this study while all other students with headache other than primary headache and related neurological disorders were excluded from the study.

A data collection form was concisely designed covering the following aspects: demographic characteristics including student's name, age, marital status, subjects, name of institution etc. Family history of headache, life style health behaviors, stepwise evaluation to determine prevalence of lifetime headache, clinical characteristics of headache, i.e. frequency, average severity, duration with and without medications, , nature, location of headache etc , headache triggers, associated symptoms, related factors, management strategies, list of medications for treatment of headache, reasons of self medication, impact of headache on quality of life

Data was collected during face to face interview on a data collection form. Data was tabulated; results were calculated and presented in the form of graphs.

III. RESULTS

The data was collected from 100 undergraduate students(i.e. 50 Pharmacy and 50 Non-Pharmacy Students) out of which all reported headache. 28 respondents had recurrent headaches for a mean of 1-5 years in both cases i.e pharmacy and non-pharmacy students. 47 students reported having headaches for about less than a year while 25 respondents had headaches for >5

years. (Fig 1). Frequency of headache attacks among both population ranges from once a month or less (38% & 32%) to more than once a month but less than a week (32% & 38%) (Fig 2). Most respondents experienced temporary headache with rates of 72% and 70% respectively. (Table 1).

Students had more commonly tension (28% vs. 44%) or pulsating type of pain (28% vs. 20%). Other frequent attributes of headache were pressure, throbbing and sharp pain. (Table 2). Stress/tension, too little sleep, skipped meals, change in weather were the potential triggering factors of student's headache. 30% pharmacy respondent's headache triggering factor was stress due to academic burden (Table 5).

Headache was significantly associated with symptoms of irritability and attention problem. Of all subjects, pharmacy students experienced more difficulty in concentrating (37%) and irritability (28%) (Fig 3). Of the Pharmacy respondents, 37 practiced self medication. The remaining 13 respondents preferred consulting a doctor. Among non-pharmacy students, 22 preferred to consult doctors (Table 4).

Of all subjects, 70% pharmacy and 56% non pharmacy students used medications to stop headache (Table 3). Among non-pharmacy students, 49% were using paracetamol, 11% were using disprins to treat their headache, while 15% respondents of Pharmacy were using disprin and 34% used Panadol to get relieve from their headache. Other medications used by students were ibuprofen, ansaid, nims while some students were using migraine specific agents commonly (Table 7).

The most common reason told by the respondents to practice self medication for treatment of headache was that they thought there is no need to consult doctor for minor headache with percentage of 34% for pharmacy students and 37% for non-pharmacy students. Other reasons stated include familiarity with headache medication with higher rates among pharmacy students i.e. 32% (Table 6). About 46% Pharmacy and 58% non- pharmacy students chose rest as management option for headache. Other Management options were taking headache medicine and continue as normal; continue as normal with headache (Fig 4).

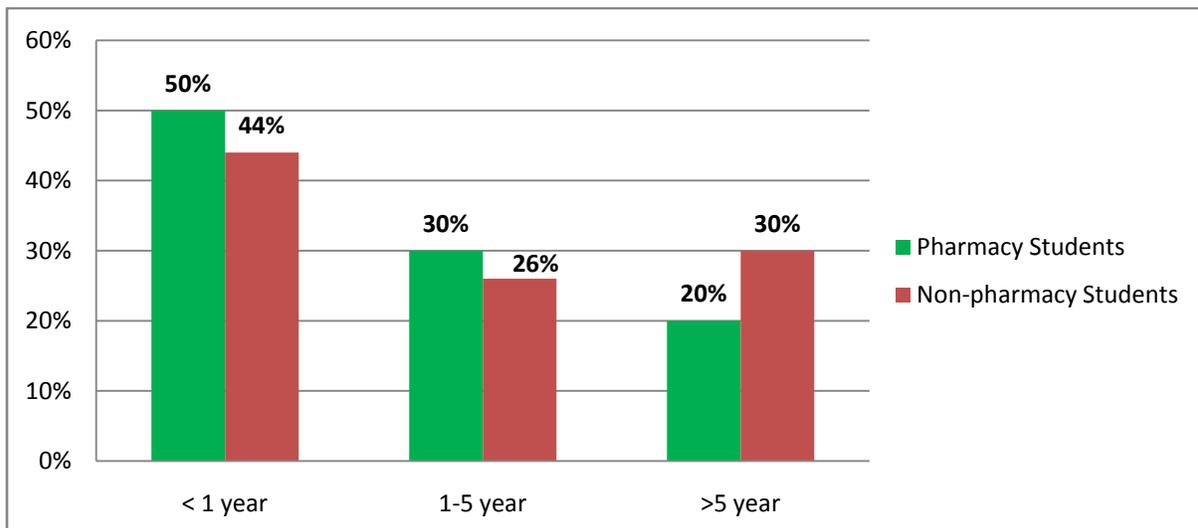


Figure 1: Time period of Headache

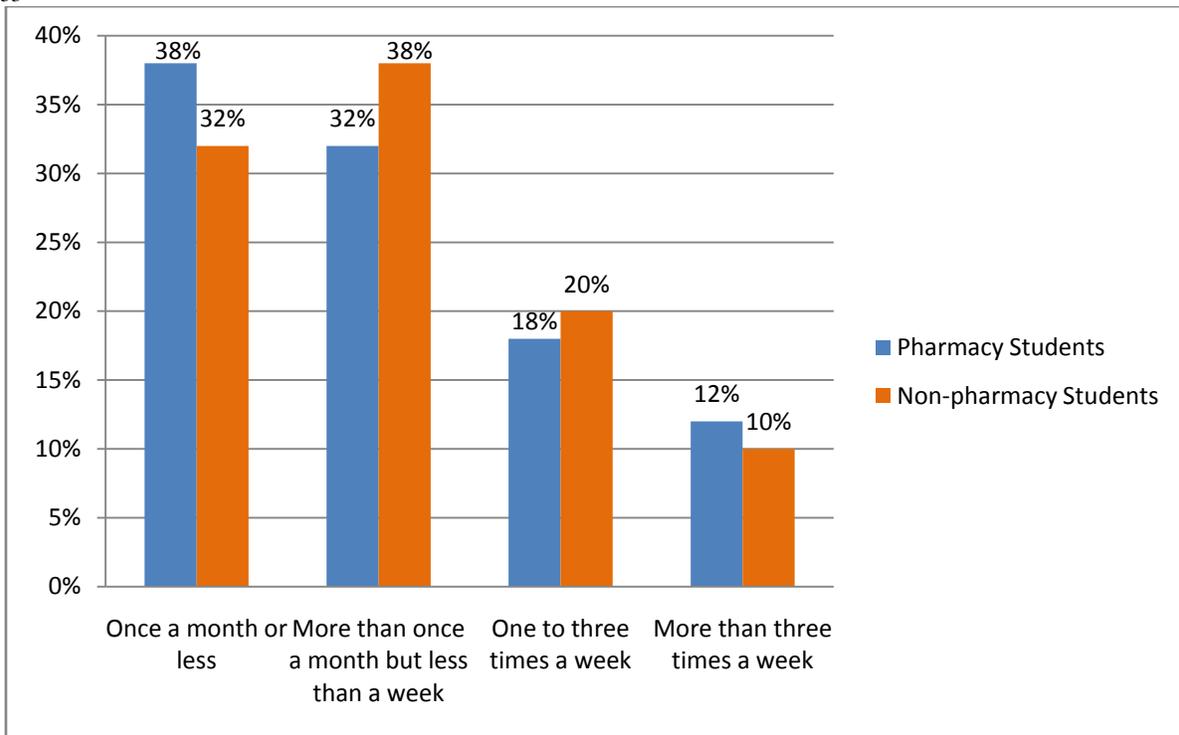


Figure 2: Frequency of Headache Attacks

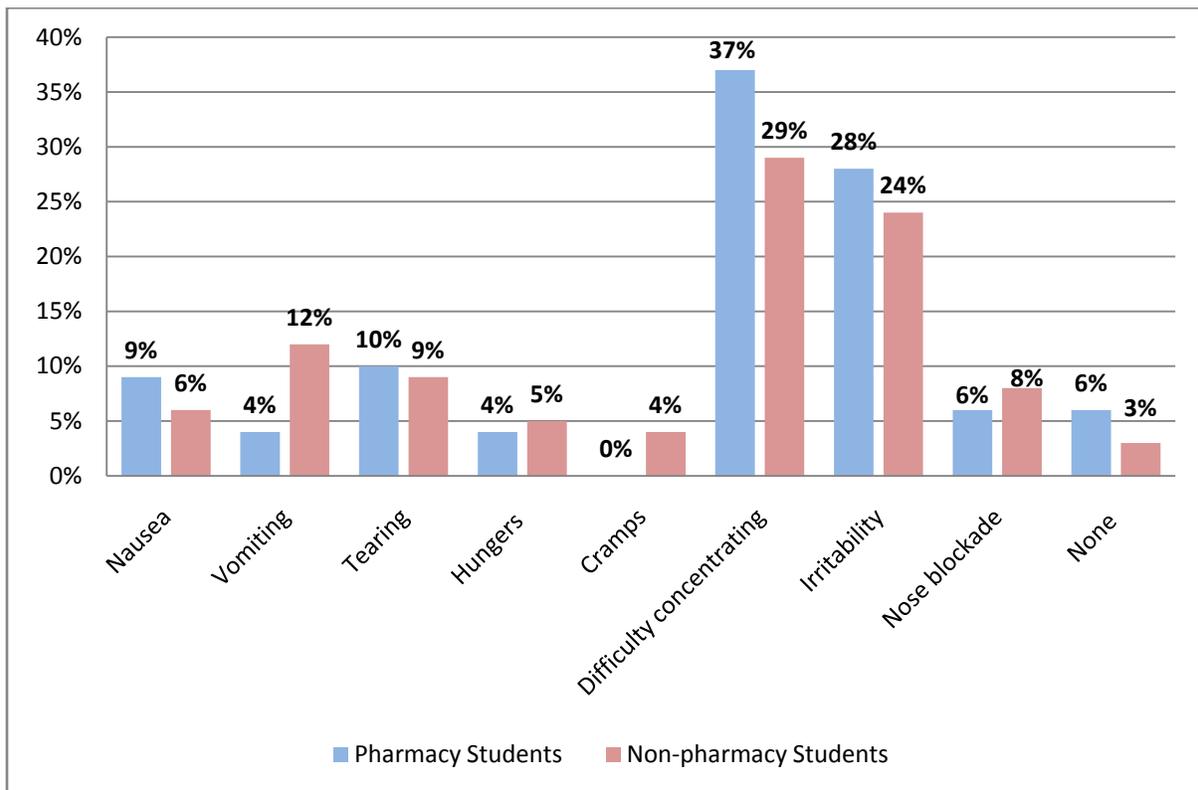


Figure 3: Headache Associated Symptoms

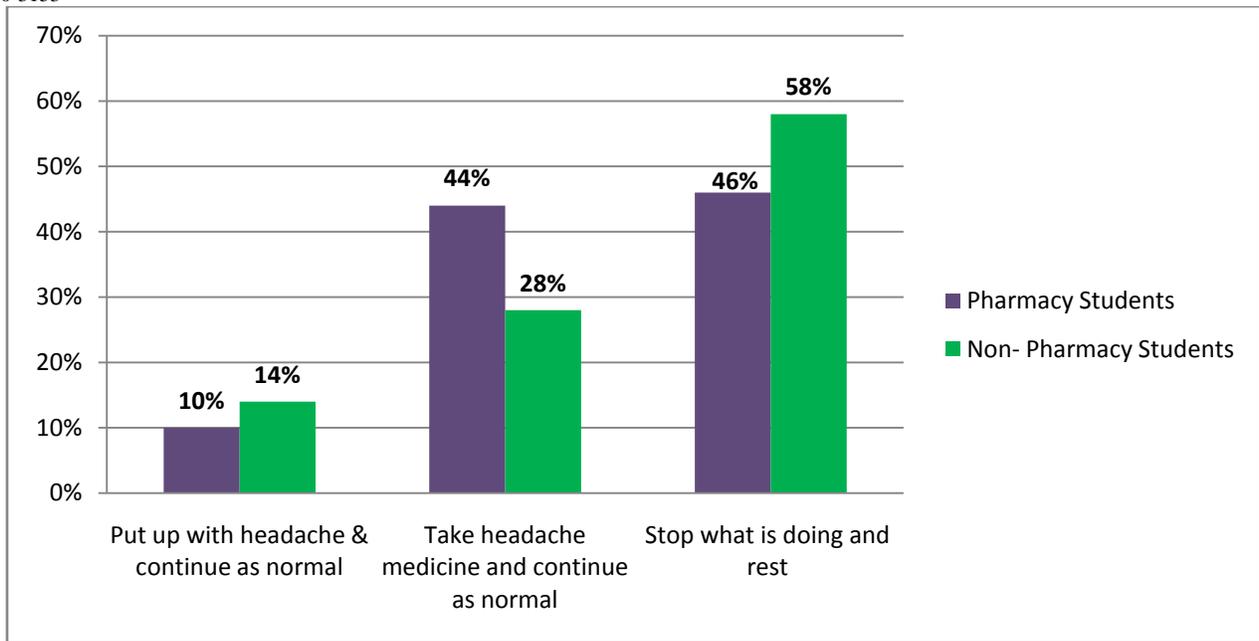


Figure 4: Management options used for headache among students

Category	Persistent	Temporary
	% (n)	% (n)
Pharmacy Students	28% (14)	72% (36)
Non-pharmacy Students	30% (15)	70% (35)

Table 1: Nature of Headache

Headache Pain Type	Pharmacy Students	Non-pharmacy Students
	% (n)	% (n)
Pulsing or throbbing	28% (19)	20% (13)
Pressure	18% (13)	16% (10)
Tension	28% (19)	44% (28)
Sharp	12% (8)	9% (6)
Stabbing	6% (4)	5% (3)
Dull	4% (3)	0% (0)
Burning	1% (1)	0% (0)
Other	3% (2)	6% (4)

Table 2: Quality of Pain

Category	Yes	No
	% (n)	% (n)
Pharmacy Students	70% (35)	30% (15)
Non-pharmacy Students	56% (28)	44% (22)

Table 3: Use of medication to stop headache

Category	Yes	No
	% (n)	% (n)
Pharmacy Students	26% (13)	74% (37)
Non-pharmacy Students	44% (22)	56% (28)

Table 4: Consultation with family doctor

Triggers	Pharmacy Students	Non –pharmacy Students
	%(n)	%(n)
Stress	30%(35)	26%(28)
Menstrual cycle	3%(3)	7%(7)
Change in sleep	23%(27)	12%(13)
Skipped meals	16%(19)	11%(12)
Cheese, choclote,MSG etc	1%(1)	2%(2)
Exercise and physical exertion	2%(2)	2%(2)
Mental exertion	7%(8)	10%(11)
Change in weather	6%(7)	9%(9)
Environment over stimulation	7%(8)	13%(14)
Don't know	3%(3)	3%(3)
Others	2%(2)	5%(5)

Table 5: Headache Triggers

Reasons	Pharmacy Students	Non-pharmacy Students
	%(n)	%(n)
Headache is mild	9%(5)	18%(12)
Familiar with headache & its remedy	32%(19)	18%(12)
Cost of physician's service	0%(0)	1.5%(1)
Lack of trustful physician	0%(0)	4%(3)
No need to consult doctor for minor headache	34%(20)	37%(25)
Peer's experience	5%(3)	7%(5)
Previous expertise	3%(2)	1.5%(1)
Time saving	14%(8)	10%(7)
No self -medication	3%(2)	3%(2)

Table 6: Reasons for self medication for headache

Medication name	Pharmacy Students	Non-pharmacy Students
	%(n)	%(n)
Panadol	34%(21)	49%(30)
Panadol extra	4.9%(3)	3.3%(2)
Disprin	15%(9)	11%(7)
Ponston	7%(4)	6.6%(4)
Nims	0%(0)	3.3%(2)
Ansaid	3.3%(2)	0%(0)
Blockium	0%(0)	1.6%(1)
Ibuprofen	1.6%(1)	1.6%(1)
Naproxen	1.6%(1)	0%(0)
Artifen	1.6%(1)	0%(0)
Triptan	4%(2)	0%(0)
Tramadol	0%(0)	3.3%(2)
Epival CR	1.6%(1)	0%(0)
Synflex	1.6%(1)	0%(0)
NO MEDICATION	25%(15)	20%(12)

Table 7: Pharmacotherapy for headache used by students

IV. DISCUSSION

Headache is the most prevalent and frequent neurological symptom, affecting almost everyone at least once in their lives. 50% of the general population have headaches during any given year and more than 90% report a lifetime history of headache [14,16,21]. Its increasing prevalence and high morbidity had made headache an important general health problem worldwide. It is the main cause of incapacity, stress, diminished job performance and producing deleterious effects on quality of life [2,17].

Literature review and collected data suggest that headaches are highly prevalent in the general population and among university students. Population-based studies on headache in the general population are numerous [19-20]. However, there is little data on its prevalence and characteristics in special population particularly in pharmacy and non pharmacy students in university where conflict and instability in student faculty relationship, academic and curriculum stress, personal life issues, financial obligations constitute a major stressor and hence headache [15,17,36].

A total of 100 questionnaires were distributed to the respondents to record demographic details, headache patterns and its clinical characteristics, associated factors, family history, its relation with studies and its management strategies among female pharmacy and non pharmacy students of Lahore College for Women University.

Lifetime prevalence of headache in total respondents was 50% in this study. 27% of total respondents had experienced more than one headache episode in a year whereas 28% of both respondents had recurrent headache episodes for a mean of 1-5 years. Numerous past studies have also demonstrated high lifetime prevalence of headache ranging from 39% to 96% [22,24-27]. According to Stovner et al., the overall prevalence of headache in general is 47% similar to this study [28]. Primary headaches affect individuals of all ages especially students being a major cause of impairment and poor quality of life. In undergraduate student population, the disability caused by headache had a negative influence on academic productivity [29-32]. Another similar analysis in Brazilian College students showed that about 58% suffered headache in a year [76]. Juni et al., also found that the prevalence of headache in paramedical students was 83.4% in females higher than this study [77].

This study found that 35% of both respondents experienced monthly headache, 54% of total respondents on weekly basis while 11% on daily basis. These findings are in accordance with preceding study [24]. Vilela Braga et al. and Curry. K et al,

study in undergraduate students suggested that approximately 50% of students reported headache monthly and 17% students indicated headache episodes one or more times per week similar to this study [32-33].

Of all undergraduate pharmacy and non-pharmacy students interviewed, 70% had at least one headache episode in the last 3 months, a high prevalence that is in accordance with other studies [16,28,34-35]. Undergraduate students in Spain said that they had suffered from headache during the last year [36]. This study also demonstrated that 30% of respondents had increased frequency of headache episodes similar to other studies carried out in medical students of Andhra Pradesh et al [37].

The self-referred pain intensity in this study was high in pharmacy students than non pharmacy one i.e. 5% (Score 9) as compared to non-pharmacy students i.e. 3%. This may be due to increased stress of study in pharmacy students. The pain intensity of headache was of medium level (score 5) for majority of both respondents. These results are consistent with other studies carried in medical students in Oman and India [22,38]. None of the total respondents had worst possible pain.

This study also confirmed that in 64% of pharmacy students headache last few minutes after self medication while in 50% of non pharmacy respondents headache last for hours even after taking medication. 63% of total respondents stated that headache last for hours without medication indicating that headache is relieved with self-medication. These findings was in accordance with Nandha et al, Sweileh et.al and Abdo et al, [39-41].

In this study, 71% of the total respondents experienced temporary headache similar to previous study i.e. 82.3% [1]. This study also asserted pain quality of headache. Regarding pain quality, the most frequently chosen descriptors by total respondents were; Pulsing or throbbing (32%), pressure (23%), tension (47%), sharp (14%), dull (3%), burning (1%) and others (6%). These results are similar to previous studies [22,24,42-43]. However, these results are lower than some studies [33,44].

The major triggering factors reported by both respondents were stress (56%), change in sleep (35%), skipped meals (27%), mental exertion (17%), environment over stimulation (20%) and change in weather (15%). These findings are consistent with other studies [40][36][65][66]. Preceding studies have stated stress, fatigue, sleep, not eating on time deprivation as the most frequent trigger factors of headache [40,47-52]. Earlier studies have reported menstruation as important trigger factor [51-52] but menstrual cycle was not found to be significant trigger in this study constituting only 10% of total triggering factors similar to previous study .Each individual has different trigger factors, in each headache attack and one may have different trigger factors and some have multiple triggering factors. It is assumed that these factors originate from a single centre in brain like the hypothalamus. Minimising stress, getting enough sleep, increasing awareness and improving the quality of care are proved to be helpful for patients with cephalgia. The proper monitoring and understanding of triggering factors is the important step to reduce frequency and severity of headache [56].

Of all subjects, 66% experienced difficulty concentrating, 52% experienced irritability while 31% experienced nausea and vomiting along with headache. However, 7% of total respondents had none of headache associated symptoms. Others also experienced nose blockage, tearing, cramps and hungers. These findings were in accordance with preceding study [3] but different from as reported by Sweilah et al and Nagesh et al [24][46].

In this study, 13% of both respondents visit emergency due to chronic headache. These findings are different from other studies [63-64]. 26% respondents among pharmacy students and 44% among non pharmacy students visited consultants for medical advice. It was comparable to 23.3% students of Oman [22] but much higher than 2% and 5% prevalence of medical assistance for headache [23,57]. This low tendency of seeking medical care from physicians was similar with reports of Blau, Heinisch and Sanvito et. Al [58-59,61].

The overall self-medication rate among our subjects was 74% for pharmacy students and 56% for non pharmacy students. This result was consistent with other studies [22,26,60]. The relatively high rate of self medication reported by pharmacy students is related to student's level of education, knowledge of pharmacology and ease of access to pain killers/analgesics.

In this particular study, the most common reasons for self medication for headache among total respondents were no need to consult doctor for minor headache (71%), familiar with headache and its remedy (50%), headache is mild (27%), time saving (24%), peer's experience (12%), previous expertise (4.5%) and lack of trustful physician (4%). However, 6% of total

respondents didn't practice self-medication. Similar results were seen in preceding studies [2,25,60,69-70]. Such self-medication may lead to frequent and high dose intake of analgesics and this may result in medication overuse headache and other untoward effects.

This study also reported that 25% of pharmacy students and 20% of non-pharmacy students didn't use medicines to manage headache episodes. These findings are consistent with research by Eman et al. i.e. 20.2% [64]. However, these findings are much less than other studies [66,37]. The medicines used for the management of headache among total respondents in our study were panadol (73%), disprin (26%), ponston (13.2%), ansaid (3.3%), naproxen (1.6%) and ibuprofen (1.6%). Likewise, in other studies, analgesics remained the most preferable choice among both respondents [2,22-23]. Only 2% of participants used specific drugs for headache. These results were comparable with previous studies [67-68]. These results of rare usage of specific medicines and rare consultation visits showed a non-serious and careless attitude of pharmacy and non-pharmacy students towards health.

10% of pharmacy and 14% of non-pharmacy students continued attending lectures even though experiencing headache. This is in accordance with other studies [71-73]. 36% of total respondents continued to study as normal with the use of medicines. These findings are consistent with the results of other studies [2,74]. However, this result is much less than that of the Italian population i.e. 84% of the population had reported the use of symptomatic drug for headache [66]. This difference can be attributed to our sample only including students whereas the later study was conducted on the general population. 52% of students used non-drug measures such as rest. Such non-drug treatment options were also reported from other studies [60]. The finding of this study showed much higher results as compared to preceding studies [37,72].

It is also observed from the present study that 64% of pharmacy students and 42% of non-pharmacy students felt difficulty in performing their activities due to headaches. However, 26% of total respondents said that they have never missed work or college due to headaches. This may be a result of effective self-medication that relieved the symptoms, mild intensity of symptoms or strong motivation among students to attend classes or most likely a combination of all factors. Our study was comparable with studies conducted by Nandha et al., Ferri et al., Silva J et al., Vilela Braga et al. and Juni et al. [25,33,39,76-77].

V. CONCLUSION

Headache is becoming the most disabling and challenging health problem in the student segment of the population. This study indicates that symptoms of anxiety and depression and behavioral problems are associated with recurrent headache and stress/tension, sleep disturbance were the top perceived triggering factors of headache among the university students. Majority of students didn't seek medical care but largely consumed analgesics to treat their headache. A large majority of pharmacy students indulged in self-medication. High prevalence without adequate medical care seeking behavior and the associated significant analgesic consumption necessitate the designing of all-rounded strategies to improve the quality of life of individuals with such neurologic disorders.

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