Original article:

A Cross Sectional Study of Personality Factors and Life Stress Among Patients with Chronic Headache

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ABSTRACT:

Introduction: The term chronic daily headache includes a group of primary headaches that occur more than fifteen days per month, over atleast three months. This includes chronic migraine, chronic tension type headache among others. The characterization of the personality and psychological functioning of patients with headaches has been an area of interest in Psychiatry and neurology. A review of the literature on headache and personality provides strong evidence of secondary neuroticism and increased sensitivity to stress in patients suffering from CDH. With this background, the aim of this study was to assess the personality traits and life stressors among patients with chronic headache and the association if any with various sociodemographic factors as this would help in identifying at risk personality traits and provide valuable insights into management of patients with chronic headache.

Methods: The present study was conducted in a Tertiary care hospital, among patients presenting with chronic headache to the psychiatry Out-patient department to assess their personality factors and life stress and their association if any with socio-demographic factors. The subjects above 20 years and both genders were included in the study after obtaining socio-demographic details of each subject as per pre-decided in take proforma. Each subject was administered two scales – 16PF form C and Holmes and Rahe life stressors inventory in that order.

Observations: Among the various personality factors studied, dull and low capacity, submissive and calm, and emotional and unstable were the most common personality factors seen. The timid and shy personality traits were more in females with chronic headache while sensitive & effeminate traits were more in males. There was also a positive correlation between personality traits of submissiveness, suspecting, dependent nature and severity of headache. Life event stress was found to be modestly but significantly related to headache frequency.

Results & Conclusion: Chronic headache seems to be common in people who on the one hand are more sensitive to the stressors of life and on the other hand less equipped to cope with such stressors. Thus, identification of personality factors and stress in headache patients helps in effective management of the condition.

Keywords: Chronic Headache, Personality traits, Life Stress, psychological distress, Emotional Instability.

INTRODUCTION

Headache is one of the most common disorders of the nervous system. Chronic Daily Headache (CDH) is not a universally recognized diagnosis but an umbrella term for a group of headache disorders occurring at least 15 days per month. The classification and definition of CDH are still plagued with difficulties. It comprises of chronic tension-type headache (CTTH), chronic migraine (CM), cluster headache and other chronic daily headache

syndromes all of which cause substantial levels of disability. 5,6,7 CDH has a prevalence of approximately 3-5% globally in the adult population and it leads to medication overuse and is a major health concern. 8,9,10 Although Chronic Tension Type Headache is generally less burdensome than chronic migraine to the individual sufferer, the total societal burden of this headache type seems to be even larger than that of migraine because of its much higher prevalence. Identifying risk factors for progression has emerged as an important public health priority. Headache is multi-factorial, with personality and life stressors being very significant factors. Basic personality structure has become an important element in the psychological management of any patient who is physically ill, even when the patient is a psychologically normal and well-functioning person. Identifying specific personality factors can be useful in the evaluation and management of patients with headache. In 1995, a review by Silberstein and colleagues extensively summarized existing literature regarding relationships between primary headache disorders and personality traits, focusing on personality measures with well-established validity. Another factor that plays a major role in chronic headache is Stress. Stress is an ever present, universal part of life. Response to stress involves every set of organs and tissues in the body, and thoughts and feelings are clearly intertwined with physiologic processes. Left Life stress is found to be related to headache frequency in some studies. Negative life event stress was found to be modestly but significantly related to headache frequency.

Patients with chronic headache have greater levels of psychological distress and poorer quality of life than those with episodic headache or non-headache controls, despite comparable levels of life stress.¹⁵ Yet, throughout the world, headache has been and continues to be underestimated in scope and scale, and headache disorders remain under-recognized and under-treated everywhere. Understanding the relation between personality factors, and life stress with chronic headache, we will gain valuable insight into better psychosocial management of patients with chronic headache.

Hence, in this study we aim to study the two important factors associated with headache that are 1) Personality factors and 2) Life stress.

AIMS OF THE STUDY

- > To study the personality factors of patients with chronic headache.
- > To study the relation between life stress and headache

MATERIALS AND METHODS

Data Source: The study was conducted in a Tertiary Care Hospital between October 2015 and September 2017.

SAMPLE:

A purposive sample of about one hundred patients was taken using screening questionnaire for Chronic headache, after applying the inclusion and exclusion criteria.

INCLUSION CRITERIA:

Patients coming to the Outpatient Psychiatry Department aged 20 years and above.

Patients with Chronic Headache defined as headache occurring daily, more than 15 days per month, for more than 3 months. (As per International Classification of Headache)

EXCLUSION CRITERIA:

Patients with organic diseases

Persons not willing to participate in the study.

OPERATIONAL PROCEDURES:

This study was an observational and exploratory study which included patients of headache attending the Out-Patient Department in a tertiary care Hospital. Ethical clearance was taken from the Ethics Committee of the Institution. Participants were explained about the study and Informed consent was taken prior to including them in the study. A detailed history focused on headache, it's nature and course and psychiatric history were taken. A thorough Clinical examination with specific reference to blood pressure, pallor, sinus tenderness, refractory error, and neck movements was carried out in all participants as per intake proforma. The 16PF FORM-C for assessing personality factors which takes about 30-60 minutes and Holmes Rahe Life Stressor Inventory to measure stress which takes 15-20 minutes were then administered. The results were tabulated in an excel sheet.

INSTRUMENTS USED:

- 1) INTAKE PROFORMA WHICH INCLUDES:
 - a. Socio-demographic data
 - b. Duration of Illness
 - c. Past Illnesses
 - -Medical
 - -Psychiatric
 - d. Physical Examination:

2) 16 PERSONALITY FACTOR QUESTIONNAIRE

The Sixteen Personality Factor Questionnaire (16PF) is an objective test of 16 multidimensional personality attributes arranged in omnibus form and is appropriate for a wide range of multifaceted populations. It provides a global representation of an individual's coping style, the person's reactive stance to an ever-fluid and transactional environment and that individual's ability to perceive accurately certain specific environmental requisites for personal behaviour.

It has one hundred and five items. covers the normal personality traits and other pathological traits. Each item has three response choices viz. yes, obvious and no. The primary personality factors assessed are: aloof vs warm, outgoing; dull vs bright; emotional vs mature; submissive vs dominant; silent vs enthusiastic; casual vs conscientious; timid vs adventurous; tough vs sensitive; trustful vs suspecting; conventional vs eccentric; simple vs sophisticated; confident vs insecure; conservative vs experimenting; dependent vs self-sufficient; lax vs controlled; stable vs tense. A subject's raw score for each of the sixteen primary factors is obtained through a weighted procedure where particular responses count as "1" or "2" summative toward the final raw score. These weighted or unweighted sums are then compared to the desired normative score tables in the tabular supplement where a particular sten score is identified based on the magnitude range of the response and the individual normative demographics of the respondent. This sten score is entered on the profile form and subsequently depicted graphically for ease of interpretation.

3) HOLMES RAHE LIFE STRESSOR INVENTORY:

Adapted from Thomas Holmes and Richard Rahe, HR social readjustment rating scale. It has forty-three items, distributed across four domains: Physical health, Psychological health, Social relationships, Environment. It marks point value of each of the life events that had happened during the previous year. The total of which gives a mean value.

<150 points meaning a relatively low amount of life change and a low susceptibility to stress-induced health breakdown.

150-300 points implies about a 50% chance of a major health breakdown in the next 2 years.

>300 points raise the odds to about 80%

Statistical Analysis

The data was analyzed using Epiinfo software.

Descriptive statistics were performed, and results were recorded as frequencies.

Chi-square test was used to estimate P values.

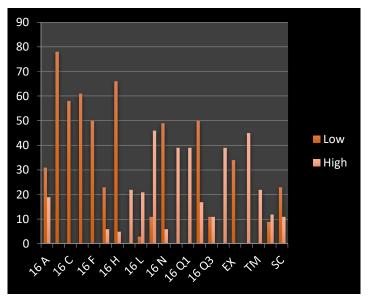
P value of <0.05 was considered to be statistically significant.

RESULTS

	16 PF Personality Factors	Variants	N
16A	ALOOF & COLD	LOW	31
	WARM & SOCIABLE	HIGH	19
16B	DULL & LOW CAPACITY	LOW	78
	BRIGHT & INTELLIGENT	HIGH	0
16C	EMOTIONAL & UNSTABLE	LOW	58
	MATURE & CALM	HIGH	0
16E	SUBMISSIVE & CALM	LOW	61
	DOMINANT & AGGRESSIVE	HIGH	0
16F	GLUM & SILENT	LOW	50
	ENTHUSIASTIC & TALKATIVE	HIGH	0
16G	CASUAL & UNDEPENDABLE	LOW	23
	CONSCIENTIOUS & PERSISTENT	HIGH	6
16H	TIMID & SHY	LOW	66
	ADVENTUROUS & THICK SKINNE	HIGH	5
161	TOUGH & REALISTIC	LOW	0
	SENSITIVE & EFFEMINATE	HIGH	22
16L	TRUSTFUL & ADAPTABLE	LOW	3
	SUSPECTING & JEALOUS	HIGH	21
16M	CONVENTIONAL & SERIOUS	LOW	11

	ECCENTRIC & UNCONCERNED	HIGH	46
16N	SIMPLE & AWKWARD	LOW	49
	SOPHISTICATED & POLISHED	HIGH	6
160	CONFIDENT & UNSHAKABLE	LOW	0
	INSECURE & ANXIOUS	HIGH	39
16Q1	CONSERVATIVE & ACCEPTING	LOW	0
	EXPERIMENTING & CRITICAL	HIGH	17
16Q2	DEPENDENT & IMITATIVE	LOW	50
	SELF SUFFICIENT & RESOURCEFUL	HIGH	17
16Q3	LAX & UNSURE	LOW	11
	CONTROLLED & EXACT	HIGH	11
16Q4	PHLEGMATIC & POISED	LOW	0
	TENSE & EXCITABLE	HIGH	39
	EXTROVERSION	LOW	34
		HIGH	0
	ANXIETY	LOW	0
		HIGH	45
	TENDERMINDED	LOW	0
		HIGH	22
	INDEPENDENCE	LOW	9
		HIGH	12
	SOCIABILITY	LOW	23
		HIGH	11
L	1		

Table 1 - The Percentage Distribution of Personality Factors Among Individuals with Chronic Headache.



Graph 1 - The Percentage Distribution of Personality Factors Among Individuals with Chronic Headache.

Among the various personality factors 78% of the sample had dull & low capacity, submissive & calm was in 61%, 66% were timid & shy, and 58% had emotional & unstable factors. While 50% had glum & silent and 50% had dependent & imitative personality factors. The following personality factors of Bright & Intelligent, Mature & Calm, Enthusiastic & Talkative, Tough & Realistic, Confident & Unshakable, Conservative & Accepting, Phlegmatic & Poised were seen in none of the sample subjects. The least seen personality factors were Trustful & Adaptable (3%), Adventurous & Thick Skinned (5%), Conscientious & Persistent (6%), Sophisticated & Polished (6%).

	A	GE		
Personality Factors	YOUNG	MIDDLE	P – VALUE	
DULL & LOW CAPACITY	55	23	0.08	
BRIGHT & INTELLIGENT	0	0	-	
SUBMISSIVE & CLAM	47	14	0.05*	
DOMINANT & AGGRESSIVE	0	0	-	
CASUAL & UNDEPENDABLE	18	5	0.2	
CONSCIENTIOUS & PERSISTENT	6	0	0.06	
TIMID & SHY	50	16	0.07	
ADVENTUROUS & THICK SKINNE	3	2	0.29	
TOUGH & REALISTIC	0	0	-	
SENSITIVE & EFFEMINATE	17	5	0.24	
CONSERVATIVE & ACCEPTING	0	0	-	
EXPERIMENTING & CRITICAL	12	5	0.47	
DEPENDENT & IMITATIVE	44	6	0.001*	
SELF SUFFICIENT & RESOURCEFUL	7	10	0.002*	
EXTROVERSION LOW	29	5	0.01*	
EXTROVERSION HIGH	0	0	-	

 Table 2
 - Personality Traits of Chronic Headache Subjects and their association with Age

Young adults more than middle aged had experimenting & critical personality factor, dependent & imitative personality factors, and low extroversion, while the middle-aged subjects had more self-sufficient & resourceful personality factors. Statistically significant association was seen between age and the personality factors dull and low capacity, Submissive and calm, Conscientious and persistent and timid and shy, dependent and imitative, self-sufficient and resourceful, extroversion low with P values of 0.08, 0.05, 0.06, 0.07, 0.001, 0.002, 0.01 respectively.

Personality Factors	MALE	FEMALE	P – VALUE
	n	N	
ALOOF & COLD	3	12	0.37
WARM & SOCIABLE	6	13	0.34
EMOTIONAL & UNSTABLE	17	41	0.37
MATURE & CALM	0	0	-
TIMID & SHY	11	55	0.0003*
ADVENTUROUS & THICK SKINNE	0	5	0.007*
TOUGH & REALISTIC	0	0	-
SENSITIVE & EFFEMINATE	11	11	0.007*
CONVENTIONAL & SERIOUS	2	9	0.24
ECCENTRIC & UNCONCERNED	10	36	0.1
CONSERVATIVE & ACCEPTING	0	0	-
EXPERIMENTING & CRITICAL	3	14	0.15
DEPENDENT & IMITATIVE	13	37	0.33
SELF SUFFICENT & RESOURCEFUL	6	3	0.34
PHLEGMATIC & POISED	0	0	-
TENSE & EXCITABLE	11	28	0.48

Table 3 shows Personality Factors of Chronic Headache subjects and Association with Gender

Less males (3%), than females (12%) were showing aloof and cold traits though the P value for this finding was not statistically significant (p=0.37). Males 6% and females 13% show warm & sociable traits which also is not statistically significant (p=0.34)

Emotional and unstable traits were found among 41% females and 17% males which also did not have any statistical significance (p=0.37)

Timid & Shy traits were seen in 55% females and only 11% males which showed a statistically significant p value at 0.0003

Among 5% of females adventurous & thick skinned trait was seen while none of the males had this trait (p=0.007)

Sensitive & effeminate traits were seen in 11% males and females (p=0.007)

		HOLMESRAHE STRESS SUSCEPTIBILITY			P-
Socio-demographic variables			MIDDLE	HIGH	VALUE
		n	n	n]
AGE	YOUNG	0	23	6	0.0002*
AGE	MIDDLE	5	66	0	0.0002*
CEV	MALE	0	25	3	0.10
SEX	FEMALE	5	64	3	0.18
	MUSLIM	3	27	0	0.54
RELIGION	HINDU	0	15	3	
	CHRISTIAN	0	6	0]
FDUCATION	ILLITERATE	1	24	3	0.42
EDUCATION	LITERATE	4	65	3	0.43
	UNEMPLOYED	1	39	4	
OCCUPATION	EMPLOYED	4	46	2	0.55
	RETIRED	0	4	0]
COCIO ECONOMIC	LOW	4	63	5	
SOCIO ECONOMIC STATUS	MIDDLE	1	21	0	0.43
	HIGH	0	5	1]
	UNMARRIED	0	17	0	
MARITAL STATUS	MARRIED	5	69	5	0.27
	WIDOWED	0	3	1	

Table 4 Personality Factors and its distribution among Subjects of Various Socio-Economic Statuses

	SOCIO E	_		
Personality Factors	LOW	MIDDLE	HIGH	P- VALUE
	n	n	n	
ALOOF & COLD	19	6	6	0.0008*
WARM & SOCIABLE	19	0	0	0.01*
DULL & LOW CAPACITY	11	11	0	0.001*
BRIGHT & INTELLIGENT	0	0	0	-
SUBMISSIVE & CALM	50	11	0	0.001*
DOMINANT &	0	0	0	-

AGGRESSIVE				
GLUM & SILENT	50	0	0	-
ENTHUSIASTIC &	0	0	0	-
TALKATIVE				
CASUAL & UNDEPENDABLE	11	6	6	< 0.05
CONSCIENTIOUS & PERSISTENT	6	0	0	0.2
CONVENTIONAL & SERIOUS	11	0	0	0.09
ECCENTRIC & UNCONCERNED	42	6	6	< 0.05
SIMPLE & AWKWARD	6	0	0	0.28
EXTROVERSION LOW	22	6	6	0.002*
EXTROVERSION HIGH	0	0	0	-
TIMID LOW	0	0	0	-
TIMID HIGH	61	11	6	0.001*
SOCIABILITY LOW	11	6	6	< 0.05
SOCIABILITY HIGH	11	0	0	0.09

Table 5) Personality Factors and Various Socio-Economic Statuses significance

Most of the sample subjects belonged only to either low or middle socioeconomic status and there were very few belonging to the high socioeconomic status category. Among those with personality factors of warm & sociable, submissive & calm, majority belonged to the low socioeconomic status with statistically significant p values which are shown in the table.

Dull & low-capacity personality traits were equally distributed between low and middle socioeconomic status groups (p=0.001) which has statistical significance. The traits Glum & silent, conscientious and persistent, conventional and serious, simple and awkward, sociability high was seen only among the low socioeconomic group which also has statistically significant p values as show in the table. Among the factors eccentric ad unconcerned, extroversion low, timid high, sociability low casual and undependable aloof and cold, majority belonged to low socioeconomic status though there were few in the middle and high socio-economic category with statistically significant p values which are in the table.

Life Stress susceptibility and Its association with Chronic Headache Subjects was also studied. Table no 5 shows the association between the socio-demographic factors of age, gender, religion, education, occupation, socio-economic status and marital and their association with life stress among chronic headache patients.

Among the sample studied only 5% belonged to the category of low susceptibility to stress, while 89% belonged to the moderate susceptibility category and 6% belonged to high susceptibility category. The various sociodemographic factors were also studied in relation to life stress susceptibility and only age showed a statistically

significant association with a p value of 0.0002. In the sample who were stress susceptible, 23% young individuals are susceptible to moderate risk, 6% young individuals are susceptible to high risk. Among the middle age group individuals, 5% are susceptible to low risk and 66% individuals are susceptible to moderate risk.

25% males are at moderate risk, 3% are at high risk. 64% of females are at moderate risk, 3% females are at high risk and 5% are at low risk.

Stress susceptibility is seen in 27% of Muslims with moderate risk (10% low risk), 15% Hindu individuals with moderate risk, and 6% Christians are at moderate risk.

24% of illiterates are with moderate risk of stress and 65% literates are susceptible to moderate stress risk.

39% unemployed are susceptible to moderate risk and 46% are susceptible to moderate risk and 4% of retired are with moderate risk.

Among the Unmarried 17% are with moderate risk and among the married 69% individuals are with moderate risk and 5% are with low and 5% at high risk.

DISCUSSION

Personality Traits/Factors among Subjects with Chronic Headache

In this study, predominantly higher percentage of subjects were seen in the low variant of subscales 16B, C, E, F, G, H, N, Q2, EX, SC, which correspond to the factors dull & low capacity, emotional & unstable, submissive & calm, glum & silent, casual and undependable, timid & shy, simple & awkward, dependent & imitative, introversion, sociability.

A higher percentage of subjects were seen in the high variants of 16I, L, M, O, Q1, Q4, AX, IN, TM, subscales of 16pf which correspond to the personality traits of sensitive & effeminate; suspecting & jealous; eccentric & unconcerned; insecure & anxious; experimenting & critical; tense & excitable; independence; tenderminded; high anxiety as compared to normal individuals. Most of them score significantly higher on the traits of anxiety.

In personality traits, headache patients had low impulsivity and high insecurity. Impulsivity here refers to extent of sociability, adaptability and acting out or externalizing internal conflicts. These findings corroborate with some early theoretical concepts as well as data from empirical research.

Fromm-Reichman et al¹⁶(1937) related the etiology of chronic headache to hostile impulses followed by guilt turned back against the self.

Dubojska, et al.¹⁷(1998), in assessing personality traits in patients with tension headache found them to be introverted, compared to subjects with no headache. Wolff et al.¹⁸ (1937) had conceptualized chronic headache patients as silent, anxious and dull, among other personality features.

Thus the analysis reveals patients to have dullness, insecurity, emotionality, anxiety. High emotional traits means that headache sufferers tend to suppress their emotional life and behavior in general. Chronic headache was thought to be particularly frequent in women with inhibited behavior by Selinsky et al¹⁹(1939).

Increased emotionality and significantly more psychological symptoms in chronic headache sufferers compared to normal subjects were reported by Gutt & Rees et al²⁰ in their study done in 1997. In the same line, Mongini F et al.²¹ in 2000 did a study using the State Trait and found similar results. Anxiety Inventory found that while scores on state anxiety decreased after treatment of chronic daily headache, trait anxiety scores did not change. There was also

a positive correlation between personality trait of submissiveness, suspecting, dependent nature and severity of headache although it did not reach a significant level. The tendency to submissiveness has been reflected in a study by Lanzi et al.²² in 2001, who reported a characteristic tendency of patients with chronic headache to repress anger and aggression.

High insecurity indicates that headache patients are anxious, worried, easily upset and self-reproachful. High scores on this have a strong positive correlation with succorance and negative correlation with a sense of well-being. Some of these features are confirmed by results of several previous studies.

In this study findings on personality factor and age of the patient shows that headache is more among young patients with personality traits of dull & low capacity, submissive & calm, conscientious & persistent, timid & shy.

STRESS

In a study by Lipchik et al²³ investigated the role of stress in chronic headache sufferers. They observed that patients who suffered from chronic headache had a significantly high susceptibility life stressors and it also affected their quality of life.

According to Hye-Jin Moon et al.²⁴ study on perceived stress in patients with migraine their results revealed that the level of perceived stress was significantly associated with the role function and emotional function of migraine patients. Chronic stress may trigger migraine attacks or induce Chronic Migraines, subsequently restricting or preventing participation in social or work-related activities. Therefore, chronic stress might affect emotions of migraine patients, these findings are like the present study.

In the present study there was a significant correlation between Life stressors, & Chronic Headache. Headache sufferers reported a high number of life change events which contributed to their overall higher stress susceptibility. They also appraised the stressful events they experienced more negatively. When the potential impact of a stressful event was ambiguous, Chronic Headache sufferers appraised this event negatively and themselves as having little control over the event. Chronic Headache sufferers made little use of social support.

These findings suggest that research on the role of stress in chronic headache should focus on the occurrence of major stressful life events and, cognitive appraisals of stressful events and efforts to cope with stress.²⁵

Overall in this study stress susceptibility is more among the young, females of low socio economic status and among those who are married. Among illiterates the susceptibility level was moderate.

According to Stewart et al.²⁶ (2001) stress, particularly environmental factors, may play a role on the pathophysiological mechanisms of chronic daily headache. They found that specific stressful life events, such as divorce, widowhood, separation and problems with children, were more likely to be associated with increased prevalence when compared to controls. The above findings are similar to the findings of the current study.

David J.Reynolds MA et al.²⁷ reported that life stress is found to be related to headache frequency in some studies, Negative life event stress was found to be modestly but significantly related to headache frequency. The relationship between the two variables was stronger for women than for men and, after the influence of depression and headache state was removed, the relationship between life stress and headache frequency remained significant only for women his findings are similar to the present study.

According to De Fidio et al.²⁸ the study reported a triggering role of stress on the chronification process, suggesting that patients with chronic headache are characterized by a different way of reacting to stress, which is like the findings in this study.

From this study it appears that chronic headache seems to be common in people who on the one hand are more sensitive to the stressors of life and on the other hand less equipped to cope with such stressors. The high anxiety, emotionality, suspiciousness in combination with dullness, insecureness, seems to overwhelm the normal coping mechanism and a consequence spill over into the psychopathology and distress.

It may be that these forces pulling in opposite direction may play a significant role in the patho-physiology of chronic headache

Conclusion:

Hence to conclude, we infer that the significance of maladaptive personality traits and emotional instability points to the importance of psychological interventions to address chronic headache. It may be that under-recognition of maladaptive personality traits may lead to overuse of pharmacological analgesic treatment, over reliance on investigative procedures and partial response in these chronically suffering patients.

Specially in non-specialized hospitals where little attention may be paid to the interaction of maladaptive traits and environment and the consequences there of, most of the patients may suffer more than just headache.

Dysfunctional personality traits provide rich grounds for a headaches to become chronic. However, this study is by no means adequate to answer this question, yet it may point to an area where research is needed.

In Personality traits, headache patients had low impulsivity and high insecurity. Headache sufferers tend to suppress their emotional life and behavior in general. Chronic headache was thought to be particularly frequent in women with inhibited behavior. There was also a positive correlation between personality trait of submissiveness, suspecting, dependent nature and severity of headache.

Headache sufferers reported a high number of chronic everyday stresses or daily hassles. Young age group who are married, females from low socio economic status are scoring high in life stressor inventory. Results are concluding that age is the significant factor for stress among the patients of headache.

Chronic headache seems to be common in people who on the one hand are more sensitive to the stressors of life and on the other hand less equipped to cope with such stressors. Thus, identification of personality factors and stress in headache patients helps in effective management of the condition.

LIMITATIONS

As the present study was hospital based, the results cannot be extrapolated to the population. Secondary headache profile could not emerge out of this study due to the small sample size.

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