Correlation Between Life Events and Quality of Life in Patients with Medication-Overuse Headache

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ABSTRACT

Introduction: The present study aimed to determine (a) the correlation between type and number of stressful life events and quality of life in patients with medication-overuse headache (MOH) and (b) whether stressful life events could be attributed to medication overuse and the conversion of headache to a chronic type.

Methods: The present study included 114 patients aged between 15 and 65 years who met the criteria for headache classification of International Headache Society (IHS). The patients were divided into three groups according to the revised 2004 IHS classification; MOH (n=64), chronic migraine (n=25) and episodic migraine (n=25). Detailed data on clinical and sociodemographic characteristics were recorded. Neurological and physical examinations were performed for differential diagnosis. The patients underwent structured clinical interviews for DSM-IV Inventory (SCID-I), Beck Anxiety Inventory, Beck Depression Inventory, Short Form-36 (SF-36) and Life Events List. Scores of these inventories were statistically compared.

Results: Comparing MOH group with episodic migraine group via SF-36, statistically significant decreases were observed in the subscales of physical role limitation (p=.024), pain (p=.0001), general health (p=.043) and social functioning (p=.004). There was a statistically significant correlation between the number of life events and the time the disease became chronic in the patient group with non-MOH chronic migraine (p=.027). Moreover, a statistically significant correlation was observed between stressful family life events and the body pain subscale of quality of life scale (p=.038).

Conclusion: The present study demonstrates that stressful life events impair quality of life in patients with MOH. It was also found that number of stressful life events could be attributed to the conversion of headache to a chronic type.

Keywords: Medication-overuse headache, stressful life events, quality of life

INTRODUCTION

Migraine is a heterogeneous group of diseases characterized by migraine attacks that significantly impair quality of life and cause disability. It is a common condition affecting approximately 10% of the population (16% females and 5% males). According to the classification of International Headache Society (IHS), chronic migraine (CM) is included in the complications of migraine (1). Chronic migraine is reported to affect 1%–3% of the general population (2). Diagnosis is made if headache is present for ≥15 days in a month and for at least 3 months, average headache duration is ≥4 h in a day and ≥8 days of this pain is associated with migraine. Risk factors for conversion of headache to a chronic type from an episodic type include hypertension, surgical menopause, caffeine abuse, obesity, smoking, snoring, sleep apnea, suicide risk and psychiatric comorbidities (3).

Medication-overuse headache (MOH) was first defined by the International Headache Society (IHS) in 2004. According to the additional diagnostic criteria published in 2006 by IHS, MOH is defined as headache that is present for ≥15 days in a month and for ≥3 months, requiring the use of medications, such as analgesics, barbiturates, opioids, ergot derivatives, caffeine, triptans and aspirin, for >10 days in a month (1,4). Prevalence of MOH in the general population is reported to be 1%–1.5% and it accounts for 30%–50% of patients admitted to headache clinics (5,6).

Migraine is a chronic disorder that unfavorably affects patients' social, occupational and personal quality of life. In a previous study, quality of life was found to be significantly impaired in migraine patients compared with healthy individuals as well as patients suffering from chronic conditions such as diabetes, arthritis and back pain (7). Significant impairment in many subgroups of quality of life in patients with chronic migraine, MOH and chronic cluster headache has been reported (8). Similar results were obtained also in the studies conducted in various populations and cultures, such as China, Italy, Spain, United Kingdom and USA, revealed similar results and quality of life in affected individuals was found to be poor (9,10,11,12,13).

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In the literature, number of studies that have studied quality of life in patients with MOH is quite limited. Comparing chronic daily headache patients with and without medication-overuse and have, quality of life was found to be lower in those with MOH (9,10,14,15). Studies revealed significant impairment in quality of life in all types of migraine compared with the healthy individuals and impairment was determined to be higher in patients with MOH.

It has been reported that stress has an important role in the occurrence of pain in 39% patients with headache (16). Internal or external stress factors activate the sympathetic nervous system and hypothalamic–pituitary–adrenal axis and may lead to stress-related reactions of the body. The degree of this response depends on the duration, severity and frequency of exposure to stress. It has been found that psychological stress is effective not only in the initiation of migraine but also in the conversion to the chronic type from the episodic type (17,18,19,20). Moreover, it was found that daily hassles are more common than major life events in patients with chronic headache and that minor life events are significantly associated with the frequency and intensity of headache (21,22). It was determined that stress significantly impairs quality of life in patients with chronic daily headache (23). In addition, it was found that anxiety and depression play an important role in the conversion of migraine to MOH (24,25).

In the present study of MOH patients, our aims were as follows:
1) Assess the correlation between number of stressful life events and quality of life;
2) Investigate the correlation between stressful life events and subgroups of quality of life by classifying stressful life events;
3) Determine whether psychiatric comorbidities play a role as significant as medication overuse in the conversion of headache to a chronic type;
4) Different from the previous studies, determine correlation between different psychiatric comorbidities and quality of life.

METHODS
The present study was approved by the Baskent University Ethics Committee (project no: KA 12/257) and supported by Baskent University Research Fund.

The study included 114 patients admitted to Baskent University, Faculty of Medicine, Adana Medical Center, Outpatient Clinic of Neurology between September 2012 and February 2014 with the complaint of headache and diagnosed with headache based on the IHS 2004 diagnostic criteria. All patients were informed about the aim and method of the study and their written consents were obtained. Fourteen patients with psychotic disorders, mental retardation, severe neurological disease, or secondary headache; those who disagreed to participate in the study; and those aged <18 years were excluded from the study.

The neurologists completed the neurological-disease related sections of the sociodemographic data form and performed detailed neurological examinations. Organic causes were excluded using appropriate methods. The diagnoses of MOH, CM and episodic migraine (EM) were made according to the IHS diagnostic criteria. After these evaluations, three types of migraine were determined on the basis of IHS-II criteria; MOH (n=64), CM (n=25) and EM (n=25).

The diagnosis of MOH was made if headache persisted for >15 days in a month, analgesics have been used for >3 months, headache worsened during analgesic use and if headache notably improved or returned into previous type in 2 months after analgesic discontinuation.

Based on the IHS classification, overused medications were classified into ergotamines, triptans, pain relievers, opioids, analgesic combinations, combination of acute medications and others.

After neurological examinations, the patients were examined by a psychiatrist. Psychiatrist examined the patients without knowing the patients' headache type. The psychiatrist completed the psychiatric disease-related sections in the sociodemographic data form. Psychiatric comorbidities were diagnosed using a structured clinical interview for DSM-IV.

Patients completed the rest of the sociodemographic data form, SCID-I, Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Short-Form-36 Quality of Life Scale (SF-36) and Life Events List (LEL).

Sociodemographic data form: Sociodemographic data form was completed by psychiatrists, neurologists and the patients. It included the age, sex, marital status, occupation, history of psychiatric disease and family history of patients.

SCID-I: It is a structured clinical interview performed by the interviewer to investigate axis-I psychiatric disorders. It consists of six modules and investigates diagnostic criteria of a total of 38 axis-I disorders. Two modules are used for mood episodes and mood disorders, two modules are used for psychotic symptoms and psychotic disorders and one of the two modules is used for anxiety disorders and the other was used for substance abuse and other disorders. It was developed in 1997 by First et al. (26). It's Turkish version has been validated by Ozkurkcugil et al. (27) under the name of Structured Clinical Interview For DSM-IV Axis-I Disorders.

BDI: It is a self-rating scale developed by Beck (28). This scale consists of 21 questions, each including 4 situations. Each answer is rated between 0 and 3 and total score changes between 0 and 63. Total score is interpreted as follows: 0–4 no/minimum depression, 10–16 mild depression, 17–29 moderate depression and 30–63 severe depression. Validity and reliability study of Turkish version of the scale was conducted by Hisli et al. (29); a score of ≥17 is considered as major depression in Turkish population.

BAI: It is a 21-item scale developed by Beck et al. (30) and is widely used to measure anxiety severity. It has acceptable validity and reliability in various populations. Each item is scored between 0 and 3 and severity of anxiety increases as the score increases. Scores given to each of these 21 items are added at the end of psychiatric evaluation. Validity and reliability study of Turkish version was performed by Ulusoy et al. (31).

SF-36: It is a self-rating scale widely used to evaluate quality of life. In this scale, eight dimensions of health [physical functioning, role limitation (due to physical and emotional problems), social functioning, mental health, vitality (energy), body pain and general health], distributed in 36 items, are investigated. SF-36 was developed in 1992 by Ware et al. (32). In 1999, Kocyigit et al. adapted it into Turkish and conducted a study of the validity and reliability the version (33).

LEL: This list was developed by Sorias (34) and it has been adapted to the Turkish population. Sorias's life events consist of 107 items. These events mainly include economic status, health status, education, occupation, relationship with family, close relatives and friends, sexual life, loss (economic, health, spouse) and change of place. According to the study nature, it can be used by selecting certain events out of the list. The number of life events was evaluated in four groups: 0: no life event; group 1: 1–5 life events, group 2: 6–10 life events; group 3: ≥11 life events. Scores of the scales were compared between these groups. Moreover, events in LEL

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were divided into four categories as economic, familial, health and personal and these events were compared with the scores of other scales.

Statistical Analysis

Statistical analysis of data was performed using Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) 17.0 software package. Continuous measurements were summarized as mean and standard deviation (or minimum–maximum where necessary), whereas categorical variables were summarized as n (%). The chi-square test was used for comparing categorical variables between the groups. Continuous variables were compared between the groups after checking the distribution of these variables. Student t-test was used for normally distributed variables, whereas Mann–Whitney U test was used for variables not distributed normally. Repeated measures analysis was used for the comparison of pre-treatment and post-treatment test results. The level of statistical significance was considered to be 0.05 for all tests.

RESULTS

Sociodemographic data are summarized in Table 1. A total of 114 migraine patients were included in the study. The patients were divided into three groups as MOH (n=64), CM (n=25) and EM (n=25). The mean age of patients with MOH was 37±10.2 (17–60) years. There was no significant difference between three groups in terms of gender, education level, marital status, headache duration, severity of headache [visual analog scale (VAS)] and smoking habit. Moreover, no significant difference was determined in terms of symptoms of headache-associated vomiting, nausea, photophobia and osmophobia.

The duration of chronic headache (month) and number of days with headache in a month were statistically significantly higher in the MOH and CM groups than in the EM group (p=.0001). The mean number of analgesics received in a month was 30 (6–80) in MOH, 5 (0–30) in CM and 3 (1–8) in EM groups; the difference was statistically significantly higher in MOH group (p=.001). The most frequently received medications in the MOH group were simple analgesics (70.3%) and non-steroidal anti-inflammatory agents (70.3%), followed by triptans (23.5%) and ergot alkaloids (15.6%).

Comparison between migraine groups in terms of 8 SF-36 subscales revealed that quality of life was statistically significantly impaired in the fields of role-physical (p=.024), body pain (p=.0001), general health (p=.043)

and social functioning (p=.004) in the MOH group compared with the EM group. When EM and CM groups were compared, statistically significant difference was found only in the social functioning subscale of SF-36 (p=.04). There was no statistically significant difference between MOH and CM groups in terms of quality of life (Table 2).

The number of events in LEL, which consists of 107 items, was evaluated by dividing the study participants into 4 groups; group 0: no event, group 1: 1–5 events, group 2: 6–10 events and group 3: ≥11 events. In the MOH group, 1–5 life events were present in 50% (n=32), 6–10 life events were present in 43.8% (n=28) and ≥11 life events were present in 4.7% (n=3) patients. There was no statistically significant difference between the CM, EM and MOH groups in terms of number of life events (Table 3). No statistically significant difference was found between the number of life events and headache duration (year), time to convert to a chronic type (year) and VAS scores in the MOH and EM groups (p>.05). In the CM group without MOH, statistically significant difference was determined between the number of life events and time to convert to a chronic type (p=.027) (Table 4).

Comparing mean number of life events and quality of life, statistically significant difference was observed in the body pain (p=.002) and social functioning (p=.013) sub-scales of SF-36 (Table 4).

In the analysis of LEL according to the groups, the most frequently encountered life events in MOH patients were trouble with chief and colleagues (n=7, 12.28%), change in sleeping habits (n=32, 56.14%), extreme borrowing (n=10, 17.54%), menopause (n=17, 29.82%), presence of severe illness, occurrence of an accident (n=10, 17.54%), major change in living conditions and social activities (n=19, 33.13%), marital problems (n=14, 24.56%) and conflict with mother or father (n=6, 10.53%) (Table 5).

Parameters in LEL were divided into 4 categories as economic, personal, familial and health. Of the patients with MOH, 42.2% (n=27) had familial, 84.4% (n=54) had personal, 53.1% (n=34) had health and 35.9% (n=23) had economic stressful life events. No correlation was found between the type of stressful life event and headache duration and VAS score. Statistically significant correlation was found only between stressful family life events and the body pain subscale of SF-36 (p=.038) (Table 6).

Table 1. Comparison of the groups according to sociodemographic characteristics, headache profile and anxiety, depression scale score

| | MOH (n=64) | CM (n=25) | EM (n=25) | | | | |
	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	p	p group 1 and 2	p group 1 and 3	p group 2 and 3
Age (year)	37 (17-60)	30 (17-47)	38 (20-61)	.050	.021	.978	.059
Education (year)	11 (5-17)	10 (5-17)	11 (5-17)	.284	.519	.115	.435
BAI	20 (3-46)	16 (7-56)	16 (2-46)	.784	.823	.563	.521
BDI	17 (4-55)	19 (4-36)	13 (2-28)	.520	.815	.265	.428
Headache duration (year)	10 (1-40)	7 (1-30)	7 (1-35)	.377	.182	.557	.400
Chronic headache duration (month)	6 (1-48)	4 (0-24)	0 (0-6)	**.0001**	.247	**.0001**	**.0001**
Frequency of headache (days/month)	30 (18(30)	25 (20-30)	3 (1-25)	**.0001**	.152	**.0001**	**.0001**
VAS	9 (1-10)	8 (5-10)	8 (7-10)	.063	.097	.035	.956
The number of analgesics	30 (6-80)	5 (0-30)	3 (1-8)	**.001**	**.0001**	**.0001**	.092

p: Kruskal–Wallis test (p<.05). p group 1 and 2, p group 1 and 3, p group 2 and 3: Post-hoc Mann–Whitney U test (p≤.017 Bonferroni correction). MOH: medication-overuse headache; CM: chronic migraine; EM: episodic migraine; BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; VAS: visual analog scale

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Table 2. Comparison of SF-36 scores in patients with MOH, CM and EM groups

| | MOH (n=64) | CM (n=25) | EM (n=25) | | | | |
	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	p	p group 1 and 2	p group 1 and 3	p group 2 and 3
Number of SLE	5 (0-13	5 (0-11)	3 (0-8)		.582	.008	.09
Physical functioning	26 (15-30)	26 (15-54)	28 (16-30)	.837	.943	.568	.646
Physical role limitation	5 (4-8)	6 (4-8)	7 (4-8)	.070	.501	**.024**	.135
Body Pain	5 (2-10)	6 (3-9)	7 (4-12)	**.002**	.093	**.0001**	.172
General Health	14 (5-22)	14 (5-22)	17 (6-24)	.131	.725	**.043**	.199
Energy	11 (4-20)	12 (7-19)	14 (7-20)	.304	.954	.183	.132
Social functioning	6 (2-10)	6 (3-10)	7 (5-10)	**.013**	.637	**.004**	**.040**
Emotional role limitation	4 (3-6)	4 (3-6)	5 (3-6)	.764	.725	.629	.444
Mental health	16 (5-26)	15 (10-25)	18	.300	.868	.176	.144

p: Kruskal–Wallis test (p<.05). p group 1 and 2, p group 1 and 3, p group 2 and 3: Post-hoc Mann–Whitney U test (p≤.017 Bonferroni correction). MOH: medication-overuse headache; CM: chronic migraine; EM: episodic migraine

Table 3. Distribution of the stressful life events number in MOH, CM and EM groups

	MOH (n=64)	CM (n=25)	EM (n=25)	Total
Stressful life events	n (%)	n (%)	n (%)	n (%)
1-5	32 (50)	13 (52)	16 (59.3)	61 (52.6)
6-10	28 (43.8)	9 (36)	8 (29.6)	45 (38.8)
11+	3 (4.7)	1 (4)	0 (0)	4 (3.4)

Chi-square test: n (%). MOH: medication-overuse headache; CM: chronic migraine; EM: episodic migraine

Psychiatric comorbidity was present in 65.6% (n=42) of the patients with MOH, 52% (n=13) of the patients with CM and 44.4% (n=12) of the patients with EM. Psychiatric comorbidity was statistically significantly higher among those with MOH (p=.042). Of the patients with MOH, 21.9% had depression, 35.9% had anxiety disorder and 7.8% had somatoform disorder. Among anxiety disorders, the prevalence of obsessive–compulsive disorder was 21.1%. Of the patients with episodic migraine, 14.89% had depression, 18.5% had anxiety disorder and 11.1% had somatoform disorder. There was no statistically significant difference between the groups in terms of psychiatric comorbidities (p>.05).

DISCUSSION

This study, which was conducted to investigate the effect of stressful life events on quality of life patients with MOH, determined correlations between pain and number of life events and familial stressful life events. Many studies have mentioned about the unfavorable effect of psychological stress on migraine (35,36). Galego et al. (23) compared the presence of stress and SF-36 scores; they suggested that scores of all scales except for physical functioning were significantly low and that stress impairs quality of life.

The mean number of life events was found to be unrelated with headache duration, duration of chronic headache and severity of headache in the MOH and EM groups. On the other hand, significant correlation was found between the number of life events and the duration before conversion of headache to a chronic type in the CM group without MOH. On the basis of these results, it can be suggested that number of stressful life

events plays a role in the conversion of headache to the chronic type but not associated with the development of medication overuse.

Stressful life events have usually been compared by being classified as minor/major and childhood/adulthood events. De Benedittis et al. (21) and Fernandez et al. (22) found that minor life events (daily hassles) are more common than major life events and they are significantly associated with frequency and severity of headache. In the present study, stressful life events were divided into four groups, i.e., economic, personal, health and familial, with a different classification; then, these events were compared both between themselves, with the SF-36 subscale scores and with headache characteristics. Although the most common stressful life events were of personal origin in all three groups, the least common events were of familial origin in the MOH patients and of economic origin in the EM group. Absence of statistically significant difference between the groups suggests that the cause of stressful life events does not play a role in medication overuse or the conversion of headache to a chronic type. Familial life events were found to be associated with the scores of body pain subscale of quality of life. This can be explained by strong family bonds in Turkish population.

In the literature, studies on quality of life in migraine patients have demonstrated impaired quality of life but in different fields. Bussone et al. (37) conducted a study in Italy and determined that all subscales of quality of life were impaired in CM patients compared with healthy controls. D'Amico et al. (38) reported that both physical and mental subscales of quality of life were impaired and occupational and social activities were hindered in the groups with CM and medication overuse. In a population-based study from United Kingdom, comparing migraine patients with healthy individuals revealed a significant decrease in all SF-36 subscale scores except for general health (13).

In the literature, studies assessing quality of life in patients with MOH are few. These studies report that quality of life is impaired in MOH patients (14,39,40). Guitera et al. (41) determined impairment in all fields of quality of life and more significant impairment in physical functioning and body pain were observed in MOH patients compared with patients without MOH. In the study conducted by D'Amico et al. (38) in Italian patients, statistically significant impairment was determined in almost all fields of quality of life in patients with CM+MOH. In the present study, it was determined that quality of life was impaired in the fields of general health,

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Table 4. Correlation between number of stressful life events and SF-36 scores

	Group 0 Median (Min–Max)	Group 1 Median (Min–Max)	Group 2 Median (Min–Max)	Group 3 Median (Min–Max)	Total Median (Min–Max)	P
Physical functioning	26 (23-29)	28 (15-54)	26 (15-30)	20.5 (18-30)	26 (15-54)	.837
Physical role limitation	5 (5-8)	6 (4-8)	6 (4-8)	7.5 (5-8)	6 (4-8)	.07
Body pain	7.1 (5-7)	6.1 (2-12)	5.2 (2-9)	5.05 (4-8)	5.2 (2-12)	**.002**
General health	13.4 (9-17)	15 (6-24)	13 (5-21)	12.2 (9-17)	14 (5-24)	.131
Energy	15 (8-20)	12 (5-19)	10 (4-20)	8 (4-12)	12 (4-20)	.304
Social functioning	7 (5-9)	7 (3-10)	7 (2-10)	4.5 (4-9)	7 (2-10)	.013
Emotional role limitation	5 (3-6)	5 (3-6)	3 (3-6)	4 (3-6)	4 (3-6)	.764
Mental health	20 (12-24)	17 (8-26)	14 (5-26)	12.5 (7-17)	16 (5-26)	.3

p: Kruskal–Wallis test (p<.05). Post-hoc Mann–Whitney U test (p≤.017 Bonferroni correction). Group 0: no event, Group 1: 1–5 events, Group 2: 6–10 events and Group 3: ≥11 events

Table 5. Distribution of stressful life events in MOH, CM and EM groups

	MOH		CM		EM		Total	
Stressful life events	n	%	n	%	n	%	n	%
Trouble with chief and colleagues	7	12.28	3	13.64	2	9.09	12	11.88
Change in sleeping habits	32	56.14	15	68.18	12	54.55	59	58.42
Extreme borrowing	10	17.54	5	22.73	3	13.64	18	17.82
To look at elderly or sick relatives at home	6	10.53	4	18.18	1	4.55	11	10.89
Conflicts with parents	6	10.53	2	9.09	0	0.00	8	7.92
Menopause	17	29.82	2	9.09	5	22.73	24	23.76
Severely sick or injury	10	17.54	3	13.64	4	18.18	17	16.83
Major change in eating habits	15	26.32	7	31.82	9	40.91	31	30.69
Major change in living conditions	9	15.79	3	13.64	2	9.09	14	13.86
Major change in social activities	10	17.54	4	18.18	2	9.09	16	15.84
Mild disease of children	5	8.77	1	4.55	3	13.64	9	8.91
Moderate discussions with the partner	14	24.56	7	31.82	2	9.09	23	22.77
To prepare for a difficult exam	6	10.53	4	18.18	2	9.09	12	11.88
Sexual problems	11	19.30	5	22.73	3	13.64	19	18.81
Mild borrowing	9	15.79	2	9.09	3	13.64	14	13.86

Chi-square test: n (%). MOH: medication-overuse headache; CM: chronic migraine; EM: episodic migraine

role-physical, body pain and social functioning in patients with MOH, but there was no difference with CM patients.

The present study found that psychiatric comorbidities are more common in the MOH group but that, unlike previously reported data, these comorbidities showed no significant correlation with quality of life. In the literature, that presence of anxiety, depression and stress was reported to unfavorably influence quality of life in patients with chronic headache (12,23,42). Hung et al. (43) determined significant impairment particularly in the physical functioning and energy (vitality) fields of quality of life in migraine patients with depression as a comorbidity.

In the literature depression and anxiety as comorbidities are reported to be more common in MOH patients and are attributed to medication overuse and the conversion of headache to a chronic type (24,25,44). However, in our literature review, we found no study conducted focusing

on this issue in MOH patients. In the present study, patients with MOH, CM and EM were compared in terms of prevalence of depression, anxiety and somatoform disorders, as well as the correlation between psychiatric comorbidities and quality of life; however, no significant correlation was found. We attributed this result to the facts that the diseases in all three groups were chronic, proportion of comorbidities were similar and each group had a limited number of patients. Previous studies found that symptoms of obsessive–compulsive disorder are more common in MOH and CM patients than in EM patients and the control group with more prevalent obsessive–compulsive personality character found in MOH patients, which is consistent with results of the present study (45,46).

In the present study, in contrast to the EM group, it was found that scores of role-physical, general health, social functioning and body pain subscales of quality of life were decreased in the MOH group, but there was no difference with CM patients who had no medication overuse. It was also

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Table 6. Correlation between the type of stressful life event and quality of life

	Economic (n=57)	Personal (n=98)	Health (n=58)	Familial (n=47)				
	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	Median (Min-Max)	$P_{economic}$	$P_{personal}$	P_{health}	$P_{familial}$
Physical functioning	26 (15-54)	26 (15-54)	27 (16-54)	26 (15-30)	.62	.75	.55	.52
Physical role limitation	6 (4-8)	6 (4-8)	6 (4-8)	7 (4-8)	.67	.16	.96	.23
Body pain	6.1 (2-12)	5.2 (2-2)	6.1 (2-12)	6.1 (3-12)	.296	.94	.75	.038
General health	14.2 (5-24)	14 (5-24)	13 (5-24)	14.7 (5-24)	.48	.17	.41	.64
Energy	12 (4-20)	12 (4-20)	12 (4-20)	12.5 (6-20)	.46	.84	.35	.08
Social functioning	7 (2-10)	7 (2-10)	7 (2-10)	7 (4-10)	.48	.89	.84	.859
Emotional role limitation	5 (3-6)	4 (3-6)	5 (3-6)	4 (3-6)	.18	.88	.38	.053
Mental health	16 (5-26)	16 (5-26)	16 (5-24)	17 (9-26)	.81	.18	.66	.14
p: Kruskal–Wallis test (p<.05) Post-hoc Mann–Whitney U test (p≤.017 Bonferroni correction)								

found that familial stressful life events are important for the individual to feel pain. Moreover, different from the literature, absence of significant correlation between comorbidities and quality of life despite higher prevalence of psychiatric comorbidities in MOH patients is another important finding. In the light of these findings, it can be suggested that number of stressful life events might be a risk factor for conversion of headache to a chronic type.

On the basis of the results of the present study, it can be concluded that the detection and eliminations of stressors in MOH patients may lead to significant improvement in controlling headache and enhancing quality of life. In addition, preventing or decreasing medication overuse may contribute to the decrease in the burden on both the economy and hospital sources and the decrease in potential metabolic problems that medications might cause in the patients. For these reasons, it is important to follow up the patients who present to neurology policlinics with headache, with or without medication overuse, in collaboration with psychiatry clinics.

The present study has limitations such as a cross-sectional design, the method of sample selection, pain characteristics, limited patient number, obtaining information on drug use via the patients' recall and self-rating scales. However, the study highlights the importance of a multidisciplinary approach to the common health problem of headache, while providing preliminary information for future larger studies, which could shed further light on the problem.

REFERENCES

1. Classification Subcommittee of the International Headache Society Headache. The international classification of headache disorders. 2nd edition. Cephalalgia 2004; 24(Suppl 1):1-160.
2. Castillo J, Munoz P, Guitera V, Pascual J. Epidemiology of chronic daily headache in the general population. Headache 1999; 39:190-196. **[CrossRef]**
3. Scher AI, Midgette LA, Lipton RB. Risk factors for headache chronification. Headache 2008; 48(1):16-25. **[CrossRef]**
4. Headache Classification Committee, Olesen J, Bousser MG, Diener HC, Dodick D,First M,Goadsby PJ, Göbel H, Lainez MJA, Lance JW, Lipton RB, Nappi, G, Sakai F, Schoenen J, Silberstein SD, Steiner TJ. New appendix criteria open for a broader concept of chronic migraine. Cephalalgia 2006; 26:742-746. **[CrossRef]**
5. Bigal ME, Rapoport AM, Sheftell FD, Tepper SJ, Lipton RB. Transformed migraine and medication overuse in a tertiary headache centre-clinical characteristics and treatment outcomes. Cephalalgia 2004; 24:483-490. **[CrossRef]**
6. Aaseth K, Grande RB, Kvaerner KJ,Gulbrandsen P, Lundqvist C, Russel MB. Prevalence of secondary chronic headaches in a population-based sample of 30-44-year-old persons. The Akershus study of chronic headache. Cephalalgia 2008; 28:705-713. **[CrossRef]**
7. Solomon GD. Evolution of the measurement of quality of life in migraine. Neurology 1997; 48:10-15. **[CrossRef]**
8. Lanteri-Minet M, Duru G, Mudge M, Cottrell S. Quality of life impairment, disability and economic burden associated with chronic daily headache, focusing on chronic migraine with or without medication overuse: A systematic review. Cephalgia 2011; 31:837-850. **[CrossRef]**
9. Guitera V, Munoz P, Castillo J, Pascual J. Quality of life in chronic daily headache: a study in a general population. Neurology 2002; 58:1062-1065. **[CrossRef]**
10. Monzon MJ, Lainez MJ. Quality of life in migraine and chronic daily headache patients. Cephalalgia 1998; 18:638-643. **[CrossRef]**
11. Meletiche DM, Lofland JH, Young WB. Quality of life differences between patients with episodic and transformed migraine. Headache 2001; 41:573-578. **[CrossRef]**
12. Wang SJ, Fuh JL, Lu SR, Juang KD. Quality of life differs among headache diagnoses: analysis of SF 36 survey in 901 headache patients. Pain 2001; 89:285-292. **[CrossRef]**
13. Lipton RB, Liberman JN, Kolodner KB, Bigal ME, Dowson A, Stewart WF. Migraine headache disability and health related quality-of-life: a population based case-control study from England. Cephalalgia 2003; 23:441-450. **[CrossRef]**
14. Galego JC. Chronic daily headache: classification, stres and impact on the quality of life. Arq Neuropsiquiatr 2005; 64:889-890. **[CrossRef]**
15. Pini LA, Cicero AF, Sandrini M. Long-term follow up of patients treated for chronic headache with analgesic overuse. Cephalalgia 2001; 21:878-883. **[CrossRef]**
16. Sternbach RA. Pain and 'hassles' in the United States: findings of the Nuprin pain report. Pain 1986; 27:69-80. **[CrossRef]**
17. Dodick DW. Review of comorbidities and risk factors for the development of migraine complications (infarct and chronic migraine). Cephalalgia 2009; 29(Suppl 3):7-14. **[CrossRef]**
18. Bigal ME, Lipton RB. What predicts the change from episodic to chronic migraine? Curr Opin Neurol 2009; 22:269-276. **[CrossRef]**
19. Aguggia M, Saracco MG. Pathophysiology of migraine chronification. Neurol Sci 2010; 31(Suppl 1):15-17. **[CrossRef]**
20. Wöber C, Wöber-Bingöl C. Triggers of migraine andtension-type headache. Handb Clin Neurol 2010; 97:161-172. **[CrossRef]**
21. De Benedittis G, Lorenzetti A. The role of stressful life events in the persistence of primary headache: major events vs. daily hassles. Pain 1992; 51:35-42. **[CrossRef]**
22. Fernandez E, Sheffield J. Relative contributions of life events versus daily hassles to the frequency and intensity of headaches. Headache 1996; 36:595-602. **[CrossRef]**
23. Galego JC, Moraes AM, Cordeiro JA, Tognola WA. Chronic daily headache: stress and impact on the quality of life. Arq Neuropsiquiatr 2007; 65:1126-1129. **[CrossRef]**
24. Boes CJ, Capobianco DJ. Chronic migraine and medication- overuse headache through the ages. Cephalalgia 2005; 25:378-390. **[CrossRef]**
25. Radat F, Creac'h C, Swendsen JD, Lafittau M, Irachabal S, Dousset V, Henry P. Psychiatric comorbidity in the evolution from migraine to medication overuse headache. Cephalalgia 2005; 25:519-522. **[CrossRef]**

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26. First MB, Spitzer RL, Gibbon M, Williams JBW. Structured Clinical Interview for DSM-IV Clinical Version (SCID-I/CV, Version 2.0). New York: Biometrics Research Department, New York State Psychiatric Institute, 1997.

27. Özkürkcügil A, Aydemir O, Yildiz M, Esen Danacı A, Köroğlu E. DSM-IV eksen I bozuklukları için yapılandırılmış klinik görüşmenin Türkçeye uyarlanması ve güvenilirlik çalışması. İlaç ve Tedavi Dergisi 1999; 12:233-236.

28. Beck AT. An inventory measuring depression. Arch Gen Psychiatry 1961; 4:561-571. **[CrossRef]**

29. Hisli N. Beck Depresyon Envanterinin üniversite öğrencileri için geçerliliği, güvenirliliği. Psikoloji Dergisi 1989; 7:3-13.

30. Beck AT, Epstein N,Brown G, Steer RA. An inventory for measuring clinical anxiety: Psychometric properties. J Consult Clin Psychol 1988; 56:893-897. **[CrossRef]**

31. Ulusoy M, Sahin N, Erkmen H. Turkish version of the beck anxiety inventory. J Cogn Psychother 1998; 12:163-172.

32. Ware JE Jr, Sherbourne CD. The MOS 36 item short-form health survey (SF-36). Conceptual framework and item selection. Med Care 1992; 30:473-483. **[CrossRef]**

33. Koçyiğit H, Aydemir O, Fişek G, Ölmez N, Memiş A. Kısa Form-36 (KF-36)'nın Türkçe versiyonunun güvenilirliği ve geçerliliği. İlac ve Tedavi Dergisi 1999; 12:102-106.

34. Sorias S. Hasta ve normallerde yaşam olaylarının stres verici etkilerinin araştırılması. Ege Üniversitesi, Ege Tıp Fakültesi Psikiyatri Bilim Dalı, Doçentlik Tezi, İzmir 1982.

35. Yadav RK, Kalita J, Misra UK. A study triggers of migraine in India. Pain Med 2010; 11:44-47. **[CrossRef]**

36. Hedborg K, Anderberg UA, Muhr C. Stress in migraine: personality-dependent vulnerability, life events and gender ang significance. Ups J Med Sci 2011; 116:187-199. **[CrossRef]**

37. Bussone G, Usai S, Grazzi L, Rigamonti A, Solari A, D'amico D. Disability and quality of life in different primary headaches: results from Italian studies. Neurol Sci 2004; 25:105-107. **[CrossRef]**

38. D'amico D, Usai S, Grazzi L, Solari A, Leone M, Bussone G. Quality of life and disability in primary chronic daily headaches. Neurol Sci 2003; 24(Suppl 2):97-100.

39. Pini LA, Cicero AF, Sandrini M. Long-term follow up of patients treated for chronic headache with analgesic overuse. Cephalalgia 2001; 21:878-883. **[CrossRef]**

40. Zebenholzer K, Thamer M, Wöber C. Quality of life, depression and anxiety 6 months after inpatient withdrawal in patients with medication overuse headache an observational study. Clin J Pain 2012; 28:284-290. **[CrossRef]**

41. Guitera V, Munoz P, Castillo J, Pascual J. Quality of life in chronic daily headache: a study in a general population. Neurology 2002; 58:1062-1065. **[CrossRef]**

42. Mercante JP, Bernik MA, Zukerman-Guendler V, Zukerman E, Kuczynski E, Peres MF. Psychiatric comorbidities decrease quality of life in chronic migraine patients. Arq Neuropsiquiatr 2007; 65:880-884. **[CrossRef]**

43. Hung CL, Liu CY, Fuh JL, Juang YY, Wang SJ. Comorbid migraine is associated with a negative impact of quality of life in patients with major depression. Cephalalgia 2006; 26:26-32. **[CrossRef]**

44. De Filippis S, Erbuto D, Gentili F,Innamarati M, Leiter D, Tatarelli R, Martelletti P, Pompili M. Mental turmoil,suicide risk, illness perception, and temperament, and their impact on quality of life in chronic daily headache. J Headache Pain 2008; 9:349-357. **[CrossRef]**

45. Atasoy HT, Atasoy N, Unal AE, Emre U, Sumer M. Psychiatric comorbidity in medication overuse headache patients with pre-existing headache type of episodic tension-type headache. Eur J Pain 2005; 9:285-291. **[CrossRef]**

46. Cupini LM, DeMurtas M, Costa C, Mancini M, Eusebi P, Sarchielli P, Caldoresi P. Obsessive-compulsive disorder and migraine with medication overuse headache. Headache 2009; 49:1005-1013. **[CrossRef]**