

Original Article

Early Maladaptive Schemas in Patients with and without Migraine and Tension Headaches

Ebrahim Rezaei Dogaheh* ; Afsaneh Yoosefi; Maryam Kami
 University of Social Welfare and Rehabilitation Sciences, Tehran, Iran

Objectives: There are some comorbidity between migraine, tension headaches, and some psychological factors including Early Maladaptive Schemas (EMSs). This research aimed to identify the EMSs associated with migraine and tension headaches.

Methods: The present study was of cross sectional and correlational studies. The measures included Headache Disability Inventory and Young Early Maladaptive Schemas Questionnaire (Short Form). The population of the study was Tehran adult patients with migraine and tension headache aged 18 to 55 years. The final study sample included 69 participants with migraine or tension headaches and 86 non-clinical samples of both genders. After referring by psychiatrists, they were selected by convenient and targeted sampling. The two groups were matched based on sex and education.

Results: Migraine and tension headache sufferers and non-clinical participants were significantly different in 9 schemas including Emotional deprivation, Abandonment/ instability, Mistrust/ abuse, Social isolation/ alienation, Failure to achieve, Enmeshment / Undeveloped Self, Subjugation, Self-sacrifice and Emotional inhibition. In addition, a series of EMSs could significantly predict 61 percent of the total change in position of tension headaches or migraine group correctly.

Discussion: It seems that EMSs are important factors influencing migraine and tension headaches. The recognition and manipulation of these schemas along with other medical therapies can result in reducing the symptoms of the disorder.

Keywords: Early maladaptive schemas, coping styles, migraine and tension headaches

Submitted :12 September 2015

Accepted: 17 November 2015

Introduction

According to the World Health Organization (1), headaches are among the most common neurological disorders and health problems. About 47% of adults are currently suffering from this condition. Tension headaches are recognized to lead to intermittent or persistent headaches associated with muscle contractions. They are characterized by recurrent attacks, often daily, non-throbbing, bilaterally in the head, which are not associated with nausea and vomiting, or visual disturbances. The pain is described as a belt wrapped stiff the head. This type of headache is more common in women of middle age and incorporated with anxiety, fatigue and depression (2). The Migraines are more often unilateral and pulsating, with nausea, sensitivity to

light, fatigue and visual aura. They may last for 4 to 72 hours and sometimes are described as neurological symptoms. The onset of migraine attacks can be early in life. Approximately in 25% of cases, it starts in the first decade of life. In 55% until the age of 20 and in more than 90% of cases, it begins before the age 30 (3). Most migraine sufferers have a family history of the disorder. Unlike migraine that causes dysfunctions in the sufferer, tension headaches are mild to moderate pains, but sometimes chronic tension headaches cause disability and poor quality of life. While mobility does not usually trigger headaches, simple head movements can intensify migraine. Both can be started after the occurrence of stress and fatigue.

*All correspondences to: Ebrahim Rezaei Dogaheh, email: <ebrahim_rezaee@yahoo.com>

While factors such as alcohol consumption, hunger, menstrual periods and changes in weather conditions are associated with migraine, they are less likely to start tension headaches. However, some patients do not experience such premorbid symptoms. Most headaches are experienced after emotional stresses and associated with psychiatric disorders than physical diseases (4). In Iran, several researchers have indicated that there are comorbidities between mental disorders and headaches, especially migraines. They have repeatedly examined the relationships between migraine and tension headaches and psychological factors such as depression (5), personality traits (6), resiliency and defense mechanisms (7), life satisfaction and perfectionism (8).

While the probable underlying psychological mechanisms are still remained unknown, different biological and psychological theories have been trying to explain and treat the symptoms. Among the relatively effective psychological treatments, cognitive behavioral therapy for psychosomatic disorders has acquired appropriate empirical support. Besides, schema therapy (9) with its emphasis on character logical problems, Early Maladaptive Schemas EMSs and coping styles seems promising in treating patients with psychosomatic disorders. In schema therapy, EMSs are the main characteristics of patients with chronic psychological problems. EMSs are highly dysfunctional and stable. They are memories, emotions and physical states that have their roots in childhood and adolescence. Young (9) originally thought that there were 15 maladaptive schemas, but he later proposed 18 EMSs. The patients adopt maladaptive coping styles (for example surrender, avoidance and over compensation) to adapt their EMSs. Although these strategies can be helpful in reducing severe emotional problems, they end at the cost of maintaining the EMSs and are considered as the barriers to treatment. The role of EMSs in somatization, anxiety, depression (10,11), life satisfaction (8,12), personality disorder (11,13) have already been demonstrated. Also, some studies (14-6) suggests that the effectiveness of cognitive behavioral therapy in psychosomatic disorders. In addition, some studies have tried to explain the relationship between depression and migraine headaches (5). One of the EMS that has been associated with psychosomatic disorders such as headaches, chronic pain, chronic fatigue and irritable bowel syndrome was self sacrificing (17).

According to the literature, it seems that some EMSs may trigger or exacerbate a headache process. It is supposed that some patients may have EMSs and life styles that can affect their physical health. Therefore, the main objective of this study is to identify EMSs related to the migraine and tension headaches.

Methods

The population of the study was Tehran adult patients with migraine and tension headache aged 18 to 55 years. Control group recruited from the body of students of university of Social Welfare and Rehabilitation Sciences with no reported history of emotional disorders. Exclusion criteria for all groups were serious medical problems, cognitive disorders, drug abuse, and psychotic disorders based on self report questionnaire. The final study sample included 69 (45%) participants with migraine or tension headaches and 86 (55%) non-clinical samples of both genders. They were selected by convenient and targeted sampling method after referring by psychiatrists. The study groups showed no significant difference in sex and education variables ($\chi^2=0.798$; $p=0.066$); however, after elimination of incomplete questionnaires and outlier scores, the age difference between the two groups, although negligible, was significant (the mean and SD in non-clinical and headache groups were 28.64 and 7.6 versus 22.49 and 4.6 respectively). All participants completed demographic questionnaire and a consent form.

The Henry Ford Hospital Headache Disability Inventory (HDI) (18). Jacobson and his colleagues developed a 25-item inventory to quantify the impact of headache on daily life, and its treatment, on daily living. In beta version of the HDI, the items sub grouped into functional and emotional subscales. The internal consistency/reliability and construct validity was reported as to be strong. In Iran, Sajadinejad, Mohammadi and Ashgahzadeh (19) estimated the reliability of the instrument using Cronbach's and split-half alpha as 0.83 and 0.77.

Young Schema Questionnaire (YSQ) (20) assesses 18 EMSs in five broad domains: disconnection and rejection (abandonment, mistrust, emotional deprivation, defectiveness, social isolation), impaired autonomy and performance (dependence, vulnerability, enmeshment, failure), impaired limits (entitlement, insufficient self control), other directedness (subjugation, self-sacrifice, approval-seeking), and over vigilance and inhibition

(negativity, emotional inhibition, unrelenting standards, punitiveness). Respondents are asked to rate statements on a six point Likert scale from “completely untrue of me” to “describe me perfectly”. In Iran, Ghiyasi (21) studied the validity of the scale and reported the coefficient alpha ($\alpha=0.94$). In the study of Ahi (22), the validity of this scale was between 0.62 to 0.90. The study of Ghiyasi, Molodi, Neshatdoost and Salavati (23) also yielded 12 factors which were comparable with the Young’s 18 factor model of EMSs.

Results

In the present study, t- test was used to compare the EMS of two groups. As table (1) shows, the mean scores of migraine and tension headache sufferers and non-clinical group differ significantly in 9 schemas including emotional deprivation, Abandonment/ instability, Mistrust/ abuse, Social isolation/ alienation, Failure to achieve, Enmeshment/Undeveloped Self, Subjugation, Self-sacrifice and Emotional inhibition.

Table 1. Mean and standard deviation and t-scores of patients with migraine and tension-headaches and non-clinical participants

EMSs	Nonclinical group		Headache group		T	P
	Mean	Std. Deviation	Mean	Std. Deviation		
Emotional deprivation	11.83	5.80	14.20	5.45	-2.59	0.011*
Abandonment/ instability	13.37	5.46	15.75	5.87	-2.60	0.010*
Mistrust/ abuse	11.54	4.89	15.11	5.21	-4.38	0.000**
Social isolation/ alienation	11.48	5.62	13.59	5.19	-2.39	0.018*
Defectiveness/ shame	9.52	5.56	10.71	4.80	-1.40	0.163
Failure to achieve	10.39	5.30	12.59	4.39	-2.64	0.009*
Dependence/ incompetence	9.76	4.56	10.75	5.41	-1.23	0.220
Vulnerability to harm or illness	9.75	5.10	11.30	5.35	-1.83	0.068
Enmeshment/Undeveloped Self	10.19	4.04	12.69	5.37	-3.30	0.001*
Subjugation	10.95	5.06	13.94	5.66	-3.46	0.001*
Self-sacrifice	14.88	4.44	18.84	5.80	-4.80	0.000**
Emotional inhibition	12.55	5.54	14.75	4.39	-2.68	0.008*
Hyper criticalness/ Unrelenting standards	17.15	5.71	18.60	4.70	-1.70	0.093
Entitlement / grandiosity	16.11	4.32	16.60	4.74	-0.60	0.502
Insufficient self-control/ Self Discipline	15.09	5.17	15.14	4.74	-0.60	0.946
Approval seeking/Recognition seeking	16.26	5.56	17.37	5.34	-1.25	0.211
Negativity/Pessimism	12.44	5.58	13.28	4.97	-0.98	0.326
Punitiveness	11.72	5.37	13.65	4.94	-2.30	0.023

**P<0.001 , *P<0.05

To investigate the question "Is there any relationship between dimensions of headache disability and

EMSs?" the Spearman correlation coefficient was calculated. The findings are presented in table (2).

Table 2. Mean Spearman correlation matrix between 18 EMSs and 2 dimensions of headache disability

EMSs	Emotional	Functional
Emotional deprivation	-0.32**	-0.34**
Abandonment/ Instability	-0.31**	-0.38**
Mistrust/ Abuse	-0.38**	-0.40**
Social isolation/ Alienation	-0.29**	-0.34**
Defectiveness/ Shame	-0.29**	-0.34**
Failure to achieve	-0.31**	-0.35**
Dependence/ incompetence	-0.27**	-0.35**
Vulnerability to harm or illness	-0.23**	-0.32**
Enmeshment/ Undeveloped Self	-0.35**	-0.31**
Subjugation	-0.39**	-0.42**
Self-sacrifice	-0.45*	-0.43**
Emotional inhibition	-0.31**	-0.51**
Unrelenting standards / Hyper criticalness	-0.17*	-0.098
Entitlement/ Grandiosity	-0.90	-0.14
Insufficient self-control/ Self Discipline	-0.16**	-0.22**
Approval seeking/ Recognition seeking	-0.20**	-0.22**
Negativity/ Pessimism	-0.17*	-0.33**
Punitiveness	-0.27**	-0.93**

**P<0.001 , *P<0.05

As demonstrated in table (2), there were negative correlation between the emotional and functional dimensions of headache disability and EMSs except for Unrelenting standards/ Hypercriticalness and Entitlement/ Grandiosity scales. To answer the

question of "Which EMSs can predict migraine and tension headaches?" the Spearman correlation coefficient and logistic regression were used. The findings are presented in tables (3) and (4).

Table 3. Correlation matrix between EMSs and developing headache

EMSs	Developing Headache
Emotional deprivation	0.24**
Abandonment/ instability	0.21**
Mistrust / abuse	0.35**
Social isolation/ alienation	0.23**
Defectiveness/ shame	0.20**
Failure to achieve	0.25**
Dependence/ incompetence	0.075
Vulnerability to harm or illness	0.18**
Enmeshment/Undeveloped Self	0.25**
Subjugation	0.28**
Self-sacrifice	0.35**
Emotional inhibition	0.24**
Unrelenting standards/ Hyper criticalness	0.12
Entitlement / grandiosity	0.071
Insufficient self-control/ Self Discipline	0.018
Approval seeking/ Recognition seeking	0.129
Negativity/ Pessimism	0.114
Punitiveness	0.21**

**P<0.001 , * P< 0.05

The results in table (3) show that there are positive correlations between migraine and tension headaches and Emotional deprivation, Abandonment/ instability, Mistrust/ abuse, Social isolation/ alienation, Defectiveness/ shame, Failure to achieve, Dependence/ incompetence, Vulnerability to harm or illness, Enmeshment/ Undeveloped Self, Subjugation, Self-sacrifice, Emotional inhibition and Punitiveness.

In logistic regression analysis, developing migraine and tension headaches were considered as the dependent and EMSs as predictor variables. In total, 155 participants were entered the analysis and the full model was significantly stable ($X^2=36.83$,

$df=12$, $P<0.001$). By correctly predicting 83.7 percent of persons without migraine and tension headaches, the model explained 21.1 to 28.3 percent of the variance in the position of developing headaches. Although only 61 percent of prediction for headache patients was correct, 73.5 percent of the total predictions were accurate. Table (4) represents the coefficients and the Wald statistic and the corresponding degrees of freedom and probability values for each of the predictor variables. The present findings suggested that the mistrust / abuse and self-sacrifice schemas could reliably predict headache group.

Table 4. Summary of logistic regression model to predict the active schemas in migraine and tension headache group

EMSs	B	Std. Deviation	Exp (B)	Wald	df	P
Constant	-3.43	0.75	0.032	20.79	1	0.000
Emotional deprivation	0.03	0.049	1.03	0.58	1	0.445
Abandonment / instability	-0.05	0.060	0.94	0.94	1	0.330
Mistrust / abuse	0.16	0.064	1.17	6.32	1	0.012*
Social isolation / alienation	-0.02	0.068	0.98	0.09	1	0.764
Defectiveness / shame	-0.12	0.078	0.88	2.51	1	0.113
Failure to achieve	0.06	0.055	1.07	1.56	1	0.211
Vulnerability to harm or illness	-0.01	0.053	0.98	0.13	1	0.716
Enmeshment/Undeveloped Self	0.05	0.063	1.05	0.68	1	0.408
Subjugation	-0.006	0.076	0.99	0.006	1	0.938
Self-sacrifice	0.14	0.050	1.16	8.78	1	0.003*
Emotional inhibition	-0.02	0.058	0.97	0.13	1	0.711
Punitiveness	-0.03	0.051	0.97	0.34	1	0.56

*P<0.05

Discussion

One of the fundamental concepts in schema therapy is that many schemas which are formed early in life continue to move and impose themselves to later experiences. Young (24,25) suggests that some of these schemas may be considered as the core psychopathology of personality disorders, mild cognitive problems and many chronic of axis I disorders. This study was aimed to compare EMSs in two groups of patients with migraine and tension-headaches and non-clinical participants. At the present study, the observed differences in 4 domains including Disconnection and rejection, Impaired Autonomy and Performance, Other-Directedness, and Over vigilance and Inhibition were consistent with the findings of some previous studies indicating the central role of some specific schemas including Unrelenting standards/ Hyper criticalness, Self-sacrifice and emotional deprivation in experiencing the intensity of pain. Self-sacrifice in women and emotional deprivation in both sexes can predict inability as the intensity caused by pain. People with migraine significantly assume themselves as incomplete, unlovable and worthless and feel distrust in interpersonal encounters. Another area in previous studies associated with pain disability was Disconnection and rejection. Generally, it is proposed that people with chronic pain suffer from emotional abuse in early life (17). Mansour (26) found that people with asthma received higher scores in Disconnection and rejection area in comparison with normal participants. In another study (27), EMSs in patients with chronic fatigue syndrome were evaluated. The results showed that social isolation, Unrelenting standards and self-sacrificing schemas which are prevalent in these patients help symptoms intensified and strengthened. Also, IBS patients report defectiveness/ shame schemas more than healthy samples (28). The study of Mizira (29) on patients with chronic skin problems showed that some core beliefs may have fundamental role in the comorbidity of skin problems with mental disorders. People with eczema compared with the control group had higher scores in emotional deprivation, Vulnerability to harm or illness, Social isolation, Failure to achieve, and insufficient self-control/ Self Discipline schemas. Moludi and colleagues (30) found that individuals with bulimia compared with the control group, acquired higher scores on Abandonment/ instability,

emotional deprivation, and insufficient self-control/ Self Discipline schemas.

Conclusion

The findings of present study also may provide additional support to the assumption or possibility of the importance of dysfunctional schemas in migraine headaches. In the process of identifying schemas, one's coping strategies that have been learned in childhood and reinforced by parents are examined. Since the EMSs may be considered as factors influencing the pain experience, it seems that understanding and modifying them may help to treat headaches. Based on the results of the present study, mistrust/ abuse, and self-sacrifice schemas were authentic and reliable predictors for headaches. Therefore, it is expected that the therapists consider them with proper deliberation. On the other hand, since the EMSs for headache are related to the fields of Disconnection and rejection Impaired Autonomy and Performance, Other-Directedness, and over vigilance and Inhibition, it appears that patients with headache might have some problems in establishing secure and satisfying attachment with others. Thus, it is recommended that the therapeutic relationship should be considered as a main and necessary tool in treatment for this group of patients.

One of the limitations of this study was the small portion of the patients with a history of migraine headaches. The EMSs were assessed only by self-report measures. The length of questionnaires might affect the accuracy and patience of respondents. In some patients, symptoms were partly controlled by drugs and this problem could interfere in reporting patients' signs and symptoms. Finally, the difference in mean age between the two study groups should be considered in generalization of the results.

Acknowledgment

We gratefully acknowledge the faculty members of USWR who helped us in participant recruitment, psychiatric interview and data collection in their private clinics. This study was financially supported (by the grant No.93.801.T.1.8715; 07.04.1393) to the first author from Deputy of Research and Technology, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

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