

Comparison of Maladaptive Coping Styles in Patients with Migraine and Tension Headaches with Normal Group

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ABSTRACT

Objective: Young's schema theory provides a theoretical basis that relates coping styles to early maladaptive schemas. This research aimed to identify maladaptive coping strategies including avoidance and over compensation strategies associated with migraine and tension headaches.

Methods: The present research was of cross sectional and correlational study type. The measures included Headache Disability Inventory and Avoidance and Over Compensation Questionnaires. The population of the study comprised adult patients with migraine and tension headaches aged 18 to 55 years living in Tehran, Iran. The final study sample included 69 participants with migraine or tension headaches and 86 non-clinical samples of both genders. They were selected by convenient and purposeful sampling after referring by psychiatrists. 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 avoidance strategies. There were also a negative correlation between headache and 2 overcompensation styles. In addition, a series of maladaptive coping (avoidance and overcompensation) strategies could significantly predict 84.1% and 70.4% of the total change in position of tension headaches and migraine group, respectively.

Discussion: It seems that maladaptive coping strategies are important factors influencing migraine and tension headaches. The implications of the findings for both theory and treatment concerning are discussed, along with suggestions for future research.

1. Introduction

Migraine consists of episodes of headache, accompanied by autonomic and possibly neurological symptoms (Headache Classification Committee, 2004), including nausea, sensitivity to light, and visual aura. It may last 4 to 72 hours and sometimes are described as neurological symptoms. The onset of migraine attacks can be early and approximately in 25% of cases, it starts in the first decade of life. In 55% of cases before age of 20 and in more than 90% of cases, it begins before age of 30. Tension headaches are recognized

with 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 (IHS¹, 2013). According to the World Health Organization (WHO, 2015) headache disorders are among the most common disorders of the nervous system. Generally, 47% of the adult population have headache at least once within last year. Some earlier studies (e.g. Stewart, Lipton, Liberman J, 1996; and Cheng, Cai, Li, et al 1990) have reported lower rate of

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Table 1: Mean, standard deviation, and t-scores of patients with migraine and tension-headaches and non-clinical participants in avoidance styles

Scales	Nonclinical group				Headache group	
	Mean	SD	Mean	SD	T	P
Intentionally not thinking about upsetting things	3.71	1.24	3.69	1.16	0.136	0.89
Substance abuse	5.29	1.45	4.74	1.44	2.32	0.021*
Denial of unhappiness	3.13	0.90	3.94	0.98	-5.34	0.000**
Excessive rationality and control	3.54	0.72	3.33	0.81	1.64	0.103
Suppression of anger	3.53	0.96	2.59	1.03	5.77	0.000**
Psychosomatic symptoms	4.47	1.19	3.05	0.92	6.61	0.000**
Withdrawal from people	3.64	1.34	2.44	1.13	5.87	0.000**
Denial of memories	4.26	1.14	3.66	1.19	3.17	0.002**
Avoidance through sleep / lack of energy	4.34	1.35	3.90	1.18	2.13	0.034*
Distraction through activity	2.85	0.93	3.18	1.07	-2.02	0.045*
Self-soothing (eating, shopping, etc.)	4.49	1.30	4.07	1.49	1.83	0.069
Passive blocking of upsetting emotions	4.17	1.03	3.67	0.97	3.07	0.002**
Passive distraction: Fantasy, daydreaming, television	3.62	1.33	3.60	1.43	0.086	0.932
Avoidance of upsetting situations	3.22	1.38	3.08	1.49	0.57	0.564

**P<0.001 , * P< 0.05

migraine prevalence in Asians but such conclusions have not been widely accepted yet (e.g. Wang, 2003).

Headache disorders are associated with personal and societal burdens of pain, disability, damaged quality of life, and financial cost. A minority of people with headache disorders are diagnosed appropriately by a health-care provider. Most headaches are experienced after emotional stresses and more associated with psychiatric disorders than physical diseases (Sadock and Sadock, 2007).

The American Headache Consortium (Campbell, Penzien, Wall, 2004) recommended that patients with episodic or high-frequency migraine (3 and more attacks/month) should undergo cognitive-behavior therapy (CBT) as a supplement to pharmacological treatment. CBT specifically addresses individuals' avoidance strategies and applies exposure hierarchies avoidance to events or situations. Although short-term CBT is widely effective in the reduction of pain, some researchers (e.g. McGinn, Young and Sanderson, 1994) have repeatedly noticed that chronic patients do not make sufficient progress with this treatment. While the probable underlying psychological mechanisms are still unknown, different psychological theories have been tried to explain and treat the symptoms. Accordingly, some research has be-

gun to concentrate on the possible role of various types of information processing structures (i.e. schemas) as the key components in the development of psychopathology, etiology and maintenance of headaches. A relevant framework is provided by Young (1999) and colleagues (Young, Klosko & Weishaar, 2003). Their emphasis on characterological problems, early maladaptive schemas (EMSs) and coping styles seems promising in treating patients with psychosomatic disorders. Young, et al. (2003) also have postulated that 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 (Mairet, Boag and Warburton, 2014).

Young and colleagues (2003, p. 37) proposed that "eliminating maladaptive coping responses permanently is almost impossible without changing the schemas that drive them". He suggested that individuals use cognitive (avoiding thinking about something), emotional (blocking or numbing feelings), behavioral (utilizing escape behaviors, such as drinking alcohol), and/or somatic (experiencing physical symptoms) means to avoid the thoughts, feelings, and emotions associated with EMSs.

Table 2: Correlation matrix between avoidance styles and developing headache

Avoidance styles	Developing headache
Intentionally not thinking about upsetting things	-0.007
Substance abuse	-0.36**
Denial of unhappiness	0.41**
Excessive rationality and control	-0.10
Suppression of anger	-0.44**
Psychosomatic symptoms	-0.61**
Withdrawal from people	-0.43**
Denial of memories	-0.27**
Avoidance through sleep / lack of energy	-0.21**
Distraction through activity	0.15**
Self-soothing (eating, shopping, etc.)	-0.23**
Passive blocking of upsetting emotions	-0.25**
Passive distraction: Fantasy, daydreaming, television	0.004
Avoidance of upsetting situations	-0.02

**P<0.001 , * P< 0.05

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In addition, according to Young et al. (2003), schema overcompensation is defined as an attempt to challenge EMSs a response that is often excessive and ends up perpetuating the schema. For instance, an individual who felt worthless as a child may attempt to be perfect as an adult. While Young's (1999) original model proposes that schema overcompensation is a single construct, Luck et al. (2005) have proposed that at least, there are 3 sub-constructs in eating disorder: individuality (avoidance of emotional activation through independence and rebellion against society), personal control (avoidance of emotional activation through controlling the self) and social control (avoiding emotional activation through the control of others).

To our knowledge, no previous research has examined the relationship between compensatory or coping styles in patients with headaches. It seems that some coping styles may trigger or exacerbate a headache process. We supposed that patients with headaches may have life styles that can affect their physical health. In Iran, a few researchers examined the relationship of EMSs and coping styles with physiological conditions including obesity (Poursharifi, Bidadian, Bahramizadeh, Salehinezhad, 2011) and some psychological disorders including headaches (Rezaei Dogaheh, Yoosefi and Kami, 2015), depression (Farnam et al., 2008), resiliency and defense mechanisms (Aghayousefi and Bazayr Meymandi,

2013), and life satisfaction and perfectionism (Savari, 2013).

This study seeks to identify and predict patients with migraine headaches especially based on their coping styles. Therefore, the main objective of this study is to identify coping strategies related to the migraine and tension headaches.

2. Method

Participants

The study population consisted of adult patients with migraine and tension headache aged between 18 and 55 years living in Tehran, Iran. 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 problem, 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 available and purposeful sampling method after referring by psychiatrists. The two groups were matched on the basis of sex and education. The study groups showed no significant differences in sex and education variables ($\chi^2=0.798$; $P=0.066$). However, after excluding incomplete questionnaires and outlier scores,

Table 3: Summary of logistic regression model to predict migraine and tension headache by avoidance styles

EMSS	B	SD	Exp(B)	Wald	df	P
Constant	1.94	1.94	6.96	1.00	1	0.31
Substance abuse	0.024	0.29	1.02	0.007	1	0.15
Denial of unhappiness	0.433	0.30	1.54	1.99	1	0.007**
Suppression of anger	-0.92	0.34	0.39	7.31	1	0.000**
Psychosomatic symptoms	-1.58	0.34	0.20	20.81	1	0.66
Withdrawal from people	-0.12	0.28	0.88	0.18	1	0.66
Denial of memories	-0.11	0.26	0.89	0.18	1	0.211
Avoidance through sleep / lack of energy	0.31	0.25	1.37	1.56	1	0.22
Distraction through activity	0.36	0.30	1.44	1.45	1	0.12
Self-soothing	0.54	0.35	1.73	2.42	1	0.27
Passive blocking of upsetting emotions	0.37	0.34	1.45	1.18	1	0.31

* P < 0.05

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age difference between the two groups, although negligible, became significant (In non-clinical and headache groups, mean and SD, were 28.64 and 7.6 versus 22.49 and 4.6 years, respectively). This difference should be considered in the interpretation and generalization of results. All participants completed demographic questionnaire and a consent form.

Measures

Henry Ford Hospital Headache Disability Inventory (HDI; Jacobson G.P., Ramadan N.M., Aggarwal S.K., Newman C.W., 1994) was developed by Jacobson and his colleagues. It is developed a 25-item inventory to quantify the impact of headache on daily life, and its treatment, on daily living. In beta version of HDI, the items are sub grouped into functional and emotional subscales. The internal consistency/reliability and construct validity were reported to be strong. In Iran, Sajadinejad, Mohammadi and Ashgahzadeh (2007) estimated the reliability of the instrument using Cronbach and split-half α as 0.83 and 0.77.

Young-Rygh Avoidance Inventory (YRAI; Young & Rygh, 1994) contains 40 items that assesses schema avoidance. YRAI is best represented by two scales (cognitive/emotional [CE] avoidance made up of 18 items and behavioral/somatic [BS] avoidance made up of 13 items). Each item is rated on a 6 point Likert scale from 1 (“completely untrue of me”) to 6 (“describes me perfectly”) with higher scores indicative of greater avoidance. YRAI (Young, 1994) consists of 40 items that assess the presence and degree of a variety of avoidance strategies. Spranger, Waller, and Bryant-Waugh (2001) found the

YRAI have two scales (behavioral/somatic avoidance $\alpha=0.65$; cognitive/emotional avoidance $\alpha=0.78$), each with acceptable levels of internal consistency and total internal consistency was .79

Young Compensation Inventory (YCI; Young, 1998) contains 48 items assesses various methods used for schema compensation. Each item is rated on a 6- point Likert scale from 1 (“completely untrue of me”) to 6 (“describes me perfectly”) with higher scores suggesting greater use of compensation strategies. Three subscales have arisen in previous studies (individuality with 10 items, social control with 19 items and personal control with 4 items). Each factor has good psychometric properties within eating disordered and non-eating disordered individuals (Luck et al., 2005). YCI has acceptable levels of internal consistency on each of the scales with α coefficients ranging above 0.70 in a non-clinical sample (Sheffield et al., 2009).

3. Results

In the present study an independent t-test was used to answer the question “are there any differences in avoidance styles between two groups?”. The findings are presented in Table 1.

As Table 1 shows, patients with migraine and tension headaches acquired higher scores in 9 avoidance strategies (Substance abuse, Denial of unhappiness, Suppression of anger, Psychosomatic symptoms, Withdrawal from people, Denial of memories, Avoidance through sleep/lack of energy, Distraction through activity, Pas-

Table 4: Mean and standard deviation and t-scores of patients with migraine and tension-headaches and non-clinical participants in over compensation styles

Scales	Nonclinical group		Headache group		T	P
	Mean	SD	Mean	SD		
Defectiveness / Shame	3.40	0.69	3.15	0.63	2.33	0.021*
Mistrust / Abuse	3.50	0.67	3.41	0.61	0.89	0.37
Failure	3.33	1.00	3.08	0.95	1.54	0.12
Social isolation	3.58	0.81	3.22	0.91	2.56	0.011*
Emotional deprivation	3.40	0.66	3.54	0.67	-1.29	0.199
Abandonment / Instability	3.32	0.77	3.25	0.83	0.53	0.593
Vulnerability	2.94	1.15	3.20	1.04	-1.41	0.160
Negativity / Pessimism	3.03	0.94	3.17	0.88	-0.91	0.361
Unrelenting standards	3.34	0.64	3.49	0.63	-1.49	0.136
Subjugation	3.66	0.62	3.46	0.65	1.81	0.072
Dependence / Incompetence	2.63	1.10	2.57	1.05	0.32	0.747
Enmeshment / Undeveloped Self	2.37	1.23	2.37	1.26	-0.002	0.999
Insufficient self-control / Self-Discipline	3.35	1.15	3.18	1.08	0.93	0.352
Entitlement	3.02	1.54	3.27	1.56	-1.00	.0316
Self-sacrifice	3.55	0.95	3.86	1.17	-1.81	0.072
Approval-seeking	4.19	1.39	4.03	1.04	0.76	0.447

**P<0.001 , * P< 0.05

sive distraction: Fantasy, daydreaming, television and Passive blocking of upsetting emotions).

To answer the question of “What avoidance styles can predict migraine and tension headaches?” Spearman correlation coefficient and logistic regression were used. The findings are presented in table 2.

The results in table 2 show that there are positive correlations between migraine and tension headaches and some avoidance strategies.

In logistic regression analysis, developing migraine and tension headaches were selected as the dependent and avoidance styles as predictor variables. In total, 155 participants were entered into the analysis and the full model was significantly stable ($\chi^2=92.58$, $df=10$, $P<0.001$). By correctly predicting 85.9% of persons without migraine and tension headaches, the model could explain between 47.2 and 63 percent of the variance in the position of developing headaches. Although only 82.1% of prediction for headache patients was correct, 84.1% of the total predictions were accurate as a whole. Table 3 represents the

coefficients, Wald statistic, the corresponding degrees of freedom and probability values for each of the predictor variables.

To answer the question of “are there any differences in over compensation styles between two groups?” an independent t-test were used. The findings are presented in table 4.

As demonstrated in table 4, patients with migraine and tension headaches have higher scores in defectiveness / shame and social isolation (over compensation styles) in comparison with non-clinical samples. To investigate the question “What avoidance styles can significantly predict headache group?”, first, a Spearman correlation coefficient was used. The findings are presented in Table 5 and 6.

The results of Table 5 show that there are negative correlation between headaches and 2 overcompensation styles (Defectiveness / Shame and Social Isolation). In logistic regression analysis, development of headaches was selected as the dependent and overcompensation as

Table 5: Correlation matrix between over compensation styles and developing headache

Over compensation styles	Developing headache
Defectiveness / Shame	-0.18*
Mistrust / Abuse	-0.073
Failure	-0.124
Social isolation	-0.20**
Emotional deprivation	0.10
Abandonment / Instability	-0.044
Vulnerability	0.113
Negativity / Pessimism	0.074
Unrelenting standards	0.122
Subjugation	-0.115
Dependence / Incompetence	-0.026
Enmeshment / Undeveloped Self	0.000
Insufficient self-control / Self-discipline	-0.076
Entitlement	0.081
Self-sacrifice	0.145
Approval-seeking	-0.062

**P<0.001 , *P< 0.05

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the predictor variables. In total, 155 participants were entered into the analysis and the full model was significantly stable ($\chi^2=48.09$, $df=16$, $P<0.001$). By correctly predicting 74.3 percent of persons without migraine and tension headaches, the model could explain between 28.7 and 38.3% of the variance in the position of developing headaches. Although only 66.2% of prediction for headache patients was correct, 70.4% of the total predictions were accurate as a whole.

As demonstrated in table 6, some over compensation styles including defectiveness / shame, emotional deprivation, abandonment / instability, unrelenting standards, subjugation and enmeshment / undeveloped self could constantly predict developing headaches.

4. 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 in later experiences. Young (1990, 1999) suggested that some of these schemas might be the core psychopathology of personality disorders, mild cognitive problems and many chronic forms of Axis I disorders. This study aimed to compare coping styles in two groups of patients with migraine and tension-headaches with non-clinical participants. At

the present study, the observed differences in 9 avoidance strategies along with negative correlation between headaches and 2 overcompensation styles are consistent with the findings of some previous studies indicating the central role of some specific maladaptive strategies in maintaining the pain experience. According to Young (1999), we maintain our paradigms by selective attention to information that confirms our schemas and by selective inattention to information that disconfirms our schemas. He noted that “while avoidance styles are potentially beneficial in the short-term because they can reduce the likelihood of a schema being activated, they often serve to maintain the schema because it has not been disconfirmed.” Schemas can also be maintained by self defeating behaviors. Therefore, one can use mental tricks to maintain his or her schemas and run faulty behavioral experiments finessing the data to confirm his or her hypotheses. Because schemas elicit such uncomfortable and painful thoughts and feelings as shame, guilt, fear, and anger when they are activated, we maintain our schemas by avoiding anything that would trigger their appearance. One can do this on a cognitive level through defense mechanisms that block the schemas from reaching consciousness or by avoiding the schemas on a behavioral level (i.e. refraining from activities that might activate our schema).

Table 6: Summary of logistic regression model to predict migraine and tension headache group by over compensation styles

EMSs	B	SD	Exp(B)	Wald	df	P
Constant	0.65	1.36	1.91	0.22	1	0.634
Defectiveness / Shame	-2.30	0.96	0.10	5.65	1	0.018*
Mistrust / Abuse	1.20	0.76	3.32	2.45	1	0.117
Failure	0.91	1.03	2.48	0.77	1	0.380
Social isolation	-0.74	1.11	0.47	0.44	1	0.50
Emotional deprivation	2.29	0.80	9.89	8.21	1	0.004*
Abandonment / Instability	-1.29	0.51	0.29	5.53	1	0.019*
Vulnerability	-0.76	0.58	0.46	1.70	1	0.191
Negativity / Pessimism	0.18	0.51	1.19	0.12	1	0.724
Unrelenting standards	2.95	1.04	19.21	8.04	1	0.005**
Subjugation	-2.98	0.98	0.05	9.23	1	0.002**
Dependence / Incompetence	-0.60	0.42	0.54	2.00	1	0.157
Enmeshment / Undeveloped Self	0.64	0.32	1.90	3.87	1	0.049**
Insufficient self-control / Self-discipline	0.51	0.41	1.67	1.52	1	0.219
Entitlement	-0.11	0.26	0.89	0.19	1	0.659
Self-sacrifice	-0.31	0.28	0.73	1.16	1	0.280
Approval-seeking	0.16	0.41	1.17	0.15	1	0.694

*P < 0.05

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In the past decade, the role of fear-avoidance in migraine is investigated. For instance, Spierings, Reinders, and Hoogduin (1989) had reported patients in whom the occurrence of migraine aura have led to the development of avoidance behavior. They found that the avoidance behavior represented an attempt of the patients to deal with the visual disturbance. One reason for this could be the high comorbidity with psychiatric diseases such as major depression and anxiety disorders in migraine. In addition, endurance responses/ cognitions (thought suppression) and behavior (task persistence behavior) have a unique impact on pain and disability in migraine patients which could be a risk factor for chronification, or rather for the higher frequency of migraine attacks (Matatkoa, Ruppertb, Zierzb et al., 2015). In a recent study on an Iranian sample, Bayrami, Bakhshipor and Esmaeili (2012) found that avoidance is a better prediction than overcompensation coping style for disconnection-rejection schema, vigilance and avoidance.

On the other hand, over-compensating tactics often paradoxically bring about the fearful stimulus or situation that one is trying to avoid. Clinical findings have reported special psychological and personality traits for patients with migraine, such as perfectionism, ambition,

discipline, and extreme accuracy in everyday activities (Johari Fard, 2011, 2013). Abolghasemi A., Jafari E., and Ahmadi-Tahoursoltani M. (2014) also found that there were significant differences in perfectionism, aggression, and cognitive-avoidance coping style mean scores between the patients with migraine and tension-type headaches and healthy individuals.

The findings of the present study, consistent with previous researches may provide support to the assumption or possibility of the importance of dysfunctional schemas in migraine headache. In the process of identifying schemas, one's coping strategies that have been learned in childhood and reinforced by parents are examined. Since EMSs may be considered as factors influencing the pain experience, it seems that understanding and modifying them may help in treating headaches and migraines. 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.

However, since 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 satisfactory attachment with others. Thus, it is recommended that the therapeutic relationship should be considered as a main and necessary tool in the 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. 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 the generalization of the results.

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