



Comparison of Emotion Regulation Strategies in Individuals with Migraine, Tension, and Normal Headaches

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Quantitative Study

Abstract

Background: Headaches are a major focus of public health efforts. As stress and emotional disturbances play a role in various forms of headaches, emotion regulation can be thought of as a factor in adaptation and successful management of this illness. The effectiveness of cognitive emotion management strategies in women and men with migraine headaches and tension headaches, and healthy people was investigated in this study.

Methods: This research was a causal-comparative research. In the first 6 months of 2020, 60 patients with migraine tension headaches were studied in the neurology clinic of the Abdi Waluyo Hospital in Jakarta. Positive techniques (vision formation, positive refocus, positive appraisal, and planning) and negative strategies (self-blame, blaming others, rumination, and catastrophic perception and acceptance) in emotion regulation were obtained using the Emotion Regulation Questionnaire. In addition, multivariate analysis of variance (MANOVA) and Tukey's range test were used.

Results: According to the findings, individuals with migraines employ fewer positive techniques in the cognitive management of their emotions than people without migraines (group factor effect: $P = 0.36$). Moreover, the findings revealed a significant difference in the usage of positive methods by women and men in both groups, with women employing more positive tactics (gender*group effect: $P < 0.05$).

Conclusion: In conclusion, the findings of this study suggest that self-regulation is a component that can cause headaches in patients. The clinical applications of this study

include how people with headaches use cognitive emotion regulation strategies in the etiology and design of therapeutic interventions.

Keywords: Cognitive regulation of emotion; Migraine; Multivariate analysis of variance

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Introduction

Pain is a sensory and emotional experience of discomfort that is usually associated with actual or threatening tissue damage (Khazraee, Omid, Daneshvar Kakhki, Zanjani, & Sehat, 2018; Shahsavani, Mashhadi, & Bigdeli, 2020). In 1991, pain was defined as unpleasant sensory experience with actual or potential tissue damage by the International Association for the Study of Pain (IASP) (Hosini, Khormae, Asar Zadegan, Hesami, Taghavi, & Mohammadi, 2014). Pain can be divided into the categories of acute and chronic. Acute pain is usually adaptive and alerts the person to avoid further injury. However, chronic pain is treatment-resistant pain that lasts longer than the period expected (Zebardast & Shafieetabar, 2019). In clinical activities and in non-cancerous pain, a choice of 3 months is appropriate for distinguishing between acute and chronic pain, but for research purposes, it is better to consider a period of 6 months as a criterion for diagnosing pain (Migliore et al., 2020). Various psychological and environmental factors play a significant role in chronic pain, and the role of these factors in acute pain is less (Wolf, Danno, Takeshima, Vancleef, Yoshikawa, & Gaul, 2020; Haratian et al., 2020).

Acute pain is usually helpful because it alerts the person to actions that are wrong and leads them to seek health care. In contrast, chronic pain has no biological advantage and often imposes severe emotional, physical, economic, and social pressure on the patient and his/her family and results from a unique mental experience that depends on the complex interaction of individual cognitions, emotions, and individual and cultural factors (Vernieri et al., 2020). Psychological factors play a central role in the experience of pain (Natalucci, Faedda, Baglioni, & Guidetti, 2020). Therefore, for the treatment of chronic pain and pain management, a multifaceted approach is needed that includes all the effective factors in pain, including physical, emotional, cognitive, etc. Living with chronic pain results in considerable emotional stress. Living with chronic pain results in considerable emotional pressure. Pain reduces a person's emotional abilities (Izadikhah, Ansari Shahidi, Rezayi Jamalui, & Haghayegh, 2020). Pain management is a multidisciplinary approach that has received much attention in recent years. This approach involves addressing different aspects of pain and has been developed as an integrated model to encourage active participation and increase coping capacity to control pain. Managing chronic pain requires a long-term relationship and investment beyond that required in acute pain (Parsapour & Raeisi, 2019). Pain management usually involves medication, corrective activities, or a combination of the two. It is not possible for the pain to go away completely. However, an effective pain management program can reduce the severity of the pain (Mohammadi Zeidi, Seifpour, Morshedi, & Alizadeh, 2020).

Stress tolerance and the presence of a level of physical and genetic vulnerability make a person more susceptible to psychosomatic disorders. One of the psychiatric disorders closely related to stress and strain is headache (Rains & Poceta, 2006). Headache is the most common pain syndrome. Severe headaches can affect the way people work and live their personal and social lives and, in the long run, can have a negative impact on their quality of life (QOL) (Lioffi & Schoth, 2016). Migraines and headaches increase a person's risk of heart disease, obstruction, and high blood pressure. Migraine causes a great deal of stress and pressure in people, which directly affects heart rate and blood pressure. Psychological problems are also very common among patients with chronic headaches (Kemper, Heyer, Pakalnis, &

Binkley, 2016). A large percentage of patients with migraine headaches and tension headaches have depression and anxiety disorders. There is a significant association between headaches that begin in childhood or adolescence and the onset of depression in later years. Tension and migraine headaches together make up two-thirds of the different types of headaches (Gunn, Fairchild, Verster, & Adams, 2021). This complication is the ninth reason to see a doctor. These studies confirm the relationship between psychological and personality factors in patients with headaches.

The main factor reported as a trigger for headaches in patients with migraine and tension headaches is psychological stress. Emotions play an important role in dealing with stressful life events (Bottiroli et al., 2019). Since every person in life is faced with threatening and stressful events, it is important and necessary to know how to regulate emotions in these situations (Doustkam et al., 2022). Emotion regulation refers to the processes or methods that people use to regulate their emotions when faced with a negative situation. Appropriate emotion regulation skills are associated with healthier relationships, better job and academic performance, and overall physical health. In contrast, dysfunctional emotion regulation skills are associated with mental illness (Ghassemi, Vahedi, Tabatabaei, & Alivandi-Vaf, 2020). Cognitive emotion regulation strategies are actions that indicate the ways a person copes with stressful situations or unfortunate events (Tayyebi, 2020). In the face of stressful experiences and situations, people use a variety of cognitive strategies to maintain their mental and emotional health (Sadat, Mansour, Mekkaoui, & Merzougui, 2020). Therefore, when emotional information cannot be perceived and evaluated in the process of cognitive processing, the person becomes emotionally and cognitively disturbed and helpless (Sharbafchizadeh & Sadeghi, 2021). This disability disrupts the organization of a person's emotions and cognitions. Regarding the effect of emotions on pain regulation, many studies have shown that pain fluctuations are easily affected by emotions. Pleasant emotions generally reduce pain. While unpleasant emotions increase the intensity of pain. These effects are partly due to the descending pain pathway (Faedda, Natalucci, Baglioni, Giannotti, Cerutti, & Guidetti, 2019).

Research shows that people with tension headaches and migraines are different from healthy people in terms of their use of cognitive emotion regulation strategies (Latifian, Tajeri, Shah Nazari, Meschi, & Baseri, 2020). In addition, due to the relationship between stress and emotional disturbances in the incidence of headaches, it seems necessary to study the styles and strategies of cognitive emotion regulation in people with migraines and tension headaches (Keshvari, Jenaabadi, & Karbalaee, 2021). Therefore, the use of the method reveals non-pharmaceutical drugs in the form of therapeutic supplements more than before. Moreover, such strategies enable patients to play an active role in their care and treatment and leads to more effective disease control. Therefore, the issue of emotion regulation can be considered as a factor in the adaptation and effective control of this disorder. The aim of this study was to evaluate and compare emotion regulation strategies among men and women with migraine headaches, tension headaches, and normal headaches.

Methods

This research was a causal-comparative research. The study population included all patients with migraine and tension headache referred to the neurology clinic of Abdi Waluyo Hospital in Jakarta in the first 6 months of 2020. The subjects were selected through convenience sampling. This sample consisted of 2 groups of 60 patients with migraine tension headache, which were matched with the normal headache group in

terms of age, sex, and lack of mental illness. All individuals completed a demographic information form and a cognitive Emotion Regulation Questionnaire. This questionnaire with 36 items and 9 factors is designed to assess how people think after experiencing life-threatening or stressful events (Keshvari et al., 2021). Each individual was assured that all of their information would be kept confidential and used only for research purposes. The participants' names were not recorded for privacy reasons. The patients provided informed consent in accordance with the procedures outlined by the institutional review board; they were informed that they could withdraw from the experiment at any time.

In the second factor analysis on the primary factors of the Emotion Regulation Questionnaire, the 2 general factors of positive strategies (vision development, positive refocus, positive evaluation, and planning) and negative strategies (self-blame, blaming others, rumination, and catastrophic perception and acceptance) were achieved in emotion regulation (Garnefski, Kraaij, Spinhoven, 2002). In the present study, these 2 factors were studied. The reliability of this questionnaire was obtained in the range of 0.82-0.94 using Cronbach's alpha coefficient. The reliability of the subscales of this questionnaire was reported to be within the range of 0.60-0.93 using Cronbach's alpha method from 62 (Kunzler et al., 2020). According to its purpose, i.e., comparing cognitive emotion regulation strategies based on gender, this study was divided into 3 groups of patients with migraine headaches, tension headaches, and normal headaches (Liossi & Schoth, 2016).

After identifying the subjects, the objectives of the research were explained to them, and they were assured that their answers were purely research-oriented and would remain confidential. After collecting the questionnaires and discarding the distorted items, the other items were entered into the analysis. In addition, multivariate analysis of variance (MANOVA) and Tukey's range test were used.

Results

The average age of all subjects was 35.64 ± 7.08 years, with a range of 17-50 years. The mean age of men was 36.01 years, and the mean age of women was 34.56 years. In addition, the level of education of the subjects in this research is shown in figure 1.

The descriptive components of the variables studied in this study are presented in groups in table 1.

The test results of cognitive emotion regulation strategies with Roy's largest root $F = 4.21$ showed a significant difference between the groups. The ANOVA results (Table 2) show that the 3 groups had significant differences in terms of positive cognitive emotion regulation strategies.

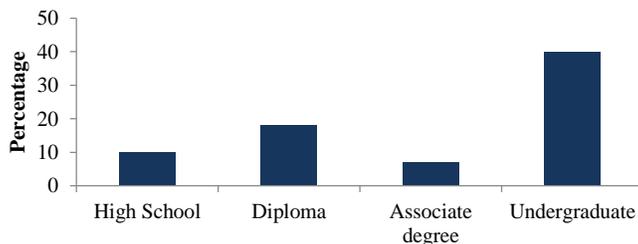


Figure 1. Level of education of the subjects

Table 1. Descriptive components of positive and negative strategies in people with migraine, tension, and normal headaches

Variables	Migraine headache	Tension headache	Normal headache
	Mean ± SD	Mean ± SD	Mean ± SD
Positive strategies	48.12 ± 1.72	50.18 ± 1.56	58.27 ± 1.07
Negative strategies	53.61 ± 1.29	51.92 ± 2.69	53.12 ± 1.86

SD: Standard Deviation

The interaction between gender and groups was also significant. These differences in Tukey's range test showed lower scores in the component of positive strategies in the migraine group compared to the normal headache group.

Table 3 shows the mean differences in gender interaction and groups. According to the results presented in table 3, it is inferred that women and men with migraines have fewer positive strategies than the normal headache group. Women with migraines scored higher on positive strategies than men with migraines. The normal headache group of women scored higher on positive strategies than the normal headache group of men.

Discussion

This study examined cognitive emotion regulation strategies among men and women with tension headaches, migraines, and normal headaches. People with migraines use fewer positive strategies in the cognitive regulation of their emotions than people with normal headaches. These results are consistent with the findings of Freitag (2007). Freitag (2007) reported that using less effective coping strategies in the interval between headache attacks predicted the likelihood of an attack 2 weeks later and that migraines were associated with emotional disturbances that disrupted people's social and professional lives. In addition, people with headaches are more likely to use maladaptive strategies such as withdrawal, avoidance, and self-criticism (Domaradzka & Fajkowska, 2018). These people are more likely to find the painkiller catastrophic. Moreover, there are a number of personality components for migraine headaches that can be used to explain the use of less positive cognitive emotion regulation strategies in people with migraine headaches. These personality traits include introspection, trying to control emotions too much, obsessive and aggressive personality, and perfectionism. Given the existence of these personality traits in migraine sufferers and the severity of dysfunction that headache attacks cause in this group, it can be concluded that migraine sufferers use fewer positive strategies in dealing with their headaches (Peng et al., 2021).

Based on the present study findings, there is a significant difference between women and men in using positive strategies in both groups, and women use more positive strategies. Women scored higher than men in negative strategies. Women scored higher than men in positive, negative, and general cognitive strategies (Tamir, Halperin, Porat, Bigman, & Hasson, 2019). To explain this, we can point to the physiological differences between the brains of men and women.

Table 2. Results of analysis of variance test differences in components of cognitive emotion regulation strategies between migraine, stress, and normal headache groups

	Index	SS	MS	F	P-value
Groups	Positive strategies	1200.01	600.01	4.08	0.012 (P < 0.05)
	Negative strategies	102.6	51.30	0.33	0.56
Gender and groups interaction	Positive strategies	1021.75	510.88	4.12	0.029 (P < 0.05)
	Negative strategies	691.56	345.78	3.79	0.037 (P < 0.05)

SS: Sum of squares; MS: Mean of squares

Table 3. Mean differences related to gender interaction and groups

		Migraine headache	Tension headache	Normal headache
Positive strategies	Men	50.41	55.16	51.20
	Women	52.02	43.31	57.15
Negative strategies	Men	50.16	49.98	54.54
	Women	55.12	52.62	50.29

In fact, men use a downward adjustment in dealing with negative emotions, thereby slightly reducing the intensity of their negative emotions. However, women qualitatively neutralize their negative emotions by increasing positive emotions; women produce an amplitude of positive emotions to reduce the intensity of their negative emotions (Ongen, 2010). For example, women use humor as a strategy to regulate their negative emotions. Therefore, based on the differences between the brains of men and women, it can be expected that men do less work on them when faced with negative emotions and achieve self-regulation more quickly.

Based on the results of the present study, self-regulation may play an important role in causing headaches in patients. By regulating their emotions through the connection between pain and emotion, people with headaches will be able to prevent bias in information processing that leads to experiencing negative emotions and adapt more effectively to their illness. Catalano, Holloway, and Mpofu (2018) have pointed out that the ability of individuals to self-regulate their emotions may be the key difference in their tolerance of pain through which individuals can separate the experience of pain from emotional reactions to pain.

Among the limitations of this research are the limitations of sampling and lack of access to a high number of samples. It is suggested that in future research, larger clinical samples be used and that teaching positive cognitive emotion regulation strategies be used along with drug therapy to control more headache attacks and improve patients' QOL. Emotion regulation training can improve mental health by informing people with headaches about their positive and negative emotions and how to accept and express them in a timely manner. Therefore, teaching cognitive emotion regulation strategies to this group is recommended.

Conclusion

The aim of this study was to compare cognitive emotion regulation strategies in men and women with tension headaches, migraines, and normal headaches. The results showed that people with migraines use fewer positive strategies in the cognitive regulation of their emotions than people with normal headaches. Furthermore, the results showed that there is a significant difference between women and men in terms of the use of positive strategies in both groups, and women use more positive strategies. In summary, the present study's findings show that self-regulation is one of the factors that can be effective in causing headaches in patients. Clinical applications of this study include how people with headaches use cognitive emotion regulation strategies in the etiology and design of therapeutic interventions.

Conflict of Interests

Authors have no conflict of interests.

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