

Prayer and pain catastrophizing coping strategies on headache intensity prediction

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Abstract

Introduction: Headaches are the most common cause of absence from work and school and one of the most common reasons of referring to neurologist. The present study aimed to investigate the role of prayer and pain catastrophizing as coping strategies in prediction of headache intensity.

Methods: In this research we selected 124 patients (89 female and 35 male) with headache as comparison group via available sampling method and 53 individual (30 female and 23 male) as control group. The patients were chosen after the diagnosis of headache by a neurologist in a neurology clinic. The patients completed demographic questionnaire, visual analogues scale (VAS), prayer subscale of coping strategies questionnaire (CSQ) and pain catastrophizing scale (PCS).

Results: The analysis of regression showed that rumination as one of the subscale of pain catastrophizing and prayer could account for 9% of variation for headache intensity.

Conclusion: The results show that prayer and rumination, which is one of catastrophic components, are effective in prediction of pain. In other words, prayer can predict low intensity of headache, and rumination can predict high intensity of headache and this result which prayer predicted low intensity of pain, can explain the role of spirituality in mental health, especially in our country with religious background.

Declaration of Interest: None.

Key words: Praying coping strategy, Pain catastrophizing, Headache intensity

Introduction

Headache is one of the most common pains, which have long been intertwined with our lives. Epidemiologic studies show that more than 90% of people experience headache over a period of their life (1). Depending on its intensity in different people, it has left different disabilities. Headache disorders are the most common nervous system disorders. Headache epidemiology has shown that one out of every 20 adults is daily affected by headache (2). Headaches classified according to the International Headache Society are divided into chronic headache term contains a series of headaches occurring every day or almost every day (15 days or more than 15 days per month) for more than 3 months. This includes chronic

migraine, chronic tension type headache, new daily persistent headache, hemicranias continua, and chronic cluster headache (3).

Life stress is a psychological factor that is generally recognized as a major cause of headache (4, 5). Since the association is different among people, it is important to examine ways in which people deal with stress and coping strategies in patients with headache. Patients with chronic pain often have maladaptive and negative assessments of their situation and ability to control pain. Therefore, they tend to assess their pain as a threat and as a result, they resort to emotional coping strategies(6). Pain intensity is effective on choosing the kind of pain coping strategies.

Moreover, coping strategies are one of the predictors of pain intensity. In explaining the relationship between headache intensity and pain catastrophizing, it can be said that people who take pain catastrophizing constantly think about their pain and cannot get it out of their minds (rumination). Different studies have shown that people who suffer from migraines and tension headache have more catastrophic thoughts (7-11). Also, people with headache have significantly catastrophic assessments compared to healthy subjects (12).

On the other hand, in the last decade, prayer has been known as a coping strategy to deal with chronic pain (13-15). Pain management strategies are not always able to relieve pain and improve quality of life (16). Therefore, recent studies have been concentrated on the effectiveness and efficiency of the complementary strategies of pain relief, such as prayer (17). Researchers found that prayer as a coping strategy plays a strong role in coping process (13). Religious strategy has been defined as "the use of cognitive and behavioral techniques to deal with stressful life events arising from religion and spirituality of the individual." According to stress and coping theory, praying is a cognitive practice to provide painful situation with a framework in a more positive way (18). Hope and prayer are often used as a coping strategy. One study researched the role of spirituality in the African American communities in the deep south and examined topics about healing in patients. The results showed that healing from God and praying are a coping strategy in patients with cancer (13). Religious strategies can be both cognitive and behavioral more or less on the basis of religious beliefs and religious activities such as praying and going to church (19). These guidelines were developed in the context of widespread theory of coping strategies (20). Some studies were effective in the relationship between coping theory and religion. Previous research also found that people pray in hard times and when dealing with the crisis (21).

The role of pain catastrophizing in patients with chronic headache has been examined in several studies (22-25). There has been no study on pain catastrophizing in patients with headache in Iran. On the other hand, regarding the prominent

role of prayer as a coping strategy in chronic pain literature and taking into account that this strategy is frequently used in our Muslim community, research gap in this field made us more accurately study the role of this strategy in patients with headache.

On the basis of literature in this field, specific hypotheses were (a) praying will be negatively associated with headache intensity (b) catastrophizing will be positively correlated with headache intensity (c) praying and catastrophizing, anticipate headache intensity. Other study aim was to assess relation between duration of pain and intensity of pain.

Methods

In this study, participants answer the questionnaires with satisfaction, they could refuse answering any time in the research process and researchers were committed to protect privacy of respondents. The study's population included all patients with chronic and non-chronic headache referring to hospitals and clinics in Tehran. To analyze the data using SPSS16, the bivariate correlation matrix was first estimated. In the next step, hierarchical stepwise linear regression statistics was used to investigate the predicting effect of predictor variables on the criterion. A sample of 124 individuals was selected by available sampling, 69 of which had chronic headache and 55 had non-chronic headache. 89 women (72%) and 35 men (28%) with a mean age of 32.5 years participated in the study. 39 (31.5%) unmarried and 83 (66.9%) married person with 4 levels of education include, 20 (16.1%) under high school, 44 (35.5%) high school, 33 (26.6%) under graduate and 27 (21.8%) graduate person, participated in the study. Criteria for inclusion in the study was chronic headaches (headaches last at least 3 consecutive months and at least 15 days a month) and recurring headaches (headaches less than 15 times per month) as well as the ability to read and write, older than 18 years and also headache diagnosis was performed by a neurologist. Exclusion criteria included chronic pain such as musculoskeletal pain, severe mental disorder, and lack of understanding the questionnaire. Control group was consisted of 53 individual (30 female and

23 male) and inclusion criteria included an age range between 18 to 60 years, with no chronic diseases and no severe mental and physical disorders.

Pain visual analogue scale developed by Carlsson was used to determine the severity of headaches in these patients. This scale consisted of a line graded from 0 to 100 score. 0 means no pain and 100 means the maximum amount of pain. Pain visual analogue scale measures subjective experience of pain satisfactorily. This tool is widely used to assess pain intensity (26). In a study in Iran by Abbasi et al. (2012), the reliability (internal consistency) of this tool was 0.80 (27).

Pain catastrophizing scale has been developed by Sullivan, Bishop and Pivik in 1995. It has 13 questions that measure 3 subscales of rumination, magnification, and helplessness (29). Alpha coefficient was 0.87, 0.60, and 0.79 for subscales of rumination, magnification, and helplessness subscales, respectively. Alpha coefficient was 0.87 for total pain catastrophizing. The reliability of this tool was reported to be 0.93 by a research conducted by Sadeghi et al. in 2009.

Praying subscale from coping strategies questionnaire has been developed by Rosenstiel

and Keefe, included 42 items and measured 6 psychological coping strategies. One of the psychological coping strategies was prayer. Cronbach's alpha for each subscale was 71% to 85% (18). In Iran a research, which was conducted by Asghari Moghadam (2008), Cronbach's alpha was 0.74 for subscale of prayer. Furthermore, the prayer strategy was used more than other strategies (30).

Results

In the present study, to examine the relationship between coping strategies and headache intensity in patients with headache, correlation matrix and hierarchical linear regression were used.

The results of Pearson correlation showed that there was a statistically significant positive relationship between duration of headache ($p < 0.05$ and $r = 0.20$), catastrophizing ($p < 0.05$ and $r = 0.22$), helplessness ($p < 0.05$ and $r = 0.19$), rumination ($p < 0.01$ and $r = 0.24$). Also praying and headache intensity have a statistically significant negative correlation ($p < 0.05$ and $r = -0.20$). Significant relationship was not found with other variables (age, education, and magnification subscales).

Table 1. Regression of headache intensity from coping strategies of prayer and pain catastrophizing

Coping strategies	B	S.E.	Beta	t	p.value	R	R ²	F	p.value
Stability	60.28	6.65	-	9.05	0.000				
Rumination	1.14*	0.53	0.20	2.31	0.03	0.20	0.04	4.54	0.03

* $P < 0.01$ ** $P < 0.05$

The results of table 1 indicate that coping strategy of rumination explains 4 percent of total score changes in pain intensity of patients

with chronic and non-chronic headache ($p < 0.05$ and $\Delta F(1 \text{ and } 108) = 4.51$, $\Delta R = 0.04$).

Table 2. Regression of headache intensity from coping strategies of prayer and pain catastrophizing

coping strategies	B	S.E.	Beta	t	p.value	R	R ²	F	p.value
Stability	72.57	8.24	-	8.79	0.000				
Rumination	1.21*	0.52	0.21	2.31	0.022	0.30	0.09	5.32	0.006
				-2.42	0.017				

* $P < 0.05$ ** $P < 0.01$

The results of table 2 indicate that coping strategy of rumination and prayer explains 9 percent of total score changes in pain intensity

of patients with chronic and non-chronic headache ($p < 0.01$ and $\Delta F(1 \text{ and } 107) = 5.89$, $\Delta R = 0.05$).

Table 3. Regression of headache intensity from coping strategies of praying and pain catastrophizing

Coping strategies	<u>B</u>	<u>S.E</u>	<u>Beta</u>	<u>t</u>	<u>p.value</u>	<u>R</u>	<u>R²</u>	<u>F</u>	<u>p.value</u>
Stability	72.83	9.01	-	8.08	0.000				
Rumination	1.13*	0.53	0.19	2.13	0.03	0.34	0.11	3.42	0.01
Praying	-0.50*	0.25	-0.18	-1.95	0.05				
Duration of pain	0.03	0.22	0.16	1.67	0.09				
Age	0.13	0.16	0.07	0.80	0.42				

* P<0.05**P<0.01

The results of table 3 indicate that coping strategy of rumination and prayer and variables of age and duration of pain explain 11 percent

of total score changes in pain intensity of patients with chronic and non-chronic headache (p=0.23 and ΔF(2 and 105)=1.47, ΔR=0.02).

Table 4. Regression of headache intensity from coping strategies of prayer and pain catastrophizing

Coping strategies	<u>B</u>	<u>S.E</u>	<u>Beta</u>	<u>t</u>	<u>p.value</u>	<u>R</u>	<u>R²</u>	<u>F</u>	<u>p.value</u>
Stability	70.12	8.35	-	8.39	0.000				
Rumination	*1.09	0.52	0.19	2.07	0.04				
Praying	-0.54*	0.25	-0.20	-2.15	0.03	0.33	0.11	4.36	0.006
Duration of pain	0.03	0.02	0.14	1.52	0.13				

**P<0.01 *P<0.05

The results of table 4 indicate that coping strategy of rumination and prayer and duration of pain explain 11 percent of total score changes

in pain intensity of patients with chronic and non-chronic headache (p=0.42 and ΔF(1 and 105)=0.65, ΔR=0.006).

Table 5. Regression of headache intensity from coping strategies of prayer and pain catastrophizing

Coping strategies	<u>B</u>	<u>S.E.</u>	<u>Beta</u>	<u>t</u>	<u>p.value</u>	<u>R</u>	<u>R²</u>	<u>F</u>	<u>p.value</u>
Stability	72.57	8.24	-	8.79	0.000				
Rumination	1.21*	0.52	0.21	2.31	0.022	0.30	0.09	5.32	0.006
Praying	-0.6 *	0.25	-0.22	-2.42	0.017				

*P<0.05 **P<0.01

The results of table 5 indicate that coping strategy of rumination and prayer explains 9 percent of total score changes in pain intensity of patients with chronic and non-chronic headache (p=0.13 and ΔF(1 and 106)=2.31, ΔR=0.01).

Conclusion

This study aimed to investigate the role of two coping strategies, i.e. prayer and pain catastrophizing, in anticipation of the pain. The results showed that these two variables are predictors of headache intensity. The results of this study are consistent with important research in the field of pain catastrophizing. For example, Sullivan et al. in 1992, 1995, 1997,

and 2000 showed that pain catastrophizing is associated with higher experience and perception of pain (31, 32). The results of Cho and his colleagues in 2008 conducted on 123 patients with chronic pain showed that pain catastrophizing has a significant effect on pain intensity and compatibility. It is likely that longer duration of chronic pain would be associated with passive or maladaptive coping strategies such as catastrophizing. Reduction of pain catastrophizing alone may have a greater impact on pain intensity and compatibility. The findings of Arnou and his colleagues in 2011 showed that pain catastrophizing is associated with pain intensity and pain-related disability. In a study to determine the factors that predict pain intensity, it was shown that gender, age,

education, and pain area couldn't significantly predict pain intensity. However, pain catastrophizing and depression had a positive and significant correlation with pain intensity (33). In another study individuals with headache and those who highly use pain catastrophizing strategy and use less active strategies represent symptoms of depression more than others do (it can be cause of the relation between rumination, as component of catastrophizing, and getting depressed). The results indicate that reduction in use of pain catastrophizing strategy and increase in perception of pain control following participating in cognitive-behavioral control programs of chronic pain associated with reduction in pain intensity and disability and depression (23). Catastrophizing or overgeneralization of painful events is associated with psychological and physical malfunction and can relatively explain the relationship between pain intensity and compatibility (34, 35).

The results of the present study contradict with the study conducted by (36). The findings of this study showed that pain catastrophizing has no impact on intensity and frequency of headache. Also, the findings showed that chronic headache has lower risk for headache intensity compared to patients with periodic (non-chronic) headache

Sullivan et al. (2001) concluded that rumination increases thinking of pain bias, but magnification showed no significant relationship with pain intensity in this study. It should be noted that because most subjects of this study were patients with chronic headache and since headache intensity is not often so severe (but it is constant), it can be said that they less magnify their symptoms and pain. This is perhaps the reason of insignificance of this relationship. Regarding coping strategy of prayer, the findings of this research are consistent with Turner and Clancy (1986). Using CSQ questionnaire it was concluded that prayer has an adaptive strategy to cope with chronic pain. In contrast, the results of this research contradicted with (15, 18, 37, 38) that showed the more the patients used of religious coping strategies such as prayer, the more they reported disability and pain intensity.

Tix and Patricia (39) stated that however this strategy is considered to be coping, it has potentially cognitive (such as understanding disease as the wisdom of God) and behavioral (such as praying or attending religious services) components. Although religion is often described as a kind of escape from reality, denial, or avoidance in literature, this view is simplistic and stereotypical and cannot take into account the diverse roles that religious/spiritual cognitions have in finding some important things in the lives of individuals. Religious coping strategies can be adaptive, active, and difficult, especially when God is considered as benevolent and helpful (40).

On the other hand, a number of studies have found that older people who have strong religious beliefs reduced their risk of heart attack (41). McCullough and Larson (1999) stated that according to some studies, prayer and hope as a strategy might be expected to aggravate pain and follow more psychiatric problems. However, reports have shown that prayer is not associated with anxiety, depression, and general psychological distress (18, 35).

In general, studies conducted in this field are contradictory. This is probably because prayer and using religious strategies are activities directly related to social and religious culture and context in which people live. Therefore, individual and cultural differences are involved in the quality and quantity of this activity. Anderson proposed that cultural differences affect the results of prayer research (15).

In explaining the conflicting findings of this research, it can be said that the studies carried out to investigate the role of prayer in the intensity and quality of pain were done in the western culture. Therefore, religious atmosphere of those communities is very effective in people's beliefs and religious practices. As Anderson conducted in a study in Sweden, in CSQ translated form, GOD was replaced by higher power. This is due to the very low religious orientation in Sweden (42). He also stated that his sample, who were all Swedish, could not be compared with other people from many countries (including America), because the Swedens have less religious beliefs and religious activities (15). This study was

conducted in the Iranian context where most people have relatively high religious and spiritual beliefs, and use prayer as a way to relieve stress and caused by their problems and discomfort. Since studies even in the west have shown that faith, prayer, spirituality, and religion (religious commitment activities or behaviors such as prayer) cause health and healing (43), the current research subjects use prayer as a strategy to heal their diseases and pains. Therefore, they see themselves close to the power source (God). Therefore, it can be said that prayer in our country is used in people with religious and spiritual orientation as an adaptive and effective strategy to cope with the stress caused by pain.

It is recommended to consider adaptive and non-adaptive coping strategies in future researches for more accurate prediction of pain intensity so that it would be easier to control the condition. It is also recommended due to lack of research on religious coping strategies to consider the role of this strategy more and more in researches related to chronic pain. In Iran people with religious beliefs background, it could be more important to consider spirituality more than past.

The limitations of this study include lack of random sampling due to lack of the required samples. Lack of considering other possible factors contributing to pain prediction can be also mentioned

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