

Original Article

The effect of pain on Dimensions of Temperament , Character and Personality Features

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Abstract

Introduction: Chronic pain is a common and debilitating condition that little effort has been made to understand, diagnose and treat it. The aim of the present study is prediction of pain based on trait and state dimensions, personality characteristics among patients suffering from chronic pain.

Methods: This is a correlation study, which 230 patients suffering from chronic pain were selected by convenience sampling among pain clinics of Shiraz city. Data were gathered by Demographic Questionnaire, Brief Pain Inventory (BPI), Temperament and Character Inventory (TCI, Cloninger) and NEO Brief Questionnaire (60 questions) and were analyzed using multiple regression (stepwise regression) and Pierson`s correlation.

Results: The results indicated that components of harm-avoidance and self-transcendence in level of (0.001) in pain severity, components of harm-avoidance, reward dependence and self-transcendence in level of (0.001, 0.001, 0.01) in pain interference during daily routines were able to predict chronic pain positively. Also, from big five factors of personality, neuroticism in level of (0.001) was a positive predictor of pain.

Conclusion: Generally the results show that character and personality traits have positive effect on pain intensity and maintaining the pain as well as its impact on daily performance of patients with chronic pain. Therefore, in addition to psychological therapies according to personality traits of these people psychological treatments to accelerate treatment should be considered by therapists.

Declaration of Interest: None.

Key words: : Chronic pain, Temperament, Character dimensions, Personality features.

Introduction

Probably, pain is the most common stress we face and one of the most common complaints among patients (1). Despite man's efforts to get rid of the pain throughout history, complete relief of pain for many patients with chronic pain is still unattainable (2). Chronic pain is defined as

a pain lasting at least for 3 months over the last 6 months (3).

Chronic pain is a common and debilitating condition that little effort has been made to understand, diagnose, and treat it. Currently, only 40 percent of primary care physicians believe that chronic pain can be managed very well (4). One reason could be that both doctors and patients are

doubtful to use opiate-based drugs due to side effects and possible drug abuse (4). Chronic pain is one of the most common reasons for patients visiting a doctor. People with chronic pain spend more time in hospitals and use health care services (5). Conrad and Aschlyngr (20) establish correlations between temperament and character in patients with chronic pain and assume symptoms for various classes of personality disorder and different clusters. Harm avoidance (HA) is one of the four independent dimensions of temperament forms the emotional core of character. This dimension of temperament, which reflects the preparation of genetic neuro-bio for the initial excitement of fear, is related to automatic behavior and inhibition process. People who are very vulnerable show easily conditional avoidance responses to distressing stimuli, thus they are susceptible to fear (22).

Self-strategy and cooperation are also other aspects of character. In fact, aspects of character, which is the recognition core of personality, and people's aspects of character, are more involved than the dimensions of temperament in the recognition processes (25). Conceptually, self-strategy is related to self-efficacy. Self-efficacy is defined as a personal conviction in order to solve the issues that one person is dealing (1). There are a wide range of evidence that indicates low self-efficacy plays a significant role in pain control (9) deal less with disabilities (2) and treatment result (20).

Also, because it is not always possible to identify the reason of chronic pain, pain treatment and relief is associated with many problems. Hence, researchers and practitioners working in this area have moved toward a multi-dimensional perspective to achieve successful treatment. In contrast to acute pain, chronic pain may occur in many parts of body. It shows less response to therapeutic interventions, causes more disorders during sleep, and more emotional distress such as anxiety and depression (6).

In a study, "personality and mood traits among patients with musculoskeletal pain has shown that personality traits of patients are significantly different from control group so that particular personality profile was drawn for them such as high scores in avoidance of threats and low scores in self-strategy (8).

(9) Vlaeyen and et.,al stated that the real pain behavior results from interaction between perceptions of sensory-physical information, characteristics, and environmental feedback. In a study conducted to investigate characteristics of patients with chronic pain NEO Five-Factor Inventory was used, and among the five factors neuroticism is a predictor of chronic pain. (10) Asghari and et.,al suggest in their research that out of the five factors of personality neuroticism is only associated with pain and is a significant predictor of changes in self-efficiency and pain control assessment. Finally, the results indicate that personality traits have existed in patients with chronic pain since past, which put them at risk of poor compatibility, difficulty in relationships, and vulnerability against pain.

(11) Carmen and et.,al analyzed the relationship between neuroticism, extraversion, age, sex, and perceived pain intensity and coping strategies being used. The assumed model showed a positive relationship between neuroticism and the use of passive coping strategies and pain intensity. On the other hand, extraversion is expected to have a positive relationship with the use of active coping strategies and a negative relationship with perceived pain intensity. The results support the hypotheses related to the effects of variables of extraversion and neuroticism. (12), compared the psychological status of patients with chronic pain and individuals without pain. The results showed no significant difference between clinical patterns of personality among the two groups. (7), investigated 200 patients with chronic low back pain (mean disabling pain lasting more than one year) in terms of

presence of psychiatric disorders during the study period. %51 of the subjects had diagnostic criteria for at least one personality disorder. According to the above, in addition to physical therapy in chronic pain treatment psychological factors of patients with chronic pain should be considered as well. However, so far no extensive psychological model for chronic pain has been determined precisely. This study aims to investigate the relationship between temperament and character dimensions and personality traits with pain in patients with chronic pain in order to check whether 1) the dimensions of temperament and character predict pain intensity, 2) the dimensions of temperament and character predict the influence of pain interference in daily activities, and 3) the personality traits predict the influence of pain interference in daily activities.

Methods

The study population consisted of patients with chronic pain who attended chronic pain clinics of Shiraz in 2013. Sampling in this study is available. Thus, 230 patients with chronic pain referring to Shahid Motahari pain clinic of Shiraz were selected by Homayoun and Rabiei. Inclusion criteria included: being diagnosed with chronic pain and the pain is in waist, legs, hands, and neck. Also, 6 months should have passed since having the symptoms. They should be under the supervision of a physician, and be 18 years or older. The patients were educated from under diploma to PhD level. Exclusion criteria were as follows: they have had pain for less than 6 months, not being diagnosed with chronic pain by a physician, being under 18 years old, the pain being due to trauma or accident, and the pain being caused by genetic disorders like rheumatoid arthritis. There were 179 females and 51 males. They were asked to fill out the questionnaire in this study to cooperate with the researcher.

Brief Pain Inventory: This questionnaire is a brief version of Almaben pain

inventory developed by Cleeland et al in 1983 (13). BPI pain questionnaire was normalized on cancer patients by Nakhasee and Vakilzadeh in Iran in 2005 (14). This questionnaire consists of numerical scale from 0 to 10 to measure two main parts (pain intensity, interference of pain with daily activities), and underlying questions. Cronbach's alpha for the entire questionnaire (11 items) was 0.87 and for "intensity" and "response" aspects it was 0.87 and 0.89, respectively (15).

Temperament and Character Inventory.

Temperament and Character Inventory was developed by (16) to measure the acquired temperament and character. This questionnaire has 125 questions. In 2005, this questionnaire was normalized in Iran by Kaviani. The internal consistency of scales using Cronbach's alpha was 0.72, 0.80, 0.73, 0.55, 0.77, 0.84, and 0.72 for novelty, harm avoidance, reward dependency, persistence, cooperation, self-strategy, and self-processing, respectively. Validity coefficients ($n=100$) were reported to be 0.75, 0.72, 0.87, 0.90, 0.76, 0.66, and 0.86 for novelty, harm avoidance, reward dependency, persistence, cooperation, self-strategy, and self-processing, respectively (17).

NEO Brief Questionnaire (60 questions).

NEO Questionnaire was originally developed by Costa and Mc Care in 1985 (18). Garoosi Farshi translated this questionnaire into Farsi and normalized on Iranian university students. Reliability coefficients obtained in Iran for five factors of neuroticism, extraversion, flexibility, adaptability, and responsibility were 0.83, 0.75, 0.80, 0.79, and 0.79 (19).

Implementation: First, patients with chronic pain were randomly selected by referring to chronic pain clinics of Shiraz. Then, demographic and family information questionnaire and after that Brief Pain Inventory, Temperament and Character of Cloninger, and Neo Inventory were randomly distributed among individuals with chronic pain. Each subject individually

responded to the questionnaires. And those who were illiterate or had little education answered the questions with the help of researcher.

It should be noted that participants in the study arbitrary cooperated with researcher and whenever each participant felt uncomfortable with filling out the questionnaire due to pain or fatigue, it was taken from them and the incomplete questionnaire was excluded from the list.

Statistical Methods: For descriptive data analysis, frequency tables, mean, standard deviation and correlation between variables were used. For inferential analysis of data, stepwise multiple regression is used.

Results

This research aimed to predict pain based on temperament, character, and personality of patients with chronic pain. The highest mean among personality traits belongs to responsibility and among the variables of temperament and character inventory, it belongs to self-strategy. The first research question asks whether temperament and character dimensions predict pain intensity or not. Results of a Stepwise multiple regression are presented in Table 1

Table 1. Predicting pain intensity by temperament and character dimension

Steps	R	R ²	F	ρ	β	t	ρ
first	0.21	0.045	10.38	0.001	0.21	3.22	.001
Second	0.27	0.073	8.65	0.001	0.17	2.60	0.01
					0.17	2.58	0.01
Third	0.3	0.094	7.59	0.001	0.11	1.53	0.1
					0.17	2.68	0.001
					0.15	2.27	0.01
Fourth	0.29	0.084	10.14	0.001	0.19	3.08	0.001
					0.20	3.10	0.001

The results in Table 1 indicate that F value is significant in all four steps. In the first step ($F=10.38$, $p<0.001$), in the second step ($F=8.65$, $p<0.001$), in the third step ($F=7.59$, $p<0.001$), and in the fourth ($F=10.14$, $p<0.001$). This means that among dimensions of temperament and character, harm avoidance and self-processing predict pain intensity. Also according to the coefficient of determination ($R^2=0.08$), it can be

concluded that harm avoidance and self-processing determine 84% of the variance in pain intensity, i.e. 84% of the changes in pain intensity is related to harm avoidance and self-processing.

The second research question asks whether temperament and character dimensions are able to predict the effect of pain interference in daily routines or not. The results of this question are given in Table 2.

Table 2. Predicting the effect of pain interference in daily routines by temperament and character dimensions

Steps	V	R	R ²	F	ρ	β	t	ρ
first	reward dependence	0.254	0.064	15.22	0.001	0.254	3.902	0.001
Second	reward dependence	0.305	0.093	11.31	0.001	0.212	3.210	0.001
	harm avoidance					0.175	2.643	0.001
Third	reward dependence	0.340	0.116	9.57	0.001	0.185	2.788	0.001
	harm avoidance					0.173	2.641	0.001
	self-processing					0.153	2.370	0.01

Results of table 2 indicate that F value is significant in all three steps, in the first step

($F=15.223$, $p<0.001$), the second step ($F=11.312$, $p<0.001$), and the third step ($F=9.571$, $p<0.001$). This means that among dimensions of temperament and character, reward dependence, harm avoidance, and self-processing predict pain interference in daily routines. Remarkably, according to the coefficient of determination ($R^2=0.11$) it can be concluded that among dimensions of temperament and character, aspects of

reward dependence, harm avoidance, and self-processing determine 11% of variance of pain interference in daily routines. In other words, 11% of changes in pain interference in daily routines are related to aspects of reward dependence, harm avoidance, and self-processing.

The third question is whether personality traits can predict the effect of pain interference in daily routines or not. The results of this question are presented in Table 4.

Table 3. Predicting the pain interference in daily routines by personality traits

Steps	R	R^2	F	β	t	ρ
First	0.297	0.08	21.993	0.297	0.690	0.001

The results of Table 3 indicate that F value is significant ($F=21.993$, $p<0.001$ in neuroticism). This means that among personality traits, neuroticism predicts pain interference in daily routines. Remarkably, according to the coefficient of determination ($R^2=0.08$), we can conclude that neuroticism determines 8% of the variance in pain interference in daily routines. In other words, 8% of changes in pain interference in daily routines are related to neuroticism.

Conclusion

This study aimed to assess predicting pain based on temperament and character aspects and personality traits in patients with chronic pain. The results showed that personality traits such as temperament and acquired traits are effective in suffering from chronic pain.

Temperament and Character Inventory of Cloninger that was used in this study. Temperament aspects include genetic characteristics of individuals and have four aspects. Character traits include traits that are acquired and contain three aspects.

In this study, these traits were studied in people with chronic pain. Among temperament aspects, harm avoidance was shown a good predictor of pain intensity.

The findings are consistent with the findings of (22). Harm avoidance has a significant relationship with chronic pain intensity. As mentioned before, harm avoidance in one of the four aspects of temperament. This aspect of temperament reflects an inherited neural-biological preparation for initial excitement of fear and that is related to automatic behavior that can be described as a deterrent.

Those who are very harm avoidant easily reach conditioned avoidance responses for annoying stimuli, thus making them susceptible to fear (20). (16), in their research on avoidance behavior in patients with chronic pain concluded that fear of pain and behaviors related to this fear are more debilitating than the pain itself. Fear avoidance model suggests that avoidance movements and activities based on fear are the main processes in the development of chronic pain (21). In this model, one could argue that pain in a longer period of time can increase harm avoidance, also in a study Vlaeyen and et.al concluded that the actual behavior of pain is a result of the interaction between perception of sensory-physical information, personality traits and peripheral feedback (9). The results of this study are consistent with previous studies. Self-processing is an aspect of temperament and includes traits that people acquire in a lifetime, and this component of the study is

shown as a predictor of pain intensity. Overseas researches have studied temperament and character dimensions on chronic pain. So far, no significant relationship had been found between self-processing factor and chronic pain, but this study found it a predictor of pain intensity among patients with chronic pain. Several reasons can be expressed in this study to explain self-processing factor in connection with pain intensity (24). Cultural differences that lead to formation of beliefs in those people; self-processing that as an acquired trait, and perhaps it can be said that this factor is associated with learning and culture of these people; they believe when they have a problem or pain they accept because accepting the pain makes them closer to God. Historical records related to the fifth century B.C shows that at that time acute pain was seen as a natural part of human life. In medieval ages, communities saw pain as a religious value. They considered it as a reward that they are Among components of temperament the factors of reward dependence and harm avoidance and among the components of character the factor of self-processing showed a significant relationship with interference of pain in daily routine(9). As mentioned before, personality traits have a great impact on the maintenance of chronic pain as well as the performance and other activities of a person. In conceptual model of the transition from acute pain to chronic pain, it is assumed: patients are associated with certain predisposing personality / psychology traits that vary from patient to patient, in fact, the relationship between psychological pressures and worsening mental health problems has been documented in the literature. The mentioned model assumes that along with continuing behavioral- psychological problems the patient enters the third stage that can be called as accepting "patient's role". During this period the patient refuses to accept social forces and normal duties and responsibilities. Also, medical and psychological disabilities or abnormal ill

supposed to gain in heaven (7). In Renaissance and Classical periods, pain was considered as a factor which induces man to obey the intellect (25). Based on these beliefs, pain leads to growth and excellence of human spirit and in fact it is the atonement that human should pain to make up for his sins. In the 18th and 19th century and early 20th century, this phenomenon was seen as a factor that is able to eliminate indolence and lead the latent forces in the body to move. Moreover, in this view pain was considered essential for the growth of health (23).

Western society today has accepted a quite different view to pain. Today there is an intense belief that pain would rarely have an interest for individuals (23). Therefore, mental health practitioners are encouraged to provide maximum relief from pain for patient to the extent that the patient would be at no risk Gatchel and et.,al the results of this research are consistent with previous findings (23).

behavior are reinforced and consolidated during this stage (22).

Patients with chronic pain due to personality traits each reacts to the environment and pain in one way. People who have high harm avoidance are stressed and nervous, are sensitive to criticism, are pessimistic and more likely to predict bad events, and are not well suited with environmental changes. Those who have reward dependence traits are sensitive to rejection and injustice, seek the approval of others, and are sensitive to criticism. When those who are born with these biological preparations are affected by pain, due to sensitive nature and irritability as well as fear of rejection and other features mentioned, try to maintain entourages with keeping pain, and disclaim duty with disabilities in daily tasks and assign duties to entourages to keep their affiliation or gain a reward by this dependency. These findings are consistent with findings of (7, 22). In this study, in order to review the personality traits of patients with chronic pain NEO Five-Factor Inventory was used.

. these five factors, neuroticism was a predictor of chronic pain. Moreover, in researches that studied personality traits in individuals with chronic pain, a significant relationship was found between neuroticism and chronic pain. A study by (10) suggested that from five factors of personality only neuroticism is associated with pain and this factor is an important predictor for changes in pain self-efficiency belief and pain assessment. Finally, these findings suggest that personality traits that exist in some people with chronic pain put them at risk for poor adaptation, difficulty in communication and vulnerability against pain. Also, in a study has analyzes the relationship between neuroticism, extraversion, age, sex, pain perception and coping strategies used by people with chronic pain, the hypothetical model showed a positive relationship between neuroticism, use of passive coping strategies and pain intensity. On the other hand, a negative relationship is expected between extraversion with the use of active coping strategies and perceived pain intensity. The results support hypotheses related to effects of neuroticism and extraversion (11).

Generally the results show that character and personality traits affect on pain intensity and maintaining the pain as well as its impact on daily performance of patients with chronic pain. Therefore, in addition to psychological therapies according to personality traits of these people psychological treatments to accelerate treatment should be considered by therapists.

Study limitations included sampling, lack of cooperation of some pain clinics, possibility of biased diagnosis, and filling out questionnaires carelessly by some patients due to old age, little education, or too much pain while answering the questions.

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