

# Relationship between Coping Strategies, Personality Traits and Psychological Distress in Bam Earthquake Survivors

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## Abstract

**Background:** After each natural disaster a comprehensive treatment protocol is needed for volunteers of healthcare personnel of the disaster zone. The aim of this study was to emphasize the psychological aspects of coping strategies, personality, psychological distress and pain of patients survived the Bam earthquake.

**Methods:** Eighty-six patients who had suffered several kinds of psycho-cognitive and emotional impairment of the Post-traumatic stress disorder (PTSD) were selected six months after the earthquake. They completed a battery of questionnaires including the Hospital Anxiety and Depression Scale (HADS), Ways of Coping Checklist, Eysenck Personality Questionnaire (EPQ), and McGill Pain Questionnaire (MPQ). Multiple regression analyses and Correlation Analyses were applied for inclusion and exclusion of variables. Correlations were reported between the HADS, EPQ and MPQ.

**Results:** Both anxiety and depression showed significant positive correlations with five of the dimensions of MPQ. High levels of neuroticism were associated with greater use of denial and passivity. Psychoticism was negatively associated with external support, given the social withdrawal to be associated with psychoticism. Correlation analysis confirmed that high neuroticism was related to greater degrees of emotional distress. Anxiety and depression were both associated with increased scores in denial and passivity. Female patients were found to score significantly higher than males on the factor of "relying on external support".

**Conclusion:** The main problems of patients that survived from Bam earthquake were emotional distress, coping deficiency and adjustment disorders. It seems that psychological intervention might be more effective than the conventional medical treatments that were administered in the hospital.

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## Introduction

**T**he clinician's management of trauma patients in hospitals, intensive care units and trauma wards provide best possible treatment for physical injuries.<sup>1</sup> At the same,

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time it is equally important to give adequate attention to psychological aspects associated with these events.<sup>2</sup> Knowledge of the predisposing factors and their managements helps the clinician to prevent or manage these psychological problem.<sup>3</sup>

Various causes of psychological disturbances in trauma patients have been highlighted.<sup>4</sup> These include pain, sudden and unexpected nature of events and the procedures and interventions recruited to resuscitate and stabilize the patients.<sup>5</sup> The patients react to these stressors by various defense mechanisms such as conversion withdrawal, denial, regression, pain, anxiety, adjustment disorder symptoms and depression. Some of them develop delirium or even more severe problems like pain disorder or post-traumatic stress disorder.<sup>6</sup> Physical, pharmacological or psychological interventions can be performed to prevent or minimize these problems in trauma patients. These include adequate pain relief, prevention of sensory and reassurance to the patient, psychotherapy and pharmacological treatment whenever required.<sup>7</sup>

The identification of specific personality traits that may predispose individuals to develop chronic pain problems has been a major emphasis of psychosomatic medicine. A significant part of personality variation can be ascribed to traits concerning emotional reaction patterns.<sup>8</sup> One such broad factor is neuroticism reflecting emotional distress, tendency to worry, hyper vigilance, and proneness to psychopathology. Findings suggest that neuroticism, also called negative affect, is related to a wide range of dysfunctions and diseases such as depression, pain syndromes, eating disorders, psychosomatic complaints, and poor coping strategies.<sup>9,10</sup> However, this study reports the role of personality traits, emotion expression and coping strategies in neurosurgical patients.<sup>11</sup>

The matter of personality is of particular interest because although the factor has been shown to be important in determining the response to chronic pain, its role in acute pain states is less well established. Moreover different coping behaviors are known to influence the extent to which pain affects patients in their daily activities and emotional states.

Factors relating to individual differences may be important in determining the ability to cope. With regard to personality, Spinhoven et al. have observed the neglect of any interaction of that factor with coping.<sup>12</sup> Whereas, Kleinke, and colleagues has recently shown some relationship between the Minnesota Multiphasic Personality Inventory (MMPI) factors and coping.<sup>13</sup> The relevance of personality to coping

may be evident in that, when in pain, some patients become distressed or unstable, whereas others remain resilient.<sup>14</sup> Coping theorists assume that these outcomes result from people's coping efforts to alter the stressful situation or to regulate their emotional reactions.<sup>15</sup> Personality may explain why some patients can and some cannot control or endure their emotional condition.

This study provided a better understanding of the psychological status of Post-traumatic stress disorder (PTSD) patients for healthcare personnel and its outcomes highlight the relationship between the psychological aspects of disaster-related emotional status, coping strategies, and personality traits, in Bam earthquake survivors.

## Patients and Methods

All attendants were requested to complete the questionnaires six months after earthquake while seeking follow up treatments and were conscious about their condition. They were invited to participate on the basis of informed consent.

The 67-item version of the Ways of Coping Checklist (WCCL) derived from transactional model of stress and coping was administered to assess coping strategies with good reliability and validity.<sup>16</sup> This instrument measures coping strategies in terms of what a person thinks in response to the demands of a stressful encounter.<sup>17</sup>

The checklist consists of 67 items describing a broad range of behavioral and cognitive coping strategies that an individual might use in stressful events or medical conditions. The guidelines require that the participants focus on a stressful situation in the previous week and respond to each item on a four-point scale (0=not used to 3 = used with high frequency) regarding the degree to which a coping strategy was used to deal with the situation. High scores indicated higher use of the relevant coping strategy.

The 'forward backward' procedure was applied to translate with 67 items from English into Persian. Two Instructors of nursing translated the questionnaire into Persian and these were backward translated into English by a health professional and a professional translator. A provisional version of the Iranian questionnaire was then provided. There were some problematic terms which were culturally adapted and after a consensus by all authors, the final version was developed in 67 items and four coping dimensions.

However, responses, regarding WCCL, could also be usefully categorized according to the following four coping dimensions comprising of 32 items of Active coping, 15 items of

Denial, 12 items of Passive Coping, and 8 items of Reliance on External Support. The higher scores on any dimension, the greater the use of that strategy by the patient.

#### Questionnaires

The aim of this study was to evaluate the various effects of physical treatment and operation on the perception of the patients' pain and their emotional state after earthquake. Questionnaires were administered to assess personality, emotional state, pain perception and coping strategies. The questionnaires were chosen because they have been shown sensitive in previous investigations of pain, distress and coping and their psychometric properties have been subject to assessment of validity and reliability.

In this research the data were derived from McGill Pain Questionnaire (MPQ),<sup>18</sup> the Hospital Anxiety and Depression Scale (HADS),<sup>19</sup> Eysenck Personality Questionnaire (EPQ),<sup>20</sup> and Ways of Coping Checklist (WCCL) and their relationships with each other were examined.

#### Statistical Analyses

Data are presented using multiple regression analyses which employed the standard default conditions for inclusion and exclusion of variables for each step in the regression. Variables were included when their partial regression coefficients were significant at  $p < 0.05$ . Separate regression analyzes were performed on the five categories of pain scores from the MPQ in order to determine which, if any, of the independent variables in the foregoing hypotheses were predictors of pain. Student's *t* test was also employed in comparing the sex groups. Correlation coefficient was applied to find the relationship and interaction of the variables.

## Results

The study comprised 86 patients with the average age of 18 to 77 year-old ( $38.5 \pm 9.5$  years) with male to female ratio of 1.04:1.00. Twenty-eight patients suffered from psychological headache and back pain, and 58 had done some types of surgery. Their general practitioners were also informed of their involvement in the study. In this study, the internal consistency of the WCCL as measured by the Cronbach's alpha coefficient was found to be greater than 0.70 for all dimensions (0.82 for active coping; 0.73 for denial; 0.78 for passive coping; and 0.76 for reliance on external support) indicating a satisfactory reliability.

As shown in the Tables 1 and 2, it is worth noting that extraversion was associated with lower levels of denial and passivity in coping. In contrast, high levels of neuroticism were associated with greater denial and passivity, along with active coping.

As might be expected, psychoticism was inversely related to external support, whereas it was directly associated with social withdrawal (Table 1). Anxiety and depression were both associated with increased scores on denial and passivity ( $p < 0.01$ ). Interestingly, there were no significant correlations between pain scores and coping. As shown in Table 2, anxiety and depression both showed significantly positive correlations with all five pain dimensions.

Extraversion showed a negative association with scores on the various dimensions of pain experience of the MPQ. High degrees of extraversion were associated with a reduced experience of pain. In contrast, neuroticism showed positive correlations with all five pain dimensions. Strong correlations were particularly found between neuroticism and the affective component of pain. Psychoticism also showed significant associations with pain

**Table 1:** Correlations between four coping strategies from the Ways of Coping Check List (Active coping, Denial, Passive Coping and External Support) and the personality characteristics of Extraversion, Neuroticism, Psychoticism and Lie on the Eysenck Personality Questionnaire (EPQ), and Anxiety and Depressions from the Hospital Anxiety and Depression Scale (HADS) and all six dimensions of McGill Pain Scores.

Variables	Ways of Coping Checklist (WCCL)				
	Active Coping	Denial	Passive Coping	External Support	
EPQ	Extraversion	0.1210	-0.0821	-0.0901	0.1321
	Neuroticism	0.225*	0.3651**	0.4078**	0.1437
	Psychoticism	-0.0431	0.1321	0.0504	-0.1701
	Lie Scale	-0.0650	-0.1210	-0.3112	0.0237
HADS	Anxiety	0.1781	0.3651**	0.3817**	0.1396
	Depression	-0.0776	0.1981	0.2437*	-0.0561
MPQ	Sensory	0.0678	0.1421	0.0987	0.1296
	Affective	0.0231	0.0812	0.0812	0.1119
	Evaluative	-0.0080	0.1361	0.0726	0.0597
	Miscellaneous	0.0154	0.1429	0.0204	0.0292
	Total Pain Rating	0.0631	0.1389	0.1011	0.1211
	No. Word	0.157	0.1468	0.1636	0.1815

\* =  $p < 0.05$ ; \*\* =  $p < 0.01$ .

**Table 2:** Correlations between the Eysenck Personality Questionnaire (EPQ), Depression on the Hospital Anxiety and Depression Scale (HADS) and McGill Pain Questionnaire (MPQ)

Variables		Anxiety		Depression		Extraversion		Neuroticism		Psychoticism		Lie Scale	
HADS	Anxiety	1.0000											
	Depression	0.6421**											
EPQ	Extraversion	-0.3531**	-0.4651**										
	Neuroticism	0.7398***	0.5312**	-0.2764**									
	Psychoticism	0.2594**	0.3697**	-0.0784	0.0691								
	Lie Scale	-0.1289	-0.1391	0.0183	-0.1211	-0.1908							
MPQ	Sensory	0.2841**	0.3860**	-0.2192*	0.2101*	0.0698						0.0742	
	Affective	0.3241**	0.4014**	-0.1562	0.3012**	0.2730**						0.0911	
	Evaluative	0.1561	0.1680	0.0321	0.1598	0.0080						-0.0129	
	Miscellaneous	0.3803**	0.4301**	-0.2110*	0.3301**	0.2490*						0.1045	
	Total	0.3301**	0.4512**	-0.2209*	0.2816**	0.1812						0.0701	
	No. Word	0.3451**	0.4455**	-0.2168*	0.2795**	0.1401					0.0812		

\* = p&lt;0.05; \*\* = p&lt;0.01

experience, and had notable correlation with the affective dimension. Female patients were found to score significantly higher than males on the factor of 'relying on external support'.

## Discussion

The main difficulty in the methods of research plan was the recruiting of a control group. Although this could have been helpful in substantiating the study results, when both the study and control groups were drawn from the same patient population, it was not possible to recruit the sample control group in parallel with the study group.

The research hypotheses predicted that coping would determine patients' responses to pain. Interestingly, however, this was true only in the case of distress. In regard to MPQ pain scores, there was no significant prediction of MPQ pain scores. Active coping was also shown by the regression analysis to predict a reduction in distress.

The way in which patients cope with their pain also reveals differential responses based upon personality traits.<sup>21</sup> While extroverts are less likely to indulge in denial, preferring instead a more direct approach to confront the issue, those scoring high on neuroticism tend to show a mixture of coping responses.<sup>22</sup> The significant correlations between neuroticism and denial, passive and active coping might imply that such patients attempt a range of methods to cope. In fact, their experience of pain appears to be more intense and aversive than those lower in neuroticism; which imply that their chosen method of coping is not effective.<sup>23</sup>

Equally, their greater experience of pain may also reflect random switching from one coping strategy to another with little positive effect. The result of this supported the view that neuroticism is a mediator of ill-health, especially of different tension complaints. Indeed, hostility, self-criticism and coping strategies, are strongly related to neuroticism and are

commonly found to be relevant factors for diseases.<sup>24</sup> Previous findings would seem to straightforward in confirming that active coping strategies often imply a strong internal locus of control associated with better tolerance and greater optimism in dealing with persistent pain.<sup>25,26</sup> Gender differences were further indicated by the patterns of coping.<sup>27</sup> In our study female patients were found to show significantly higher scores than males in regard to the factor of 'relying on external support'. This was further confirmed by regression analysis which showed that neuroticism was a significant predictor of pain, therefore the more neurotic patients would better cope with pain. This picture emerged from a group of pain suffering patients, whose greater neurotic traits were associated with emotional distress.

It is also interesting to note that states of higher neuroticism may be associated with a lower pain threshold.<sup>23,28</sup> In our study extroversion was a significantly negative predictor of sensory pain scores. In other words, patient with lower sensory pain scores were more extroverted. Prior to surgical intervention was a significant predictor of total, sensory and miscellaneous pain scores, in cases where the cause of the patients' pain was due to prior surgical intervention. In our study none of the coping variables were significant predictors of the pain scores.

## Conclusion

Based on the results of this study, it is necessary to carefully take into account the effects of personality, coping style, social support and pain if one is to fully understand the patient's psychological problems and trauma distress. One implication of this might be that psychological intervention may be more effective than the conventional "medical" treatments administered in the hospital. Since the intensity of unpleasant emotional experience is amplified by the patients' relatively greater neurotic traits,

personality disorders associated with neurotic traits needs greater attention in clinics dealing with trauma patients.

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