

Pain Coping Strategies and Their Relationship with Unpleasant Emotions (Anxiety, Stress, and Depression) and Religious Coping in Cancer Patients

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Abstract

Background: Coping strategies affect patients' perceptions of pain severity, their ability to tolerate pain, duration of daily activities, and emotions. This study aims to determine the relationship between pain coping and unpleasant emotions, and religious coping in cancer patients.

Methods: This was a cross-sectional survey study. Sampling was conducted from June to December 2016. During that period, 363 cancer patients referred to Omid Hospital in Mashhad city, Iran and 22 Bahman Hospital in Neyshabur city, Iran. Data collection tools included a demographic questionnaire, religious coping scale, pain severity scale, Coping Strategies Questionnaire, and Depression Anxiety Stress Scale. The dataset was analyzed using descriptive and inferential statistics that included chi-square and one-way ANOVA with SPSS v.16 software.

Results: The majority of cancer patients (231; 63.6%) used the strategy of praying and hoping as their coping mechanisms. There was a significant difference between religious coping and pain coping strategies ($P=0.02$). Patients with mild depression most frequently used the praying and hoping strategy, whereas those with moderate depression more frequently used the catastrophic strategy ($P>0.05$).

Conclusion: Designing and performing educational programs for coping with pain can be an effective solution for patients to improve their pain management, as well as control and cope with their illness. These programs would help increase patient quality of life and disease self-management, as well as decreasing psychological and communication problems.

Keywords: Pain coping strategies, Anxiety, Stress, Depression, Religious coping

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Introduction

Pain is an unpleasant sensory experience caused by actual or potential tissue damage.¹ However, the pain of cancer is not only a physical sensory experience. In addition, it includes emotional, cognitive, behavioral, and socio-cultural aspects. Cancer pain has been described as a complex pattern and multi-faceted.^{2,3} Bearing too much pain caused by cancer can lead to complications such as depression and anxiety, deep vein thrombosis or pneumonia that result from limitations in activities, and inability to complete the course of treatment as well as a rejection of recommended treatments.⁴ It can have negative effects on quality of life.⁵ Failure to relieve pain and poor performance due to chronic pain causes aggression, depression, and low self-esteem in the patient.⁶ The use of coping strategies that have a strong mediating role to improve the patient's condition and can manage compatibility and the emotions caused by this disease.^{7,8} Pain coping strategies are defined as specific thoughts and behaviors that people use to endure, overcome, and reduce their pain or their emotional reactions to pain.^{9,10}

Researchers found that coping strategies affect the patient's perception about severity of pain, their ability to bear pain, and duration of daily activities.^{2,7,10} In addition to the significant impact of pain coping strategies, factors such as unpleasant emotions (anger, depression, and anxiety) and environmental, social and cultural conditions, in addition to the biological aspects of pain have a major role in adaptation and response to pain.^{8,11-13}

The coping strategies associated with lower quality of life and decreased life satisfaction (i.e., low positive reframing, low acceptance, high self-blame, and high behavioral disengagement) are mainly avoidant coping strategies that lead individuals to activities or mental states that prevent them from directly addressing stressful and depression events.^{14,15}

Coping with pain and its control can be alongside religious effectiveness and spirituality, which is an important aspect of humanity in

general care.¹³ Religious coping is an important factor to achieve happiness, life satisfaction, and welfare; additionally, it helps people to achieve goals in life.^{11,16} Positive religious beliefs are effective for the health of patients and families, and self-care behaviors. Therefore, understanding positive religious beliefs is important for the efficacy of care interventions for the patients and it can be increased by orientation and raising it.^{13,17} In this regard, it has been shown that the hopeful morale caused by religion is an important factor in improving quality of life and compatibility of cancer patients with their conditions, especially during times of pain and deprivation.¹⁸ Negative religious coping (NRC) methods reflect spiritual struggles that include concern about divine punishment, being angry at God, and disconnection from spirituality. Negative religious coping has been associated with negative states in cancer patients that include worse quality of life, greater distress, higher levels of depression, and lower life satisfaction.¹⁹⁻²¹

In Iran, there has been no in-depth investigation on pain coping strategies in cancer patients and their relationship with effective psychological factors. Studies conducted in other parts of the world report conflicting results that may be due to cultural, religious, social, and regional differences. This study examines the correlation between pain coping and unpleasant emotions, and religious coping in cancer patients to provide a background for more effective interventions for treatment and removal of pain in cancer patients.

Materials and Methods

This study was a cross-sectional survey. The study population consisted of all cancer patients who referred to Omid Hospital (Mashhad, Iran) and 22 Bahman Hospital (Neyshabur, Iran). The sample size was determined to be 360 people according to convenience sampling and a literature review,¹⁵ with regards to an accuracy of 3.29, a 95% confidence interval, and the formula of:

$$n = \frac{Z^2(1-\alpha/2)^{\delta^2}}{d^2}$$

Sampling was conducted from June to December 2016 until 363 people enrolled in the study. The inclusion criteria comprised: enough consciousness to answer the questions, 18 to 70 years of age, a definitive diagnosis of cancer based on pathology results confirmed by physicians who were oncology specialists, cancer diagnosis of at least six months, no major psychological disease that prevented the patient from recognizing reality (schizophrenia or bipolar disorder), and not on any psychotropic medicines or drugs.

Data was collected via questionnaires completed by patients in the form of self-reporting in one step. A research assistant completed the questionnaire in the cases of illiterate patients. Data collection tools included a demographic questionnaire (age, sex, occupation, education level, marital status, duration of disease, type of cancer and performed treatments); religious coping scale (RCOPE); pain severity scale; pain Coping Strategies Questionnaire (CSQ); and Depression Anxiety Stress Scale (DASS).

Pargament et al. developed RCOPE. This tool has 14 items and was developed in two subscales to measure positive (7 questions) and negative (7 questions) religious coping. The scoring method was based on the 4 point Likert scale of: never (1), relatively (2), high (3) and very high (4). The score range for each of the subscales of positive religious coping and NRC was 7-28. Higher scores in positive religious coping indicated more positive coping whereas higher scores in NRC represented more negative coping.¹¹ The validity and reliability of this tool in Iran was tested by Rohani et al. on 270 Iranians.^{16,17} The reliability of the method was tested by the retest method and an intra-class correlation coefficient was reported as 0.80 in positive religious coping and 0.74 in NRC.¹⁷ Bastani et al. calculated a Cronbach's alpha coefficient of 0.92 for positive religious coping and 0.72 for NRC.¹¹

We have used a numerical scale to measure pain intensity. The scale is a flat line with zero written on one end and 10 at the other end. The line has been divided into eleven sections. Below

Table 1. Patients' characteristics.

Characteristic	Category	N (%)
Age (years)	30≤	53 (15)
	30-39	45 (13)
	40-49	74 (20)
	50-59	95 (26)
	60≥	95 (26)
Sex	Female	181 (49.9)
	Male	182 (51.1)
Marital status	Married	294 (81)
	Single	34 (9.4)
	Widow	30 (8.3)
	divorced	5 (1.4)
	Literate	119 (32.8)
Education	Secondary school	135 (37.3)
	High school	74 (20.5)
	University	34 (9.4)
	Employed	78 (21.5)
Occupation	Unemployed	233 (64.2)
	Retired	52 (14.3)
	High	73 (20.1)
Economic status	Middle	115 (31.7)
	Low	175 (48.2)
Location	Urban2	42 (66.7)
	Rural	121 (33.3)
Treatment	Surgery	16 (4.4)
	Chemotherapy	93 (25.6)
	Radiotherapy	3 (0.8)
	Combination	251 (69.2)
	(Surgery, Chemotherapy, Radiotherapy)	

the number zero, the phrase of "no pain" has been written and below the number 10, "worst possible pain" is written. Patients were asked to rate their pain intensity during the past 24 hours. This scale has been approved in cancer-related researches.^{9,22}

The CSQ designed by Rosenstiel and Keefe in 1983 evaluates 42 strategies to deal with the pain. These strategies have been classified in six cognitive strategies (praying and hoping, diverting attention, reinterpreting pain sensations, self-statements, ignoring pain sensations and catastrophizing) and a behavioral strategy (increasing activity level). Each of the seven coping strategies contains six sentences. The patients were asked to read each statement carefully and determine how much of each of the strategies they used at the time of dealing with pain

Table 2. Mean score on the pain coping strategies by category.

Pain coping strategies	Praying and hoping	Self-statements	Reinterpreting pain sensations	Ignoring pain sensations	Diverting attention	Catastrophizing
Mean±SD	25.82±7.86	22.13±10.34	18.18±8.68	18.06±9.81	17.37±8.66	16.56±6.65
N (%)	231 (63.6)	37 (10.2)	0	21 (5.8)	12 (3.3)	62 (17.1)

according to a 7-point Likert scale (zero to six). The Likert scale was graded as follows: never (0), sometimes (3), and always (6). In addition to these 7 cognitive-behavior strategies, the questionnaire contained two subscales that evaluated the ability to control pain and reduce pain by the used strategies. The scores of 6 phrases were summed together. A combined score is obtained for each of the coping strategies that can range from 0-36. A higher score in each coping strategy represents greater use of the mentioned strategy in dealing with chronic pain. In addition, the questionnaire asks the patients to use a 7-point Likert scale (zero to six) to determine to what extent they were being able to reduce their pain through the used strategies and to what extent they could control pain [never (0), sometimes (3), always (6)]. This questionnaire was first used and normalized for patients with chronic low back pain.²² Asghari-Moghaddam et al. studied the validity of this questionnaire in the Iranian population by using criterion-related validity. They reported the reliability of the subscales from 0.74 to 0.83.^{23,24} Karamozian et al. used this questionnaire in patients with breast cancer.²³

The Depression, Anxiety, Stress scale (DASS) has 42 questions. This scale was designed in 1995 by Lovibond²⁵ as a tool to study the unpleasant emotions of patients. Statements of this test are ranked based on a 4-point Likert scale. In this questionnaire, the questions are scored from 0 to 3 as follows; 0 (never); 1 (some extent); 2 (largely), and 3 (strongly). The DASS-42 questionnaire ranked scores as normal (0-9), mild (10-12), medium (13-20), severe (21-27), and much severe (above 28) for the depression subscale, and normal (0-7), mild (8-9), medium (10-14), severe (15-19), and very severe (above 20) for the anxiety subscale, as well as normal (0-

14), mild (15-18), medium (19-25), severe (26-33), and severe (above 34) for the stress subscale.²⁵ The validity of the mentioned questionnaire was confirmed by concurrent validity in a study by Ghazavi et al.²⁶ The reliability of the DASS-42 in patients with leukemia was evaluated by Musa-Rezaie. The test-retest method had a correlation coefficient of 0.97 for depression, 0.94 for anxiety, and 0.96 for stress.²⁷

Data analysis

The dataset was analyzed using descriptive and inferential statistics that included the chi-square and one-way ANOVA assessments with software SPSS v.16 (SPSS Inc., Chicago, IL, USA). No missing value existed. A statistical significance level of $P < 0.05$ was considered for all tests.

Ethical considerations

This study received approval from the Ethics Committee of Medical Sciences at the University of Neyshabur. Patients received explanations about the research and its aim after which they provided written informed consent prior to study entry. Responses were provided to the questions raised by patients and their companions. The patients were assured that participation in the study was voluntary and their information would remain confidential. The authorities of the hospital and patients were informed that they could be told about the obtained results at the end of the research.

Results

Patients had a mean age of 48.54 ± 14.45 years. There were 182 (50.1%) women. Most patients were older than 50 years. The higher cancer rates among patients were: colon (15.6%), gastric (10.4%), lungs (7.2%), and breast (7%). The

Table 3. Correlation of pain coping strategies with religious coping in cancer patients.

Pain coping strategies	Positive religious coping	Negative religious coping (NRC)
	Mean±SD	Mean±SD
Reinterpreting pain sensations	0	0
Praying and hoping	16.85±5.76	12.93±4.93
Catastrophizing	17.14±7.32	17.33±8.72
Self-statements	17.54±6.54	14.54±5.95
Ignoring pain sensations	17.95±5.31	14.33±5.82
Diverting attention	22.25±5.82	14.34±6.51
<i>P</i> -value	0.05	0.02

disease duration was 18.59±9.41 months (Table 1).

The results showed that the most pain coping strategy used by cancer patients was the strategy of praying and hoping, used by 231 (63.6%) patients (Table 2).

The most common strategies used in both men and women were praying and hoping and the strategy of self-statements, respectively. The results showed that men more frequently used the strategy of praying and hoping and diverting attention from pain whereas the frequency of catastrophic strategy was higher in women ($P=0.05$).

The patients had a mean pain intensity score of 5.35±2.66 out of an overall score of 10, which represented the average pain intensity. In relation to the severity of pain and pain coping, the results showed no significant difference between pain severity and coping strategies used by the patients ($P=0.64$). However, there was a significant difference between pain coping and pain control ($P=0.02$). The most frequent pain control was in patients who used self-statements (45.9%) and ignored pain sensations (42.9%). The lowest pain levels were in patients who used the catastrophic strategy (16.1%).

The effectiveness of pain coping showed a mean±SD of sense of control over pain to be 2.17±0.59. The ability of reducing pain had a mean±SD value of 2.39±0.64 estimated from the overall average of six, which indicated poor efficacy in patients. The highest success rate in completely reducing pain was observed in people who used to ignore pain sensations (95.2%), praying and hoping (52.4%), and self-statements (51.4%). The lowest was observed in people who

used the catastrophic strategy (16.1%; $P<0.001$).

Patients had a mean ±SD of positive religious coping scores of 17.21±6.16. Negative religious coping was 13.56±5.59 from the overall average of 28.

A significant difference existed in the relationship between religious coping and pain coping strategies ($P=0.02$). Patients who used the diverting attention strategy had significantly greater positive coping compared to other patients ($P=0.05$). Patients who used the catastrophic strategy had the highest average score for negative coping. Patients who used the praying and hoping strategy had the lowest score (Table 3).

We observed no significant difference between religious coping and intensity and control of pain in patients with cancer ($P>0.05$).

In relation to demographic variables and their relationship with religious coping, we observed significant differences between gender and NRC ($P=0.04$). Female patients had more NRC than male patients. However, there was no relation observed between religious coping and marital status, duration of disease, and the economic situation ($P>0.05$).

Unpleasant emotions of patients with cancer had the following scores: depression (15.22±7.90), anxiety (14.33±7.40), and stress (16.38±8.42). According to the ranking scale, the patients had a moderate level of depression and anxiety, and mild level of stress.

A significant difference existed between the severity of depression in patients with pain coping ($P=0.03$). The most frequent use of the praying and hoping strategy was observed in patients with mild depression. A more frequent use of the

catastrophic strategy was observed in patients with moderate depression. Patients with mild depression had less frequent use of the strategy of self-statements compared to the other groups. However, there was no significant difference between the intensity of anxiety and stress in patients with pain coping strategies ($P>0.05$).

In the relationship between religious coping and unpleasant emotions in patients with cancer, we observed a significant difference between religious coping and anxiety ($P=0.02$). Patients who had positive religious coping with their illness had decreased anxiety levels. However, there was no correlation between religious coping with stress and depression ($P>0.05$).

The results showed no significant difference between unpleasant emotions (depression, anxiety, and stress) and intensity and control of pain ($P>0.05$).

Discussion

In references and research priorities, there is a special importance for controlling the pain of patients who suffer from cancer. However, few researches have been performed in the field of coping strategies with the pain of these patients. This study was performed to recognize coping strategies with pain and the relationship between unpleasant emotions and religious coping in patients who suffer from cancer. Results of the present study showed that patients who suffer from cancer, have an average of pain intensity and average level of stress, anxiety and depression.

In this study, the most and the least strategies used by cancer patients were praying and hoping and coping self-statements and diverting attention and catastrophizing, respectively. A meaningful relationship existed between pain controls and used the coping mechanism. In other words, patients who used coping self-statements and ignoring the pain sensation had the highest rate of pain control. Those who used the strategy of catastrophizing had the least rate of pain control. Brunault et al. and Czerw et al. reported the most often used strategy by patients was praying and hoping; however, the most effective strategies in

pain control were ignoring pain sensation and coping self-statements. Catastrophizing was the most inefficient strategy for coping in pain control.^{14,15} Asgari-Moghadam et al. showed that patients who suffered from chronic pain used the strategies of praying and hoping and coping self-statements more than reinterpretation from pain and diverting attention.²³ Czerw et al. noted that the strategy of praying and hoping and religious activities and normative and exact training to patients who suffered from colorectal cancer were the main reasons for coping with pain. This study revealed that patients who suffered from colorectal cancer used more the strategies of praying and hoping, coping self-statements, and increased behavioral activity.²⁸ The findings of a survey showed female athletes, to control chronic pain that arose from injuries, used the strategies of diverting attention, reinterpretation from pain, praying and hoping, coping self-statements, and increasing activity.^{29,30}

In the present study, we recognized that the feeling of pain control with using coping strategies in patients suffering from cancer is weak. We know this ineffectiveness caused by lack of recognition and suitable applying from strategies, interpersonal and intrapersonal differences, and lack of receiving suitable environmental responses. Researchers proposed different strategies of coping and their combination has been used for better efficiency of strategies since personal purposes, family responses, environmental variables, and most other factors play a role in efficiency of coping strategies.^{8,9} Shafie et al. reported that introverted addicts for controlling their pain used the strategy of praying and hoping, whereas extroverted addicts mostly used the strategy of catastrophizing so that extrovert and addicted people generally used more suitable coping strategies towards introvert and addicted people. They recognize that psychological variables such as character building and recognition interpretations, self-sufficiency and personal control are effective factors for pain control.³¹

In this study, we observed that the type of coping strategy impacted on pain control such

that inactive coping strategies, especially catastrophizing, were related to increased pain intensity and less pain control.^{8,9,30} In patients who suffer from osteoarthritis, catastrophizing causes increased intensity of depression, less pain control, and the type of strategy for pain control changed with increasing pain intensity of pain and disability.³² The strategy of praying and hoping was higher in men because men and women differ in their pain experiences, with biological factors, such as differences in hormone levels which was one potential reason for these differences.³³

The results of the present study showed that people who suffer from chronic depression most frequently used the strategy of praying and hoping, whereas the most frequently used catastrophizing strategy occurred in people who suffered from average and severe depression. In this regard, the results of different studies showed that increased use of negative strategies such as catastrophizing occurred along with more severe depression.^{8,25} In general, negative excitements have been related to pain catastrophizing and the tendency to catastrophize during painful stimulation plays a role in intensifying pain and increasing emotional distress. For this reason, the use of negative strategies is a danger for coping with chronic pain.^{7,8,34}

In the present study, most patients who suffered from chronic pain and had religious positive coping used prayer and hope for coping with their pain. It has been recognized in studies that methods of religious positive coping reinforcement can cause increased mental health, coping with disease, hope, and self-esteem in patients. However, people who have religious negative coping report increased intensity of pain.^{28,31,34} People with religious negative coping and unpleasant emotions have a greater tendency to control their pain with avoidance and inactive behavior strategies.^{35,36} In the present study, female patients reported more NRC than male patients. Women tend to have less power and fewer resources in the current society which might direct them to religion in times of distress and depression.^{19,20}

Limitations

The study limitations included the presence of illiterate patients in the study. However, the trained researcher provided assistance to patients such that they could understand the questions. The problem existed in similar studies because of rural and elderly patients, which should be considered for generalization of the results. Another limitation was the relationship between coping strategies with pain and the personality characteristics and environmental factors of patients. This could affect exact responses to questions. It has been proposed that in completing researches, these factors should be investigated in cancer patients and be compared with the results of the present study.

Conclusion

The results showed that the majority of patients used the coping strategy of praying and hoping. People with anxiety and severe depression and religious negative coping used more negative coping strategies for pain. The results have shown that pain intensity of patients had no relationship with type of coping mechanisms and coping with pain. This indicated that patients did not know the mechanisms used to cope for pain control that arose from diseases and the situations for using them. Designing and performing educational programs can be solutions to cope with pain to increase awareness. Applying these strategies effectively improves pain management, control, and coping with the disease and results in increased life quality and disease self-management in addition to decreasing psychological and communication problems.

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Conflict of Interest

No conflict of interest is declared.

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