

Pain Beliefs and Perceptions and Their Relationship with Coping Strategies, Stress, Anxiety, and Depression in Patients with Cancer

Elahe Ramezanzade Tabriz, Reza Mohammadi¹, Gholam Reza Roshandel², Razieh Talebi³

Department of Medical-Surgical Nursing, School of Nursing and Midwifery, Mashhad University of Medical Science, Mashhad, ¹Sayyad Shirazi Hospital, Golestan University of Medical Sciences, ²Golestan Research Center of Gastroenterology and Hepatology, Golestan University of Medical Sciences, ³Nursing Research Center, Buye School of Nursing and Midwifery, Golestan University of Medical Sciences, Gorgan, Iran

Abstract

Objective: The current study was conducted aiming at the investigation of pain beliefs and perceptions and their relationship with coping strategies, stress, anxiety, and depression in patients with cancer. **Materials and Methods:** Study design: This was a descriptive-correlational and cross-sectional study. Data collection tools – Demographic questionnaire, Pain Beliefs and Perceptions Inventory, Pain Coping Strategies Questionnaire (Rosenstiel and Keefe), and Depression, Anxiety, and Stress Scale were used in this study. The dataset was analyzed using descriptive and inferential statistics that included the chi-square and one-way ANOVA with software SPSS v.16 analysis. **Results:** Findings of the study indicated that the most common belief about pain in patients is pain permanence. In addition, the most commonly used strategies for coping pain in patients were praying/hoping (25.82 ± 7.86) and self-statements (22.3 ± 10.34). Results indicated that there is a significant difference between pain coping strategies and pain control ($P = 0.02$). No significant difference was observed between the pain beliefs and the coping strategies ($P = 0.15$). Depression and anxiety level of patients was estimated as moderate, and their stress was estimated as mild. It was specified that there is a significant difference between self-blame belief and depression of patients ($P = 0.01$). **Conclusion:** Understanding and identifying emotional-psychological variables in patients with chronic pains may provide a basis for implementing educational cognitive-behavioral programs for patients and the ground for increasing the ability to control the pain in nonpharmacological methods leading to promoting quality of life in these patients.

Keywords: Chronic pain, depression, neoplasm, pain management

INTRODUCTION

One of the most common and disturbing symptoms in patients with cancer is a pain,^[1,2] which may have adverse impacts on quality of life in these patients. Despite the increasing growth of analgesia and new clinical guidelines for pain control, some patients with moderate-to-severe pain do not receive adequate treatment^[3] so that about 17%–70% of patients with cancer have reported the experience of severe pain.^[4,5]

Based on the biopsychosocial approach to pain, pain experience results from the complex interaction between nervous and physiological (central and peripheral) system, psychological factors, and social variables. In the pain perception model proposed by Linton, reaction toward the pain is manifested as behavior following one's awareness to a harmful stimulus,

its evaluation, and interpretation. This process is influenced by its outcomes and is limited by the environment (cultural and social variables). According to this model, psychological factors play a significant role in pain experience and reaction to it. Following attention to the stimuli and its interpretation as a threat, some strategies are adapted for copying it by the individual. These strategies may firstly be activated cognitively and involve one's cognitive techniques, such as ignoring or visualizing, or they may be manifested as explicit behavioral

Address for correspondence: Mrs. Razieh Talebi, Nursing Research Center, Buye School of Nursing and Midwifery, Golestan University of Medical Sciences, Postal Code: 4934174515, Gorgan, Iran. E-mail: talebi.gr@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Tabriz ER, Mohammadi R, Roshandel GR, Talebi R. Pain beliefs and perceptions and their relationship with coping strategies, stress, anxiety, and depression in patients with cancer. *Indian J Palliat Care* 2019;25:61-5.

Access this article online

Quick Response Code:



Website:
www.jpalliativecare.com

DOI:
10.4103/IJPC.IJPC_137_18

techniques such as relaxation or self-statements. To this end, it is believed that pain should be analyzed as a behavior. Most pain behaviors are learned and influenced by the environment and emotions. Beliefs and attitude, expectations, cognitive processes, emotions (anger, anxiety, fear, and depression), and their control by the patient are the basic emotional and cognitive aspects in the pain interpretation stage.^[6] Beliefs are actually the thoughts, cognitive evaluations, and understating of the individuals about the events, which form the individual's general or specific perception of the environment and shape the meaning of his experiences.^[7] Evidence indicates that negative beliefs about the pain influence the treatment outcomes in treating chronic pains,^[8,9] and negative beliefs may cause converting the acute pain to the chronic pain^[10] and may create adverse impacts on the general health, self-efficacy, and performance of patients.^[11]

On the other hand, it has been specified that maladaptive coping strategies such as catastrophizing are associated with more severe pain level,^[12] high-level depression,^[13] increased risk of chronic pain, disability, and lower levels of recovery,^[6] while patients with adaptive coping strategies have less pain and less stress.^[12] Fear, anxiety, and depression are also important emotional variables that affect the experience of pain^[6] and often occur with it.^[14] Studies show that pain severity^[15-17] and its duration^[16,18] are associated with increased risk of depression and its degree, and patients with depression and anxiety experience more severe pain.^[19] As mentioned, cognitive and emotional factors in social and cultural aspects affect the experience of pain; however, the relationship between these factors is not completely clear. Thus, awareness and perception of these factors by the health-medical team may provide ground for formulating more effective nonpharmacological methods in controlling pain in patients with cancer. The current study was conducted aiming at the investigation of pain beliefs and perceptions and relationship with coping strategies, stress, anxiety, and depression in patients with cancer.

MATERIALS AND METHODS

This descriptive, correlational, cross-sectional study was conducted in 2016 on patients with cancer referring to educational hospitals of Mashhad and Neyshabour cities. The research population included all patients with cancer referring to Omid Hospital in Mashhad and 22 Bahman Hospital in Neyshabour city. Given the reviewed literature,^[20] total mean score of coping strategies in patients with cancer was estimated at 65.8 ± 29.8 . Considering accuracy as 3.29 at confidence level

as 95% and using the formula, $n = \frac{Z^2_{(1-\alpha/2)} \delta^2}{d^2}$ the final sample

size was determined as 370. Inclusion criteria for the samples included as follows: willingness to participate in research, having at least 18 years of age and maximum 70 years of age, ability to read and write, having adequate intelligence to answer questions, having at least 6 months of cancer diagnosis, having a definitive diagnosis of cancer based on pathologic outcomes

and approved by the oncologist, absence of major psychiatric illness (which does not impede the ability of the patient to evaluate the reality, such as schizophrenia or bipolar disorder), or taking medication and psychosocial drugs.

Sampling was done using convenience method considering the frequency of referring to the mentioned hospitals. Data were collected using self-reporting method and questionnaire. Data collection tools for answering the research questions included a demographic questionnaire (age, gender, occupation, education, marital status, duration of illness, treatments, and type of cancer), Pain Beliefs and Perceptions Inventory (PBPI), Pain Coping Strategies Questionnaire (Rosenstiel and Keefe), and Depression, Anxiety, and Stress Scale (DASS).

PBPI investigates certain beliefs about pain. This 15-item scale scored on a 4-point Likert scale from "completely agree" to "completely disagree" and measures four dimensions of pain beliefs: (1) Permanence, the belief that pain is permanent in future. (2) Self-blame, the belief that one is to blame for one's pain. (3) Constancy, the belief that pain is constant in present. (4) Mystery, the belief that pain is confusing and mysterious. For mystery domain, score range is between -6 and 6, and in the other domains, their score ranges are between -8 and 8. The higher score on each dimension indicates patient's maladaptive beliefs and perceptions about pain. This tool became reliable and validated in Iran, and internal consistency between its factors was estimated as 0.70-0.77.^[21]

Coping Strategies Questionnaire (Rosenstiel and Keefe) measures 42 pain coping strategies. These strategies are classified in the form of six cognitive strategies (distraction, re-evaluation of pain sensations, self-statements, ignoring pain sensations, catastrophizing, and praying/hoping), and one behavioral strategy (increased behavioral activity). Each of the seven coping strategies consists of six statements; the participants in the study were asked to carefully read each statement and use a 7-point scale (0-6) so that it is shown to what extent they use any of the strategies when faced with pain (never - 0, sometimes - 3, and always - 6). In addition to these seven cognitive-behavioral strategies, the questionnaire contains two subscales, which measure the ability to control and reduce pain using the strategies. Scores of six statements are summed, and a combined score is obtained for each coping strategy, which varies between 0 and 36. Higher scores in each coping strategy represent the higher use of the respective strategy coping with the chronic pain. In addition, the questionnaire gets research samples to use a 7-point scale (0-6) to show to what extent they can reduce their pain using the pain coping strategies and to what extent they can control over their pain (never - 0, sometimes - 3, and always - 6). This questionnaire was firstly normalized in patients with chronic back pain.^[22] Then, its reliability and validity were confirmed in the different studies.^[23,24]

DASS was used for measurement of the level of these unpleasant emotions. This scale was developed by Lovibond in 1995, which has 42 items, and it is scored as 4-point Likert

scale. In this scale, the items are score from 0 to 3 (never = 0, somehow = 1, highly = 2, and very high = 3). Scoring in DASS-42 scale is so that for normal, mild, moderate, severe, and very severe depression, it is interpreted as 0–9, 10–12, 13–20, 21–27, and above 28. It is scored as follows in anxiety subscale: normal (0–7), mild (8–9), moderate (10–14), severe (15–19), and very severe (above 20). It is scored as follows in stress subscale: normal (0–14), mild (15–18), moderate (19–25), severe (26–33), and very severe (above 34).^[25] The correlation coefficient was estimated as 0.97 for depression and 0.94 for anxiety in the studies,^[26] and the validity of this questionnaire was confirmed using concurrent validity.^[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). It should be noted that statistical tests were done at significance level 0.05.

Ethical considerations

Following approval by the Ethics Committee of Neyshabour University of Medical Sciences and taking permissions and coordination with research environment's authorities, the researchers collected data. After describing research goals and patient's rights for decision-making for entering the study and responding to their questions, written informed consent was taken from the participants. The patients were ensured that their information would be kept confidential.

RESULTS

Research findings showed that 181 participants (49.9%) were male and 182 ones (50.1%) were female, and their mean age was 48.54 ± 14.45 . The higher cancer rates among patients were as follows: colon (15.6%), gastric (10.4%), lungs (7.2%), and breast (7%). The disease duration was 18.59 ± 9.41 months. About 69.2% of patients underwent combined treatments such as surgery, radiotherapy, and chemotherapy [Table 1].

The results showed that the most common pain belief in cancer patients of these study was the pain permanence belief [Table 2]. We observed no significant difference between pain beliefs and perception and any of demographic variables in patients with cancer ($P > 0.05$).

The most commonly used strategy for coping pain in patients was praying/hoping (25.82 ± 7.86) and self-statements (22.3 ± 10.34) [Table 3]. In addition, it was specified that there is a significant difference between pain coping strategies and pain control ($P = 0.02$) so that patients who used self-statements (45.9%) and ignoring pain sensations (42.9%) strategies experienced the highest level of pain control. While using catastrophizing strategy in patients accompanied by the lower levels of pain control.

Results for the relationship between pain beliefs and coping strategies indicated that patients who used adaptive praying/hoping strategy more believed in mysteriousness about

Table 1: Frequency distribution of personal and disease characteristics in patients with cancer referring to Mashhad Omid Hospital and Neyshabour 22 Bahman Hospital (2016)

Characteristics	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)
Education	Literate	119 (32.8)
	Secondary school	135 (37.3)
	High school	74 (20.5)
	University	34 (9.4)
Job	Employed	78 (21.5)
	Unemployed	233 (64.2)
	Retired	52 (14.3)
Economic status	High	73 (20.1)
	Middle	115 (31.7)
	Low	175 (48.2)
Treatment	Surgery	16 (4.4)
	Chemotherapy	93 (25.6)
	Radiotherapy	3 (0.8)
	Combination (surgery, chemotherapy, and radiotherapy)	251 (69.2)

Table 2: Mean and standard deviation of the use of pain beliefs and perceptions in patients with cancer referring to Omid hospital in Mashhad and 22 Bahman Hospital in Neyshabour city (2016)

Pain beliefs and perceptions	Pain permanence	Self-blame	Pain consistency	Mysteriousness
Mean and SD	1.01±2.44	-1.95±3.29	-1.19±2.99	-2.52±3.70
No. (%)	253 (69.69)	27 (7.43)	49 (13.49)	33 (9.09)

their pain and patients who used the nonadaptive strategy of catastrophizing believed in pain permanence in the future. Of course, this relationship was not statistically significant ($P = 0.15$). In addition, it was specified that there is no significant difference between pain control and pain belief and perception about pain. Findings of the research indicated that mean and SD of scores of stress, anxiety, and depression in these patients is 16.38 ± 0.8 , 14.33 ± 7.40 , and 15.22 ± 7.90 . Given the scale's scoring, depression and anxiety of patients were at a moderate level and their stress was at a mild level. The relationship between these unpleasant emotions and pain beliefs showed that there is a significant difference between

Table 3: Mean and standard deviation of the use of pain coping strategies in patients with cancer referring to Omid Hospital in Mashhad and 22 Bahman Hospital in Neyshabour city (2016)

Pain coping strategies	Praying/hoping	Self-statements	Re-evaluation of pain sensations	Ignoring pain sensations	Distraction	Catastrophizing
Mean±SD	25.82±7.86	22.13±10.34	18.18±8.68	18.06±9.81	17.37±8.66	16.55±6.65

SD: Standard deviation

self-blame and depression level ($P = 0.01$) so that individuals with higher self-blame feeling showed higher levels of depression. No significant difference was observed between patients' stress, anxiety, and their belief about pain ($P > 0.05$).

DISCUSSION

In recent years, understanding cognitive and psychological aspects of pain have been considered for promoting nonpharmacological interventions. Important variables such as beliefs, emotions, and coping strategies have been identified in the proposed psychological-cognitive models. However, there is few know about the relationship of these factors. The current study was conducted aiming at the investigation of pain beliefs and perceptions and relationship with coping strategies, stress, anxiety, and depression in patients with cancer.

Research findings indicated that most study participants believed in pain permanence in the future, and they used praying/hoping and self-statements as commonly coping strategies. Consistent with these findings, other studies in this regard showed also that praying/hoping and self-statements strategies were more used than other pain coping strategies by patients with chronic pain.^[13,28] Results showed that patients who used adaptive coping strategies such as ignoring pain sensations, praying/hoping, and self-statements are more able to reduce and control the pain compared to those who used nonadaptive strategies such as catastrophizing. Align with these findings, other studies also indicate that the presence of high level of catastrophizing in patients related with severe pain levels, increased incidence of chronic pain, pain sensitivity, physical disability, poor treatment outcomes, and low quality of life.^[29-31] Thus, it seems that the type of the coping strategy used by the patient may influence pain control, so that using nonadaptive strategies may lead to poor medical outcomes in patients.^[32,33] To this end, inactive strategies such as catastrophizing and avoidance are recognized as important predictors of the problems of adaptation to chronic pain and consequently the occurrence of more psychological issues in the patients.^[32-34]

According to research findings, it was found that patients with pain permanence belief in the future mostly use the nonadaptive strategy of catastrophizing. Although this difference was not statistically significant and it is consistent with findings in previous studies,^[21,35] evidence indicates that pain permanence in future, pain consistency, and mysteriousness may have negative impacts on the patient's motivation for using adaptive coping strategies and more effective pain controls.^[21] According to fear-avoidance model, the individual's belief

about the ability to overcome pain is a key factor for effective adaption with pain and directs the patient toward behaviors promoting recovery. While existence of beliefs such as catastrophizing and uncontrolling of pain is associated with high level of depression, disability, and pain.^[36] Findings of the current study showed that patients had moderate level depression and anxiety and mild level stress. Other studies in this regard also reported moderate-to-severe levels of depression in patients with cancer.^[37,38] This study revealed that self-blame belief in a patient is associated with higher levels of depression. Consistent with these results, the study by Shekhawat *et al.* on patients with head-and-neck cancers also showed that patients with self-blame belief and pain consistency belief experienced a high level of depression.^[39] Tavoli *et al.* in their work in patients with cancer found that pain permanence and pain consistency beliefs are associated with higher levels of depression in the patient.^[40]

Recommendations

Considering the fact that the current research is a correlational cross-sectional study, causal relationship between pain beliefs and variables under study cannot be specified; thus, findings of the current study should be interpreted cautiously. To this end, conducting experimental research works for determining relationships between cognitive-psychological factors are recommended.

Limitations

The presence of illiterate patients in the research work is one of the research limitations. Thus, the trained research assistant was used for clarifying and explaining the questions. This problem was also present in similar studies because of nonurban and old patients. Therefore, a generalization of findings should be done with caution.

CONCLUSION

Findings of the current study indicated that patients with cancer, like other patients with chronic pains, more use the adaptive strategy of praying/hoping. Utilization of adaptive coping strategies such as praying/hoping, self-statements, and distraction may play an effective role in the reduction of pain severity and increased ability for pain control. On the other hand, such beliefs as pain permanence in future and self-blame in these patients may be associated with adverse effects such as depression, using maladaptive strategies, and ultimately poor pain control. Therefore, it seems that understanding and perception of cognitive-psychological system of patients and paying attention to their pain control behaviors may provide a

ground for implementing effective educational programs and promoting quality of nonpharmacological pain control methods.

Acknowledgment

The current research was approved by ethics code of IR.NUMS. REC.1394.06 in research council of Neyshabour University of Medical Sciences. All patients are appreciated for their cooperation in this research. In addition, the medical staff of Omid Hospital and Reza Clinic in Mashhad and 22 Bahman Hospital in Neyshabour Hospital are also highly appreciated.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Dalal S, Hui D, Nguyen L, Chacko R, Scott C, Roberts L, *et al.* Achievement of personalized pain goal in cancer patients referred to a supportive care clinic at a comprehensive cancer center. *Cancer* 2012;118:3869-77.
- Hui D, Bruera E. A personalized approach to assessing and managing pain in patients with cancer. *J Clin Oncol* 2014;32:1640-6.
- Kwon JH. Overcoming barriers in cancer pain management. *J Clin Oncol* 2014;32:1727-33.
- Enting RH, Oldenmenger WH, Van Gool AR, van der Rijt CC, Sillevius Smitt PA. The effects of analgesic prescription and patient adherence on pain in a Dutch outpatient cancer population. *J Pain Symptom Manage* 2007;34:523-31.
- Yun YH, Mendoza TR, Heo DS, Yoo T, Heo BY, Park HA, *et al.* Development of a cancer pain assessment tool in Korea: A validation study of a Korean version of the brief pain inventory. *Oncology* 2004;66:439-44.
- Linton SJ, Shaw WS. Impact of psychological factors in the experience of pain. *Phys Ther* 2011;91:700-11.
- Iles RA, Davidson M, Taylor NF. Psychosocial predictors of failure to return to work in non-chronic non-specific low back pain: A systematic review. *Occup Environ Med* 2008;65:507-17.
- Somers TJ, Shelby RA, Keefe FJ, Godiwala N, Lumley MA, Mosley-Williams A, *et al.* Disease severity and domain-specific arthritis self-efficacy: Relationships to pain and functioning in patients with rheumatoid arthritis. *Arthritis Care Res (Hoboken)* 2010;62:848-56.
- Mitchell LA, MacDonald RA. Qualitative research on pain. *Curr Opin Support Palliat Care* 2009;3:131-5.
- Ramond A, Bouton C, Richard I, Roquelaure Y, Baufreton C, Legrand E, *et al.* Psychosocial risk factors for chronic low back pain in primary care – A systematic review. *Fam Pract* 2011;28:12-21.
- Main CJ, Foster N, Buchbinder R. How important are back pain beliefs and expectations for satisfactory recovery from back pain? *Best Pract Res Clin Rheumatol* 2010;24:205-17.
- Prasertsri N, Holden J, Keefe FJ, Wilkie DJ. Repressive coping style: Relationships with depression, pain, and pain coping strategies in lung cancer outpatients. *Lung Cancer* 2011;71:235-40.
- Rezaei S, Afsharnezhad T, Kafi M, Solati R, Falah Kohan S. The relationship between depression and coping strategies in chronic back pain patients. *Daneshvar Med* 2009;16:63-74.
- Asmundson GJ, Katz J. Understanding the co-occurrence of anxiety disorders and chronic pain: State-of-the-art. *Depress Anxiety* 2009;26:888-901.
- Ciarabella A, Poli P. Assessment of depression among cancer patients: The role of pain, cancer type and treatment. *Psychooncology* 2001;10:156-65.
- Kelsen DP, Portenoy RK, Thaler HT, Niedzwiecki D, Passik SD, Tao Y, *et al.* Pain and depression in patients with newly diagnosed pancreas cancer. *J Clin Oncol* 1995;13:748-55.
- Sist TC, Florio GA, Miner MF, Lema MJ, Zevon MA. The relationship between depression and pain language in cancer and chronic non-cancer pain patients. *J Pain Symptom Manage* 1998;15:350-8.
- Glover J, Dibble SL, Dodd MJ, Miaskowski C. Mood states of oncology outpatients: Does pain make a difference? *J Pain Symptom Manage* 1995;10:120-8.
- Bair MJ, Wu J, Damush TM, Sutherland JM, Kroenke K. Association of depression and anxiety alone and in combination with chronic musculoskeletal pain in primary care patients. *Psychosom Med* 2008;70:890-7.
- Utne I, Miaskowski C, Bjordal K, Paul SM, Jakobsen G, Rustoen T, *et al.* Differences in the use of pain coping strategies between oncology in patients with mild vs. moderate to severe pain. *J Pain Symptom Manage* 2009;38:717-26.
- Asghari Moghadam MA, Karimzade N, Amarloo P. The role of beliefs about pain in adjustment to cancer. *Daneshvar Raftar* 2005;12:1-22.
- Rosenstiel AK, Keefe FJ. The use of coping strategies in chronic low back pain patients: Relationship to patient characteristics and current adjustment. *Pain* 1983;17:33-44.
- Asghari Moghadam MA, Golak N. The role of pain coping strategies in adjustment to chronic pain. *Daneshvar Raftar* 2005;12:1-23.
- Karamozian M, Bagheri M, Darekordi A, Aminzadeh M. Effectiveness of cognitive-behavioral therapy, stress management, mental health and coping with pain in patients with breast cancer. *Iran Breast Dis* 2014;7:56-66.
- Asghari Moghadam MA, Saed F, Dibajnia P, Zangane J. A preliminary study of validity and reliability of depression, anxiety and stress in non-clinical samples. *J Shahed Univ* 2008;15:23-38.
- Musa-rezaie A. Effect of a Spiritual Care Program on Levels of Stress, Anxiety, and Depression in Patients With Leukemia in Seyed-Al-Shohada Hospital, Isfahan University of Medical Sciences [Dissertation]. Isfahan (Iran): Isfahan University of Medical Sciences; 2012. p. 86.
- Afzali A, Delavar A, Borjali A, Mirzamani M. Psychometric properties of dass-42 as assessed in a sample of Kermanshah high school students. *J Res Behav Sci* 2007;5:81-92.
- Cabak A, Dąbrowska-Zimakowska A, Truszczyńska A, Rogala P, Laprus K, Tomaszewski W, *et al.* Strategies for coping with chronic lower back pain in patients with long physiotherapy wait time. *Med Sci Monit* 2015;21:3913-20.
- Papaioannou M, Skapinakis P, Damigos D, Mavreas V, Broumas G, Palgimesi A, *et al.* The role of catastrophizing in the prediction of postoperative pain. *Pain Med* 2009;10:1452-9.
- Edwards RR, Cahalan C, Mensing G, Smith M, Haythornthwaite JA. Pain, catastrophizing, and depression in the rheumatic diseases. *Nat Rev Rheumatol* 2011;7:216-24.
- Khan RS, Ahmed K, Blakeway E, Skapinakis P, Nihoyannopoulos L, Macleod K, *et al.* Catastrophizing: A predictive factor for postoperative pain. *Am J Surg* 2011;201:122-31.
- Snelgrove S, Lioffi C. An interpretative phenomenological analysis of living with chronic low back pain. *Br J Health Psychol* 2009;14:735-49.
- Ramirez-Maestre C, Esteve R, López AE. Cognitive appraisal and coping in chronic pain patients. *Eur J Pain* 2008;12:749-56.
- Snelgrove S, Lioffi C. Living with chronic low back pain: A meta-synthesis of qualitative research. *Chronic Illn* 2013;9:283-301.
- Gilasi HR, Omid A, Gharlipour Z, Tavassoli E, Haghiri AH, Sorkhabi P. Role of coping strategies and beliefs related to pain in disability of a migraine. *Med Sci* 2014;23:5963.
- Vlaeyen JW, Linton SJ. Fear-avoidance and its consequences in chronic musculoskeletal pain: A state of the art. *Pain* 2000;85:317-32.
- Goudarzian AH, Jafari A, Bagheri-Nesami M, Zamani F. Understanding the link between depression and pain perception in Iranian cancer patients. *World Cancer Res J* 2017;4:e880.
- Linden W, Vodermaier A, Mackenzie R, Greig D. Anxiety and depression after cancer diagnosis: Prevalence rates by cancer type, gender, and age. *J Affect Disord* 2012;141:343-51.
- Shekhawat L, Kumar P. Psychological distress in relation to quality of life and pain beliefs in head and neck cancer patients. *Indian J Health Wellbeing* 2015;6:548-52.
- Tavoli A, Montazeri A, Roshan R, Tavoli Z, Melyani M. Depression and quality of life in cancer patients with and without pain: The role of pain beliefs. *BMC Cancer* 2008;8:177.