

# The Level of Pain and Anxiety and Depression and its Relationship to the Coping Strategies Used by a Sample of Cancer Patients in Jordan

## مستوى الألم والقلق والاكتئاب وعلاقته بإستراتيجيات التكيف لدى عينة من مرضى السرطان في الأردن

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### Abstract

**Background:** Pain-related cancer creates significant physical and psychosocial burdens for patients. In Jordan there is limited information about patients' with cancer complaints of pain and their coping strategies for this kind of pain.

**Aim:** The aim of this study is to assess cancer-related pain, identify coping strategies used by a sample of Jordanian patients with cancer experiencing pain, and, to determine the associations between pain, anxiety and depression as well as the association between pain, anxiety, depression, and coping strategies.

**Method:** A cross-sectional, descriptive, correlation design utilizing interview and structured questionnaire with a sample of 100 patients with cancer at the pain clinic of a specialized cancer center in Jordan. The Pain Rating Scale, Hospital Anxiety and Depression Scale and Cognitive Coping Strategies Inventory were used. Data were analyzed using descriptive, Chi square and multivariate analyses to detect variable associations.

**Results:** Eighty-three patients reported pain of  $\geq 5$ . 82 patients reported anxiety  $\geq 8$  and depression  $\geq 8$  on HADS. There was significant association between pain, anxiety and depression ( $p < .05$ ). Of the different coping strategies employed there was significant association between pain and anxiety and depression and catastrophizing as coping strategies ( $p < 0.05$ ).

**Conclusion:** While many psychological factors influence patients' perception of pain and their resultant behavior this study suggests it would be effective to introduce adaptive coping strategies before patients' pain reached critical levels to reduce levels of anxiety and depression.

**Implications:** Pain management should include assessment of pain and psychosocial factors often associated with pain.

**Keywords:** Pain, Anxiety, Depression, Coping strategies, Cancer

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## المخلص

يخلق الألم المرتبط بالسرطان أعباء جسدية ونفسية اجتماعية جسيمة للمرضى في الأردن، ولكن هناك محدودية في المعلومات حول شكاوى مرضى السرطان و إستراتيجيات مواجهة الألم لهذا المرض .

هدفت الدراسة إلى تقييم الألم المرتبط بالسرطان، وتحديد إستراتيجيات المواجهة التي تستخدمها عينة من المرضى الأردنيين المصابين بالسرطان والذين يعانون من الألم. وأيضاً هدفت لتحديد الارتباط بين كل من الألم والقلق والاكتئاب وإستراتيجيات المواجهة.

**الإجراءات:** تم استخدام التصميم المستعرض، الوصفي، وذلك من خلال المقابلة والاستبيان المنظم مع عينة من 100 مريض مصاب بالسرطان في عيادة الألم من مركز الحسين للسرطان في الأردن. استخدمت قائمة تقييم الألم، ومقياس قلق واكتئاب المستشفى، ومقياس إستراتيجيات التكيف المعرفية في جمع البيانات.

**النتائج:** سجل ثلاثة وثمانون مريضاً معاناتهم من الألم  $\leq 5.82$  وذكر  $\leq 8$  أنهم يعانون من القلق، أما الاكتئاب  $\leq 8$  على مقياس. وقد كان هناك ارتباط كبير بين الألم والقلق والاكتئاب (ع  $>0.05$ ) من إستراتيجيات المواجهة المختلفة كان هناك ارتباط كبير بين الألم والقلق والاكتئاب والكاثية كإستراتيجيات مواجهة (ع  $>0.05$ ).

**الخلاصة:** في حين أن العديد من العوامل النفسية تؤثر على إدراك المرضى للإحساس بالألم وسلوكهم الناتج، تفترض هذه الدراسة أنه يمكن أن يكون فعالاً تقديم إستراتيجيات التكيف قبل أن يصل الألم لدى المرضى لمستويات حرجة وذلك للحد من شدة القلق والاكتئاب لديهم. وينبغي أن تتضمن إدارة الألم تقييم للعوامل النفسية والاجتماعية والتي غالباً ما ترتبط بالألم.

**الكلمات المفتاحية:** الألم، والقلق، والاكتئاب، وإستراتيجيات التكيف، والسرطان.

## Introduction

Cancer is an example of a chronic illness affecting all aspects of an individual's life. One of the most common symptoms experienced by patients with cancer is pain, whether it is the result of the disease itself, cancer-related diagnostic procedures, cancer-related infection, or disease-related treatments. Pain-related cancer causes significant physical and psychosocial burdens; it is a unique personal experience markedly impacting the quality of an individual's life. It limits a person's functional ability, impairs the quality of life and possibly leads to depression and anxiety. Pain is a multidimensional problem, which can be experienced at several levels while known only to the individuals who suffer it. If a patient's prior experience with pain was distressing the patient's expectations will be the same toward the new experience and would reveal fear and uncertainty of pain management.

Previous research focused on understanding and exploring the unique experience of patients with pain in order to provide suitable psychological interven-

tions (Norris, R., 2009), (Porter L, Keefe F., 2011). Psychologists also reported studying maladaptive pain beliefs of patients and its relation to poor physical and psychosocial functioning (Porter L, Keefe F., 2011) (Keefe F, Abernethy A, Campbell L., 2005) as well as the negative impact of pain on patient adherence and treatment response, which may lead to high level of disability (Walsh D., Radcliffe J., 2002).

Reaction to pain is commonly studied under the term "pain coping" defined as "people's behavioral and cognitive attempts to manage or tolerate pain and its effects"(Brown G., Nicassio P., 1987)(Jensen M., Turner J., Romano J., Karoly P., 1991). Cognitive and behavioral reactions to pain are significant because they affect patient experiences of pain, functional capacity, psychological functioning and may be acquiescent to change brought about by interventions. Different types of coping strategies used by patients in dealing with their pain may be a result of their chronic illness, too (Craighead W., Nemeroff C., 2001).

The study was conducted shortly after the founding

of the pain clinic at the King Hussein Cancer Center, where he had a great interest in how to deal with the pain that has always been a concern for patients and doctors. Since the pain has a significant impact on the psychological state, it was important to adapt the study in cancer patients who suffer from pain, the study of the relationship of that more prevalent mental illnesses with cancer (anxiety and depression).

According to Jordan Cancer Registry (2008) the number of reported cancer cases, in Jordan, was 4,606. Managing cancer pain is not a new idea in Jordan. Anesthesiologists, the early advocates of pain management, initially treated using anesthetics along with discussing the importance of opioids and other narcotics for controlling patient pain. King Hussein Cancer Center (KHCC), a well-known Jordanian cancer center, initiated their pain center-wide pain service after an anesthetist began a successful pain treatment program as a consultant to adult patients. Once this intervention became successful attending pediatricians then organized their own pain management program, which in turn was followed by the creation of anesthesia and pain management department in 2003. A Palliative and Hospice Care unit was subsequently established. Pain management was a fragmented service in the beginning and up to the formation of a pain committee in 2008. The committee moved to establish a pain program to provide excellent quality for patients with cancer experiencing pain. This program helped, in turn, to create a Jordan Pain Chapter in the International Association for the Study of Pain (IASP) in (2009), which then changed its name to "Jordan Pain Society" in 2010. The current pain team at KHCC is comprised of multidisciplinary providers including Anesthesiology, Palliative and Hospice Care Personnel, Pediatric Oncologist, Adult Oncologist, Surgeon, Clinical Nurse and Nurse Educator, Psychologist, Pharmacist, Physical Medicine.

In Jordan the picture is unclear regarding cancer patient complaints of pain and their coping strategies. The objectives of the current study are to assess pain and identify coping strategies utilized by a sample of Jordanian cancer patients in pain. In addition, the study will determine associations between pain, anxiety and depression as well as the between pain, anxiety, depression, and coping strategies. Our study is

expected to contribute to a better understanding of the coping strategies used by Jordanian patients with cancer suffering from pain as well as our understanding of patient suffering. This study will provide the foundation for future psychological interventions..

## Literature review

Pain is a complex experience affecting patients' daily life. It limits their functional abilities as well as impacting their quality of life (Kraaimaat F., Evers A., 2003). The International Association of Pain defines pain as "unpleasant sensory and emotional experience associated with actual or potential tissue damage" (IASP, 2008). Individuals with chronic illness may not experience pain the same way as another individual of the same age with same diagnosis, which means the same medical condition may be tolerable to one person and overwhelming to another (Larsen P., Lubkin I., 2007). Cancer is a prime example of chronic illness where some of its symptoms or its treatments may or may not elicit pain for the patient.

Individuals usually describe different thoughts and behaviors when pain is experienced. What may be adaptive for one individual may be maladaptive for another. Maladaptive behaviors of chronic pain may have a negative impact on patient treatment adherence and response (Cook A., Degood D., 2006), possibly leading to a high level of disability. Cognitions, appraisals, coping responses and social environments are variables demonstrating significant relationships with indices of physical and psychological functioning in a number of chronic pain populations (IAPS, 2008).

There is a strong link between cancer pain and psychological factors such as mood, distress, depression and anxiety (Jensen M., Turner J., Romano J., Karoly P., 1991).. Pain might lead to anxiety, which may be related to many factors such as uncertainty of pain occurrence, especially if the pain is difficult to manage as well as painful medical or health procedures, especially if inadequate pain relief is used (Strong J., Unruh A., Wright A., Baxter G., 2001). In addition

negative thinking associated with pain is a contributing factor in patient depression (Spinhoven P, Kuile M., Kole-Snijders A., Mansfeld H., Ouden D., Vlaeyen J., 2004). McWilliams and his colleagues analyzed data from the National Comorbidity Survey (USA) finding adults with chronic pain were more likely to have concurrent anxiety and depression than those without chronic pain. However they also reported the association between pain and anxiety was greater than the association between pain and depression even when controlling for effects of other variables (McWilliams L., Cox B., Enns M., 2003).

Patient personal experiences, which impact emotions, then are demonstrated through their behaviors. These same thoughts and behaviors, when utilized to deal with a situation specific to such personal experiences, may be termed coping strategies (Dubey A., Agarwal A., 2007). Coping strategies can be classified into active (that is controlling or functioning with pain) or passive (that is withdrawal, avoidance, and negative self-statements about pain). Additionally coping strategies can be divided into cognitive (such as imagination, distraction, negative self statements) or behavioral (engaging in activities or planning rest breaks and some times abusing medications) strategies (Craighead W., Nemeroff C., 2001). The cognitive component of pain involves anticipation and attention, whereas behavioral component refers to the expression of pain by the patients either verbal or otherwise (Francesca F, Bader P, Echtle D, Giunta F, Williams J. 2007). These cognitive and or behavioral aspects play a key role in pain perception and how patients adjust to pain.

There are different types of coping strategies used by patients to deal with pain and other demands of this unique chronic illness. The type of coping strategy employed, though, contours the judgment with life in general. However, it does not mean coping strategies used with pain, although important, necessarily resolve the problem (Dubey A., Agarwal A., 2007). Active coping strategies (efforts to function despite the pain) play a part in individual's perception of quality of life. This type of strategy is a component of both cognitive and behavioral reactions to pain. They are significant because they may impact patients' functioning capacity, psychological functioning yet may

be amenable to change brought about by interventions (Kraaimaat F., Evers A., 2003).

Psychological approaches are an integral part of care for cancer patients with pain complaints. Patients would benefit from psychological assessment and support, which would lead to improvement of patients' quality of life. Psychological interventions may impact a patient's sense of confidence about their abilities as well as their self-efficacy to control pain (IAPS, 2008). As a result, a patient's psychological distress may decrease leading to less pain and subsequent improved psychological wellbeing. Different psychological approaches are possible, such as cognitive-behavioral interventions, which may help decrease a patient's perception of distress engendered by pain. Relaxation methods may reduce muscular tension and emotional arousal and enhance pain tolerance. Additional similar approaches also may reduce anticipatory anxiety leading to avoidant behaviors and or lessen distress associated with pain (Francesca F, Bader P, Echtle D, Giunta F, Williams J. 2007). Adapting successfully to pain associated with chronic illness includes the conviction a meaningful quality of life is worth the struggle; however the suffering caused by the disease is an innumerable factor impacting the totality of a person's quality of life (Larsen P., Lubkin I., 2007).

The study addresses the following questions:

1. What is the level of pain, depression and anxiety among a sample of Jordanian patients with cancer?
2. What are the most common coping strategies patients with cancer use to cope with pain?
3. Are there associations between patients' levels of pain, and anxiety and depression?
4. Are there associations between patients' levels of pain, anxiety and depression and coping strategies used?

## Method

### Design

Due to the limited number of epidemiological studies and surveys in Jordan it is important to have descriptive studies to develop baseline data supporting the development of culturally suitable interventions with Jordanian patients. Therefore, a cross-sectional, descriptive, correlation design, utilizing interview using structured questionnaire was utilized, which was anticipated to be more in line with the current study focus.

### Setting

The study was conducted in a well-known specialized cancer center in Jordan. The center specializes in screening, and treating cancer with 167 beds and 170 clinics. The health team at the center includes board certified oncologists, surgeons, radiologists, radiation oncologists, pathologists, nurses, and ancillary services. The team cooperatively works to treat patients from diagnosis to the end of the treatment and follow-up.

### Population and Sample

The study population includes all patients with cancer complaining of pain. However the accessible population includes patients with cancer visiting the pain clinic at the center. A non-probability, purposive, consecutive sample was utilized between September and October 2009. Patient inclusion criteria included male and female patients with any type of cancer 18 years or older, able to speak Arabic, able and willing to participate visited the pain clinic at the time of data collection. The total sample size was 100 patients.

### Instrument

In the current study, three scales were used: The Arabic Version of Pain Rating Scale, the Arabic version of Hospital Anxiety and Depression Scale (HADS), and Cognitive Coping Strategies Inventory (CCSI-R).

The Arabic Pain Rating Scale is a self-report scale developed by the British Pain Society (2010) measuring a patient's pain intensity, distress caused by pain, interference of pain with daily activities, and the effect of prescribed pain medication to relieve pain. The scale is an 11-point numerical scale from (0), indicating absence of pain, to (10) indicating presence of extreme pain. Five points was the inclusion cut-off point. However, for the effect of pain medication, the scale ranges from (0), indicating no relief of pain by medication to (100%), indicating complete relief of pain by medication. It is a cross-cultural scale.

The Hospital Anxiety and Depression Scale (Zigmond A., Snaith R., 1983) is a self-report scale consisting of 14 items assessing anxiety and depressive symptoms. It includes seven items for anxiety (HADS-A) and seven for depression (HADS-D). The items are scored on a four-point scale from zero (not present) to three (considerable). The item scores are added to give sub-scale total scores on the HADS-A and the HADS-D from zero to 21 for each. A total score of 0 to 7 for either sub-scale could be regarded as normal range; a score of 8 to 10 suggests the presence of the relevant state and a score of 11 or higher indicating probable presence of the mood disorder. The score does not diagnose anxiety and mood disorders. Rather it measures the severity of symptoms, which suggest the likelihood a patient may have a disorder. The scale takes 2 to 5 minutes to complete. The concurrent validity of the HADS compared to other questionnaires for anxiety and depression is 0.60 and 0.80 for both sub-scales. A Cronbach's alpha coefficient of internal consistency was reported in a systematic review of 15 studies with variability for HADS-A from .68 to .93 (mean .83), and HADS-D from .67 to .90 (mean .82) (Bjelland I., Dahl A., Haug T., Neckelmann D., 2002). The Arabic version of the HAD scale demonstrated to be a valid instrument for detecting anxiety and depressive disorders in primary health care settings, also supportive was a Cronbach's alpha measures of internal consistency were 0.78 and 0.88 for anxiety and depression, respectively (El-Rufaie O., Absood H., 1995).

The Cognitive Coping Strategies Inventory-Revised (CCSI-R), is composed of 32 statements, worded in

negative and positive directions, using 5 point Likert Scale describing different thoughts and behaviors people engage in when experiencing pain under 3 cognitive strategies (Distraction, coping self statement, Catastrophizing). The CCSI-Revised showed reliability between .74 -.90 in studies of patient with pain (Thorn B., 2004).

The CCSI-R was translated, then back translated and adapted to the Jordanian culture. The modification includes adding question number 33 "when I have severe pain I go to Salat (pray) and Doaa (Supplication) for God to help me and to decrease my pain". Additional modifications include changing certain words in the items to accommodate Jordanian culture such as item number 1, "I use my imagination to change the situation or place where I am experiencing pain in order to try and make the pain more bearable" changed to "I imagine that I am changing my place to make the pain more bearable"; item number 8, "I try and imagine that for some reason it is important for me to endure the pain" changed to "I have to tolerate the pain and be patient"; item number 12, "in general, my ability to see things visually in my mind's eye or imagination is quite good" changed to "in general, my ability and my vision for things is very good"; item number 13, "I develop images or pictures in my mind to try and ignore the pain" to "I develop pictures and imagination in my mind trying to ignore the pain"; item 14, "I might concentrate on how attractive certain colors are in the room or place that I am experiencing pain" changed to "I might concentrate on how attractive certain colors are in the room or place where I complain of pain"; item number 25, "I might try and think that I am over reaching and that my pain is really not as severe as it seems" changed to "I might try and look like I am over reaching and that my pain is really not as severe as it seems"; and item number 30, "I try and preoccupy my mind by daydreaming about various pleasant things such as clouds or sailboats" changed to "I try and preoccupy my mind by daydreaming about various pleasant things such as sun set and spring. A score of 82 or more indicated patients' successful coping behavior, while a score of less than 82 indicated patients' inability to cope. Content validity was established by 6 experts (psychiatric

physician; psychologist (PhD) in the academic field; 3 psychological counselors, and psychologist with a Master degree working in the field, and oncology physician. Modification was performed based on experts' suggestions.

#### **Ethical Considerations:**

Patients were approached by health care providers' attending the pain clinic and informing them about the purposes of the study and outcomes. If patients agreed to participate they introduced to the researchers. After agreeing with the researchers to participate patients received a cover letter explaining the purposes and outcomes of the study. Patients ensured their participation is voluntary and their withdrawal at any time without any penalty. Patients also assured that all the information will be held confidential with only information related to the study will be published without indication for any personal information. Once there was patient agreement to these conditions the consent form was signed.

#### **Procedure:**

Once the Institution Research Board (IRB) permission was granted, patients meeting the inclusion criteria were approached at the outpatient pain clinic. Those agreeing to participate in the study were invited to the psychology service room, whereby they received a package including a cover letter explaining the study purposes and outcomes as well as their signed consent form. The patients were interviewed and completed the questionnaire, which took approximately 30 minutes.

#### **Statistical Analyses**

Statistical Package for Social Science (SPSS) for windows version 16.0 was used for data analysis. Descriptive values (Means, Frequency, Standard deviations), according to the level of measurements, were used to describe the study variables. Chi square test for the comparison of associations between dimensions (pain, depression and anxiety and coping), and Multivariate analysis were used to investigate the asso-

ciation between the study variables (pain, depression and anxiety) on the coping strategies used.

## Result

### Patients' Demographic Characteristics

A total of 105 patients were approached between September and October 2009. One hundred patients agreed to participate. Five patients chose not to participate in the study because they were experiencing severe pain, and unable to tolerate or participate in the study.

Of the total participants 57 (57%) patients were women while 43 (43%) were men. The mean age of the participants was 46.6 year (SD=15.3 year; R 17-78). Also (73%) was married. Table 1 shows the demographic characteristics of the patients.

### Pain, Depression, and Anxiety:

Using the Arabic Pain Rating Scale to assess patients with cancer pain, the results showed a total of 83 patients reported pain of  $\geq 5$  while 17 patients had pain  $<$  than 5. The mean score of the effect of pain medication in relieving pain was 65 (SD 21; R 20-100), indicating that although patients received pain management, pain still is a complaint.

For depression the mean score was 11.64 (SD 4.5, R 0-21), with 82 participants having a depression score of  $\geq 8$ , which indicates a relevant state of depression. For anxiety, the mean score was 11.78 (SD 4.58; R 1-21), with 82 patients reporting an anxiety score of  $\geq 8$ , thereby suggesting the presence of the relevant state of anxiety.

### Coping strategies:

Patients with cancer in the study used different coping strategies. Of the participants 48 patients were not coping with their pain (reported coping score of  $<$  82

**Table 1. Participant's Demographic Characteristics**

Characteristics	n (%)
<b>Age</b>	
- M (SD): 46.6 (15.3)	
- R: 17-78	
<b>Gender</b>	
- Female	57(57.0%)
- Male	43(43.0%)
<b>Marital status</b>	
- Divorced	3( 3.0%)
- Married	73(73.0%)
- Single	19(19.0%)
- Widow	5( 5.0%)
<b>Work</b>	
- Non workers	81(81.0%)
- Workers	19(19.0%)

Education	
- Illiterate & Primary	29(29.0%)
- Tawjih; BSc; Diploma & Postgraduate	71(71.0%)

N= 100

on the CCSI-R). Based on the CCSI-R patients reported using three coping strategies including Catastrophizing Distraction, and Coping Self-Statement (used by 36, 34, and 30 participants respectively). Comparing patients who are coping with those not coping, with respect to coping strategies used, the results demonstrated significant mean differences (Distraction,  $t=7.5$ ;  $p < .05$ ; Catastrophizing,  $t= 6.6$ ;  $p < .05$ ; Coping self Statement;  $t=7.1$ ,  $p < .05$ )

#### **Association between patients' levels of pain, anxiety and depression and with coping strategies used**

Chi squared was used to assess association between pain, and depression and anxiety. Of patients who reported pain  $\geq 5$  on the Arabic Pain Rating Scale the results showed significant association between pain and depression ( $\chi^2 = 6.64$ ,  $p < .05$ ) and between pain and anxiety ( $\chi^2 = 9.34$ ,  $p < .05$ ). In addition, there is significant association between those who showed depression and the coping ( $\chi^2 = 8.63$ ,  $p < .05$ ) and significant association between those who had anxiety and coping with the illness ( $\chi^2 = 11.97$ ,  $p < .05$ ).

Of the different coping strategies used, there was significant association between pain and catastrophizing as coping strategies (Wald =4.8;  $p < 0.05$ ). In addition, using multivariate analysis, anxiety and depression were significantly associated with catastrophizing as coping strategies (Wald =12.2; Wald =5.3) respectively;  $p < .05$ .

## **Discussion**

The current study aimed at assessing pain associated with cancer among a sample of cancer patients in Jordan treated at a well known cancer center in the nation and the region. Additionally the study aimed at identifying coping strategies used by patients with cancer who experience pain and to determine associations between patients complain of pain, coping strategies used, and anxiety and depression.

In spite of limited evidence about cancer pain treatment, under treatment of cancer pain in Jordan remains a significant concern requiring attention. This trend was also documented in a previous study (Charles S. Cleeland, Rene Gonin, and Alan K., et al, 1994). In our study we found a significant number of patients who participated in the study suffered from cancer-related pain. Although, the World Health Organization introduced the pain ladder on 1986 (WHO, 2011) and it is accepted worldwide, cancer-related pain is still a problem. Several studies indicate cancer patients are not receiving adequate pain relief (Beck S., Falkson G., 2001) (Lai Y., Keefe F., Sun W., et al., 2002) In Jordanian patients with cancer, as well as other patients, pain is often under-reported and under-treated. This may be, to some extent, due to a variety of beliefs, religious and otherwise, held by patients, families and healthcare professionals (The British Pain Society, 2010). Under-report and or under treated pain may also be related to health care provider failure to, or fear of, controlling pain by giving medication or increasing the dosage, because of a fear of patient addiction. An additional reason may be patient fear of medication side effects, or the perception cancer pain is inevitable and their belief a good patient does not complain, and, possible inadequate knowledge of their disease and its impact on their body (Ward S, Goldberg N, Miller-McCauley V, Muel-

ler C, Nolan A., 1993) (Mokdad AH, Marks JS, Stroup DF, Gerberding JL., 2004).

It is clear cancer-related pain does contribute to anxiety. In this study we found pain is significantly associated with patient anxiety as well as depression, which is consistent with previous research (Spiegel D., Sands S., Koopman. C., 1994). Psychological responses such as anxiety or depression are viewed as secondary to patient complaints of pain and not considered to play a direct role in the pain experience (Keefe F., Abernethy A., Campbell L., 2005). A high percentage of participating patients with cancer-related pain also suffer from anxiety, which could be related to the pain, or the disease progression. In a previous literature review of 19 studies, 14 supported a significant association between pain and psychological distress including anxiety and this higher level of distress was associated with a higher level of pain (Zaza C., Baine N., 2002). Anxiety is also known to have an effect on pain (Anderson KO, Mendoza TR, Valero V, et al., 2000) therefore anxiety-related pain requires the attention of health care providers.

Depression, which in this study was associated pain, is the psychiatric syndrome receiving the most attention in individuals with cancer. However, it is a challenge to conduct research about depression because symptoms occur on a spectrum ranging from sadness to major affective disorder. Addition difficulty researching this topic is mood change may often be difficult to evaluate when a patient is confronted by repeated threats to their life, is receiving cancer treatments, is fatigued, or is experiencing pain (Porter L., Keefe F., 2011). Depression may be the result of feeling of helpless and or the sense of being controlled by other as health care provider or family and caregiver. Cancer-related depression is a crucial topic to research because as a comorbid illness it complicates the treatment of both depression and pain while also possibly leading to poor adherence to treatment recommendations and subsequent undesirable outcomes(Keefe F., Abernethy A., Campbell L., 2005).

In this study, the multivariate analysis revealed the use of distraction, catastrophizing and coping self-

statement as three coping strategies in adapting to chronic cancer-related pain. However, if one considers distraction and coping self-statement as active or adaptive coping strategies, this study found neither coping self-statement nor distraction were significantly related to pain or associated with anxiety and depression. However, the study results do emphasize catastrophizing, which is the "tendency to focus on and exaggerate the threat value of painful stimuli and negatively evaluate one's ability to deal with pain" (p.524)(Sullivan MJL., Bishop SR., Pivik J., 1995), as the most common strategy employed by participants complaining of pain. Giving that catastrophizing is the coping strategy associated with anxiety and depression is consistent with cognitive theory of emotion in which negative evaluations of events (pain) are thought to precipitate distress reactions (Lazarus A., 1999) Catastrophizing, as coping strategy, also tends to be the strategy most research reports as a positive relationship with anxiety and depression (Bishop S., Warr D., 2003) (Wilkie D., Keefe F., 1991). Passive coping category, as catastrophizing, is associated with poorer outcomes such as decreased physical functioning and increased psychological distress (Smith C., Wallston K., Dowdy S., 1997). Catastrophizing associated with greater emotional distress (Bishop S., Warr D., 2003) and could contribute to patients' poor adjustment to the disease. The catastrophizing of cancer pain can be considered as a maladaptive coping strategy. During the data collection, when participants were interviewed, the authors recall patients visiting the pain clinic complaining of the disability (physical, psychological, social) caused by pain as well as talking about their experiences with cancer.

Indeed, many psychological factors provoke patient perception of pain and the resulting behavior. Given people usually build their thoughts and perceptions from personal experiences, and may be reflected in their emotions and their behaviors, the idea of maladaptive beliefs about chronic pain can have a negative impact on a patient's adherence and treatment response (Cook A., Degood D., 2006) and some pain beliefs lead to maladaptive behaviors and high level of disability (Walsh D., Radcliffe J., 2002). This could explain the association between having cancer pain

as catastrophizing and complaints of high level and anxiety that participants in this study suffer.

### Conclusion and Implications

Our study findings confirm previous studies' results that showed that maladaptive coping with pain would increase anxiety and depression. The current study was limited to a famous national cancer center in Jordan, which limits generalizability of the study. However, the study does provide health care providers a piece of the patient complaint 'picture' thus highlighting the importance of future studies utilizing other patients treated in other care environments.

### Recommendations

- It is important to introduce adaptive coping strategies before patients' pain reach critical levels.
- It is very important to assess pain and any related problem, and to include the patients in the discussions regarding treatment of pain.
- Effective pain management should include assessment not only of pain but also of the psychosocial factors that often associated with pain.
- Health care providers need to refer patients to pain specialist and to psychosocial services early for proper intervention focusing on adaptive coping strategies.
- The need to future research related to effectiveness of introducing adaptive coping strategies early in the trajectory of illness before pain becomes a clinical issue.
- The need to similar researches about the pain and another chronic diseases, and it's relation with another mental ill-

nesses.

- The need to future researches about Thinking errors, and Cognitive distortions among Cancer Patients.

### References

1. Anderson KO, Mendoza TR, Valero V, et al. Minority cancer patients and their providers. *Cancer*. 2000;88(8):1929-1938.
2. Beck S, Falkson G. Prevalence and management of cancer pain in South Africa. *Pain*. Oct 2001;94(1):75-84.
3. Bishop S, Warr D. Coping, Catastrophizing and Chronic Pain in Breast Cancer. *Journal of Behavioral Medicine*. 2003;26(3):265-281.
4. Bjelland I, Dahl A, Haug T, Neckelmann D. The Validity of the Hospital Anxiety and Depression Scale. An Updated Literature Review. *J Psychosom Res*. 2002;52(2):69-77.
5. British Pain Society. Arabic Pain Rating Scale. Pain Scales in Multiple Languages 2008; [http://www.britishpainsociety.org/pain\\_scales\\_ara.pdf](http://www.britishpainsociety.org/pain_scales_ara.pdf) Accessed Oct, 2010.
6. The British Pain Society's. Psychological aspects and approaches to pain management in cancer survivors. In: *Cancer Pain Management*, ed. The British Pain Society. London: Churchill House; 2010.
7. Brown G, Nicassio P. Development of a questionnaire for the assessment of active and passive coping strategies in chronic pain patients. *Pain*. Oct 1987;31(1):53-64.

8. Cleeland CS, Gonin R, Hatfield AK, et al. Pain and Its Treatment in Outpatients with Metastatic Cancer. *New England Journal of Medicine*. 1994;330(9):592-596.
9. Cook A, Degood D. The Cognitive Risk Profile for Pain: Developmental of Self-Report Inventory for Identifying Beliefs and Attitudes that Interfere with Pain Management. *Clinical Journal of Pain*. 2006;22(4): 332-345.
10. Craighead W, Nemeroff C. In: edition r, ed. *The Corsini Encyclopedia of Psychology and Behavioral Science*. Vol 3. Canada: John Wiley & Sons, Inc; 2001.
11. Dubey A, Agarwal A. Coping Strategies and Life Satisfaction: Chronically Ill Patients' Perspectives. *Journal of the Indian Academy of Applied Psychology*. 2007;33(2):161-168.
12. El-Rufaie O, Absood H. Retesting the Validity of the Arabic Version of the Hospital Anxiety and Depression (HAD) Scale in Primary Health Care. *Social Psychiatry and Psychiatric Epidemiology*. 1995;30(1):26-31.
13. Francesca F, Bader P, Echte D, Giunta F, Williams J. Guidelines on Pain Management, European Association of Urology. International Association for the Study of Pain (IASP). 2007.
14. Jacobsen PB, Butler RW. Relation of cognitive coping and catastrophizing to acute pain and analgesic use following breast cancer surgery. *Journal of Behavioral Medicine*. 1996;19(1):17-29.
15. Jensen M, Turner J, Romano J, Karoly P. Coping with chronic pain: a critical review of the literature. *Pain*. Dec 1991;47(3):249-283.
16. Jordan Cancer Registry. *Cancer Incidence in Jordan*. Ministry of Health- Non Communicable disease Directorate. Amman 2008.
17. Keefe F, Abernethy A, Campbell L. Psychological approaches to understanding and treating disease-related pain. *Annu Rev Psychol*. 2005;56:601-630.
18. Kraaimaat F, Evers A. Pain Coping Strategies in Chronic Patients: Psychometric Characteristics of the Pain-Coping Inventory. *International Journal of Behavioral Medicine*. 2003;10(4):343-363.
19. Lai Y, Keefe F, Sun W, et al. Relationship between pain-specific beliefs and adherence to analgesic regimens in Taiwanese cancer patients: a preliminary study. *J Pain Symptom Manage*. Oct 2002;24(4):415-423.
20. Larsen P, Lubkin I. *Chronic Illness: Impact and Interventions*. 7th ed. Canada: Jones and Bartlett Publishers, LLC; 2007.
21. Lazarus A. *Stress and Emotion: A New Synthesis* New York: Springer; 1999.
22. Lin C. Barriers to the analgesic management of cancer pain: a comparison of attitudes of Taiwanese patients and their family caregivers. *Pain*. Oct 2000;88(1):7-14.
23. McWilliams L, Cox B, Enns M. Mood and Anxiety Disorders Associated with Chronic Pain: An Examination in a Nationally Representative Sample. *Pain* 2003;106(1-2):127-133.
24. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual Causes of Death in the United States, 2000. *JAMA: The Journal*

- of the American Medical Association. March 10, 2004 2004;291(10):1238-1245.
25. Norris R. The paradox of healing pain. Religion. 2009;39:22-33.
26. Porter L, Keefe F. Psychosocial issues in cancer pain. Curr Pain Headache Rep. Aug 2011;15(4):263-270.
27. Smith C, Wallston K, Dwyer K, Dowdy S. Beyond good and bad coping: a multidimensional examination of coping with pain in persons with rheumatoid arthritis. Ann Behav Med. Winter 1997;19(1):11-21.
28. Spiegel D, Sands S, Koopman C. Pain and depression in patients with cancer. Cancer. 1994;74(9):2570-2578.
29. Spinhoven P, Kuile M, Kole-Snijders A, Mansfeld H, Ouden D, Vlaeyen J. Catastrophizing and Internal Pain Control as Mediator of Outcome in the Multidisciplinary Treatment of Chronic Low Back Pain. European Journal of Pain. 2004;8(3):211-219.
30. Strong J, Unruh A, Wright A, Baxter G. Pain: A Textbook for therapists. London: Churchill Livingstone 2001.
31. Sullivan MJL, Bishop SR, Pivik J. The Pain Catastrophizing Scale: Development and validation. Psychological Assessment. 1995;7(4):524-532.
32. Tamimi A. Psychological Adjustment of Chronic Renal Failure Patients on Hemodialysis. Amman: University of Jordan; 2003.
33. Thorn B. Cognitive Therapy for Chronic Pain: A Step-by-Step Approach. NY: Guilford Publications; 2004.
34. Vallerand AH, Templin T, Hasenau SM, Riley-Doucet C. Factors that affect functional status in patients with cancer-related pain. Pain. 2007;132(1):82-90.
35. Wilkie D, Keefe F. Coping strategies of patients with lung cancer-related pain. Clin J Pain. Dec 1991;7(4):292-299.
36. Walsh D, Radcliffe J. Pain Beliefs and Perceived Physical Disability of Patients with Chronic Low Back Pain. Pain 2002;97(1-2):23-31.
37. Ward S, Goldberg N, Miller-McCauley V, Mueller C, Nolan A. Patient related barriers to management of cancer pain. Pain. 1993;52:319-324.
38. Zaza C, Baine N. Cancer Pain and Psychosocial Factors: A Critical Review of the Literature. Journal of pain and symptom management. 2002;24(5):526-542.
39. Zigmond A, Snaith R. The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scandinavica. 1983;67(6):361-370.