Journal of BUON **17:** 785-790, 2012

ORIGINAL ARTICLE

Differences in levels of self-efficacy and anxiety between cancer and chronically-ill patients attending a Palliative Care Unit

K. Mystakidou[1], E. Tsilika[1], E. Parpa[1], I. Panagiotou[1], A. Galanos[1], A. Gouliamos[2]

[1]Pain Relief and Palliative Care Unit, Department of Radiology, Aretaieion Hospital, School of Medicine, University of Athens; [2]Department of Radiology, Aretaieion Hospital, School of Medicine, University of Athens, Athens, Greece

Summary

Purpose: *To investigate the differences in anxiety and self-efficacy beliefs as well as the sociodemographic and clinical characteristics, between cancer and chronically-ill patients.*

Methods: *A total of 175 patients from a pain relief and palliative care unit participated in this study. Patient sociodemographic and clinical characteristics were recorded. Patients completed the Greek version of the Spielberger State-Trait Anxiety Inventory (STAI) and the Greek version of the General Perceived Self-Efficacy Scale (GSE).*

Results: *No statistically significant differences were found between the two patient populations regarding self-efficacy. Statistically significant differences were found between chronically-ill and cancer patients in the scales of "emotionality" ($p<0.0005$), and "self-deprecation" ($p<0.0005$). Statistically significant negative correlations were found between all STAI scales and self-efficacy for both cancer and chronically-ill patients (r ranged from -0.231 to -0.503).*

Conclusion: *Chronically-ill patients experienced increased anxiety compared to cancer patients. Self-efficacy had a significant negative correlation with anxiety between the two groups of patients.*

Key words: anxiety, cancer, chronically-ill, self-efficacy

Introduction

There is steadily growing interest in routine screening for emotional distress in cancer and other medical patients in order to identify patients who need psychological support most urgently [1].

Anxiety is a "normal" and functional feeling [2], it becomes "abnormal" if one finds oneself trapped in a way of thinking which constantly revolves around the notion of threat. When symptoms are out of proportion they are causing emotional distress or disruption of functioning [3].

The basic cognitive components of anxiety with special reference to the need for control are: pragmatic control, that is power over events, and epistemic control, that is being able to foresee what will happen [4].

Cattell [5,6] first introduced the concepts of state and trait anxiety which have been further elaborated by Spielberger [7]. State anxiety refers to transient emotional states, consisting of "consciously perceived feelings of tension, apprehension, nervousness, and worry, and associated with activation or arousal of the autonomic nervous system, which vary in intensity and fluctuate over time as a function of perceived physical or psychological danger" [8]. A cognitive appraisal of threat is a prerequisite for the experience of the emotion [9]. Trait anxiety is concerned with mere negative possibility, no matter how remote it might be [4]. Trait anxiety has been found to be related to health. Individuals with high levels of anxiety are predisposed to a number of ailments.

Anxiety disorders and medical illness present to the primary care physician as a common comorbidity. Anxiety disorders are highly prevalent within the primary care population, and these disorders significantly impact the patient's course and outcome [10]. Patients with comorbid anxiety who receive general medical care have lower levels of functioning and well-being than those without comorbid anxiety. There is clinical and societal importance of identifying comorbid anxiety [11].

Anxiety is also common among cancer patients and may arise either from causes like fear of death or deterioration, medical complications or treatments or may

Correspondence to: Kyriaki Mystakidou, MD, PhD. Pain Relief and Palliative Care Unit, Department of Radiology, Aretaieion Hospital, School of Medicine, University of Athens, 27 Korinthias Street, 115 26 Athens, Greece. E-mail: mistakidou@yahoo.com

Received 19-01-2012; Accepted 15-02-2012

be a chronic condition that predates illness [12]. Anxiety symptom levels are high soon after the onset of cancer but reduce over time [13]. An understanding of the nature of the anxiety in cancer patient populations is important because abnormal anxiety is disruptive [11] and amenable to pharmacological treatment [14]. Abnormal anxiety in cancer patient populations varies from 10 to 30% [15].

Moreover, anxiety often leads to delays in diagnosis, which have been estimated to reduce prospects of long-term cancer survival by 10 to 20%. Yet, because anxiety is a universal emotion that is managed without consequence by many people, its significance is often ignored by healthcare providers [16].

Anxiety has been found to be associated with a low self-efficacy [17]. As elaborated by Bandura [18], self-efficacy can be altered by behavior, by internal personal factors in the form of cognitive, affective and biological events, and by the external environment. The two components of Bandura's [19] concept of self-efficacy are predictability (corresponding to the previously described epistemic control), and controllability (corresponding to the previously described pragmatic control).

The measurement of self-efficacy, a critical concept in chronic disease management, is of increasing interest for the assessment and management of patients. For the newly diagnosed, faced with a complex regimen of care, belief about their ability to change and to cease or initiate new behaviors is generally believed to be important in determining successful adaptation to chronic illness [20]. Efficacy belief about ability is more important than outcome expectations when health outcomes are not entirely controlled by behavioral input [21]. The measurement of self-efficacy is useful to detect individual differences between patients, and finally, measurement of self-efficacy may be an indicator to predict important health outcomes such as hospital admissions or health-related quality of life.

Perceived self-efficacy to exercise control over stressors plays a central role in anxiety arousal [22]. In this mode of affect regulation, efficacy beliefs alleviate anxiety by enabling individuals to mobilize and sustain coping efforts [23].

The aim of the present study was two-fold: first, to investigate possible differences between cancer and chronically-ill populations according to their self-efficacy beliefs, anxiety, socio-demographic and clinical characteristics; and, second, to assess the relationship between self-efficacy and anxiety in the studied populations.

Methods

The current study was performed from October 2009 to March 2010. A total of 250 patients attended an outpatient palliative care unit in Athens, Greece. Inclusion criteria were the following: either a histologically confirmed malignancy or a diagnosed chronic disease, age >18 years, ability to communicate effectively with the health-care professionals, and patient-signed informed consent. Patients were excluded if there was history of current drug abuse, and diagnosis of a psychiatric disorder. A total of 175 consecutive patients (cancer N=107, chronically-ill N=68), were considered eligible to participate in the study.

The evaluations were completed in the patients' first visit to the unit. Patients were asked to complete 2 self-report questionnaires: the Greek version of the STAI, and the Greek version of the GSE. The questionnaires were then collected by a member of the research team. Then, another research worker recorded the data on disease status, cancer diagnosis and treatment regimen. Other information included performance status (PS) as defined by the Eastern Cooperative Oncology Group (ECOG; 0 = optimum PS, 4 = worse PS) [24]. Patients with scores 0 or 1 were characterized with "good" PS while patients with scores 2 or 3 with "moderate to poor" PS. The study was performed in accordance to the Helsinki Declaration and according to the European guidelines for good clinical practice. Finally, the study was approved by the Institution's Ethical Review Board.

Instruments

Respondents completed the following instruments:

a) Levels of anxiety were measured by the Greek version of STAI [25]. It has a different fracture structure from the original scale, including three subscales, namely "emotionality", "well-being mixed with worry", and "self-deprecation". The original version of STAI is probably among the most widely used self-report measures of anxiety in clinical and research settings [26]. The original version has two subscales measuring state and trait anxiety [27]. The state portion has been used extensively in numerous studies to measure how the respondent feels in several conditions within that moment and trait anxiety how they feel in general, independent of their current situation [7]. Participants respond to each of the items on a four-choice Likert scale, with options ranging from "not at all" to "very much". Scores range from 20 to 80, with higher scores indicative of greater anxiety. The Greek version of STAI has demonstrated good psychometric properties demonstrating that it is an instrument with satisfactory stability [25].

In general, the STAI measures anxiety as a feature of the general population, thus it is expected its scores to follow the normal distribution. However, it is widely used in the assessment of medically ill populations.

b) The GSE [21] which was adapted to the Greek population [28]. It consists of 10 items rated on a 4-point scale (not at all, hardly true, moderately true, exactly true) ranging from 10 to 40 scores; higher scores indicate higher levels of GSE. The current measure has been validated in a sample of advanced cancer patients with Cronbach alpha= 0.927 [29].

Statistical analysis

Data were expressed as mean±standard deviation (SD) for continuous variables and as percentages for categorical data. The Kolmogorov-Smirnov test was utilized for normality analysis of the parameters.

The homogeneity of groups was examined using the independent samples t-test, the x^2 test and the Fisher's exact test. The analysis included the Greek version of STAI scales ("emotionality",

"well-being mixed with worry", and "self-deprecation". The unadjusted analysis was performed using the independent samples t-test.

The adjusted analysis was performed using the analysis of covariance model (ANCOVA model). We compared the differences between groups of all parameters controlling for demographic variables using as dependent variable the values of parameters and demographic variables as covariates.

Pearson's *r* correlation coefficients were used to examine the univariate associations between self-efficacy (GSE) and anxiety (STAI).

All tests were two-sided and statistical significance was set at $p < 0.05$. All analyses were carried out using the statistical package SPSS version 16.00 (Statistical Package for the Social Sciences, SPSS Inc., Chicago, Ill., USA).

Results

Descriptive statistics

The most frequent types of cancer were gastrointestinal (25.2%) and urogenital (23.4%), followed by breast (21.5%), lung (20.6%), and others (9.3%). All cancer patients had stage I and II disease, and had been subjected to radical (not palliative) surgical and/or radiotherapeutic treatment and/or prophylactic anticancer treatment. The most frequent chronic diseases were osteoporosis/osteoarthritis (60.3%), followed by neuralgia (10.3%) and migraine (10.3%). Mean (±SD) of GSE score was 26.66 (±6.32) for chronically-ill patients, and 25.73 (±6.00) for cancer patients (p=0.328).

Homogeneity

The homogeneity analysis (Table 1) revealed that the only statistically significant differences found between cancer and chronically-ill patients were in gender (p<0.0005), marital status (p=0.001), opioids (p<0.0005), and NSAID medication (p=0.002).

Unadjusted t-test

There were statistically significant differences between the patient populations in the scales of "emotionality" (p<0.0005), and "self-deprecation" (p<0.0005) (Table 2). Chronically-ill patients had higher scores in these scales compared to cancer patients.

Table 1. Homogeneity analysis among cancer and chronically-ill patients

	Chronically-ill pts (N=68) N (%)	*Cancer pts (N=107) N (%)*	*p-value*
Age (years) MEAN±SD	61.67±14.26	64.52±12.84	0.173
Gender			<0.0005
Male	11 (16.2)	55 (51.4)	
Female	57 (83.8)	52 (48.6)	
Education			0.992
Primary	26 (38.2)	41 (38.3)	
High	32 (47.1)	51 (47.7)	
University	10 (14.7)	15 (14)	
Family status			0.001
Married	43 (63.2)	92 (86)	
Unmarried	25 (36.8)	15 (14)	
ECOG PS			0.312
0-1	51 (75)	72 (67.3)	
2-3	17 (25)	35 (32.7)	
Opioids			<0.0005
Mild	54 (79.4)	15 (14)	
Strong	14 (20.6)	92 (86)	
NSAIDs			0.02
No	41 (60.3)	38 (35.5)	
Yes	27 (39.7)	68 (64.5)	

pts: patients, NSAIDs: non steroidal antiinflammatory drugs

Adjusted analysis (ANCOVA model)

After adjusting for the variables that showed statistically significant differences in the homogeneity analysis it was observed that their influence was only small and the p values were slightly different but still statistically significant. More specifically, statistically significant differences were found between chronically ill patients and cancer patients in "emotionality" (p<0.0005) and "well-being mixed with worry" (p<0.0005; Table 3).

Table 2. Unadjusted analysis of STAI (Greek version) and GSE (Greek version)

	Patient group	*N*	*Mean±SD*	*p-value*
Emotionality	Chronically-ill pts	68	33.63±6.11	<0.0005
	Cancer pts	107	29.22±4.78	
Well-being mixed with worry	Chronically-ill pts	68	36.53±6.82	0.470
	Cancer pts	107	35.87±5.19	
Self-deprecation	Chronically-ill pts	68	27.63±5.70	<0.0005
	Cancer pts	107	24.02±5.84	
GSE total	Chronically-ill pts	68	26.66±6.32	0.328
	Cancer pts	107	25.73±6.00	

pts: patients

Table 3. Adjusted analysis of STAI (Greek version; Subscales: emotionality, well-being mixed with worry, and self deprecation) and GSE (Greek version)

	Patient group	*N*	*Adjusted mean±SE**	*p-value*
Emotionality	Chronically-ill pts	68	33.63±6.11	<0.0005
	Cancer pts	107	29.22±0.55	
Well-being mixed with worry	Chronically-ill pts	68	36.05±0.77	0.148
	Cancer pts	107	35.51±0.56	
Self-deprecation	Chronically-ill pts	68	28.41±0.79	<0.0005
	Cancer pts	107	23.52±0.59	
GSE Total	Chronically-ill pts	68	27.23±0.95	0.147
	Cancer pts	107	25.37±0.68	

*controlled by gender, marital status, opioids. NSAIDs: non steroidal anti-inflammatory drugs, pts: patients, SE: standard error

Table 4. Correlation between STAI (Greek version; Subscales: emotionality, well-being mixed with worry, and self deprecation) and GSE (Greek version)

			GSE	
		Chronically-ill patients	*Cancer patients (N=107)*	*Total patients (N=175)*
Emotionality	Pearson's (r)	–0.406	–0.231	–0.258
	p-value	0.001	0.017	0.001
Well-being mixed with worry	Pearson's (r)	–0.499	–0.411	–0.443
	p-value	<0.0005	<0.0005	<0.0005
Self-deprecation	Pearson's (r)	–0.503	–0.331	–0.358
	p-value	<0.0005	<0.0005	<0.0005

Univariate analysis

Patients' (cancer patients, chronically-ill patients, and the total sample) GSE was examined with anxiety (STAI) in order to investigate correlations between them (Table 4). Statistically significant negative correlations were found between all anxiety subscales (emotionality, well-being mixed with worry, self-deprecation) and self-efficacy for chronically-ill patients (ranging from r=–0.406 to –0.503). The same findings were observed for cancer patients (ranging from r=–0.231 to –0.411) and the total sample (ranging from r=–0.258 to –0.443).

Discussion

The degree to which individuals meet the challenge and adjust to the demands of an illness experience while continuing prescribed and ascribed roles in their daily lives impacts on the course of the illness [30]. Studies have shown that psychosocial adaptation is independent of a specific illness [31]. There does not appear to exist a universal process of adaptation to chronic illness [32].

The present study investigated the differences between cancer and other chronically-ill patients regarding their self-efficacy beliefs and levels of anxiety. The findings revealed that chronically-ill patients scored higher in most anxiety scales (emotionality, and self-deprecation) compared to cancer patients. The question arises how anxiety seems to be lower in cancer patients compared to other chronically-ill populations. Several explanations may be considered: improvements in patient education and in medical treatment, or downward shifts in stage and age at diagnosis, leading to improved prognosis. Moreover, patients could consciously suppress any (preexisting) psychological problems because they have to deal with a major life event. Finally, patients may (unconsciously and partially) deny their feelings of anxiety and distress rather than confront them because of an inability to cope with these feelings. This inability may be related to the stress of cancer [33].

There are several studies that support the high prevalence of anxiety in chronic illness. Investigations on psychological variables and migraine have confirmed a strong association between migraine and anxiety [34]. Moreover, fibromyalgia (FMS) and rheumatoid arthritis patients are found to score high in anxiety [35]. Since either "state anxiety" or "trait anxiety" (or both) types of stress have been identified in virtually all individuals with FMS, the STAI would allow the prac-

titioner to ascertain the existence and type(s) of stress as part of the initial examination. In addition, cross-sectional studies have reported significant associations between measures of anxiety and measures of systemic lupus erythematosus (SLE) activity [36].

An interesting aspect of the present study is the larger sample size of female chronic patients, compared to the number of male chronic patients. Although this difference could have caused confounding results, the adjusted analysis showed that it had no effect on the results. Many painful chronic diseases such as rheumatoid arthritis, migraine headache, and low back pain are more prevalent among women than among men [37]. Jones et al. [38], using the STAI, found that male participants who scored above the median on anxiety reported significantly greater pain intensity and unpleasantness compared with men who scored below the median.

Another point of interest is that in the present study no statistically significant differences were found between the cancer and chronic patients in self-efficacy beliefs (although both populations scored relatively low). Most studies so far have been confined to one specific chronic disease. Longitudinal studies reported so far mainly focused on patients with one specific disease. No statistical differences were also found for age, ECOG PS, and level of education.

Univariate analysis showed that anxiety correlated negatively but significantly with self-efficacy in both groups of patients. This finding can be supported by previous studies both in chronically-ill [39] and in cancer patients [40,41].

Possible limitations of the present study are the following: more female than male patients in the chronic illness group, and the heterogeneity of the chronic illness group.

Routine screening of patients at risk for psychological difficulties may prevent problem worsening via early intervention, since mood symptoms –like anxiety– are amenable to intervention, and allows a fair distribution of resources and carries potential for long-term cost savings [42,43]. Effectiveness of a cognitive-behavioral treatment (CBT) has been found in chronic patients [44]. CBT effectively deals with anxiety that results from chronic pain, and correcting associated problems such as sleep disturbances, inability to relax, social isolation, dependency on medications, and poor eating habits [45]. In addition, there is some evidence of effectiveness for other interventions, such as relaxation therapies in chronically-ill [46,47] and cancer patients [48].

Patient's self-management is one of the key elements of a systems-oriented chronic care model [49]. Despite encouraging evidence [50], self-management is the least implemented and most challenging area of chronic disease management [51]. Patients with chronic diseases who are asked to identify barriers to self-management often cite examples such as aggravation of one condition by the symptoms or treatment of another [52].

In light of the weight of evidence for increased morbidity associated with anxiety in these physical illnesses, it becomes apparent that the research task of finding effective solutions is lagging a long way behind. Based on the principles of chronic disease management and the results of the present study, an integrated disease management system could include screening and monitoring, good disease information and self-management advice, as well as a range of cognitive and behavioral strategies applied in a stepped or tiered model.

Healthcare providers need to realize that they serve as vital gatekeepers to services that will help optimize cancer survival's psychosocial as well as physical outcomes [53].

References

1. Jacobson PB. Screening for psychological distress in cancer patients: Challenges and opportunities. J Clin Oncol 2007; 25: 4526-4527.
2. Barlow DH (Ed). Anxiety and its disorders: The nature and treatment of anxiety and panic (2nd Edn). New York: Guilford, 2002.
3. Stark D, Kiely M, Smith A, Velikova G, House A, Selby P. Anxiety disorders in cancer patients: Their nature, associations, and relation to quality of life. J Clin Oncol 2002; 20: 3137-3148.
4. Miceli M, Castelfranchi C. Anxiety as an "epistemic" emotion: An uncertainty theory of anxiety. Anxiety Stress Coping 2005; 18: 291-319.
5. Cattell RB (Ed). The meaning and measurement of neuroticism and anxiety. New York: Ronald Press, 1961.
6. Cattell RB (Ed). Patterns of change: Measurement in relation to state dimension, trait change, liability, and process. Handbook of Multivariate Experimental Psychology. Chicago: Rand Mc Nally & Co, 1966.
7. Spielberger CD (Ed). Manual for State-Trait Anxiety Inventory (Form Y). Palo Alto, CA: Consulting Psychologists Press, 1983.
8. Spielberger CD, Ritterband LM, Sydeman SJ, Reheiser EC, Unger KK. Assessment of emotional states and personality traits: Measuring psychological vital signs. In: Butcher JN (Ed): Clinical personality assessment. New York: Oxford University Press, 1995, pp 42-58.
9. Lazarus RS (Ed). Emotion and adaptation. London: Oxford University Press, 1991.
10. Ball S, Goddard A, Shekhar A. Evaluating and treating anxiety disorders in medical settings. J Postgrad Med 2002; 48: 317-321.
11. Sherbourne CD, Wells KB, Meredith LS et al. Comorbid anxiety disorder and the functioning and well-being of chronically ill patients of general medical providers. Arch Gen Psychiatry 1996; 53: 889-895.
12. Pessin H, Rosenfeld B, Breitbart W. Assessing psychological distress at the end of life. Am Behav Scientist 2002; 46: 357-372.
13. Fallowfield LJ, Hall A, Maguire P. Psychological effects of be-

ing offered choice of surgery for breast cancer. Br Med J 1994; 309: 448.
14. Sheard T, Maguire P. The effect of psychological interventions on anxiety and depression in cancer patients: Results of two meta analyses. Br Med J 1999; 80: 1770-1780.
15. Stark D, House A. Anxiety in cancer patients. Br Med J 2002; 83: 1261-1267.
16. Moser DK. "The rust of life": impact of anxiety on critically, acutely, and chronically ill cardiac patients. Distinguished research lecture abstract. Presented May 21, 2007, in memory of Carla C. Joliat, Philips Medical Systems, at the AACN National Teaching Institute in Atlanta, Ga, 2007.
17. Benight CC, Bandura A. Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. Behav Res Ther 2004; 42: 1129-1148.
18. Bandura A (Ed). Self-efficacy: The exercise of control. New York: Freeman, 1997.
19. Bandura A. Self-efficacy mechanism in human legacy. Am Psychologist 1982; 37: 122-147.
20. Cox DJ, Gonder-Frederick L. Major developments in behavioral diabetes research. J Consult Clin Psychol 1992; 60: 628-638.
21. Schwarzer R (Ed). Self-efficacy: Thought control of action. Washington, DC: Hemisphere, 1992.
22. Bandura A. Self-efficacy. In: Ramachaudran VS (Ed): Encyclopedia of human behavior. New York: Academic, 1994, Vol 4, pp 71-81.
23. Locke Latham GP (Ed). A theory of goal setting and task performance. NJ, USA: Prentice Hall, Englewood Cliffs, 1990.
24. Oken MM, Creech RH, Tormey DC et al. Toxicity and response criteria of the Eastern Cooperative Oncology Group. Am J Clin Oncol 1982; 2: 649-655.
25. Mystakidou K, Tsilika E, Parpa E, Sakkas P, Vlahos L The psychometric properties of the Greek version of the State-Trait Anxiety Inventory in cancer patients receiving palliative care. Psychol Health 2009; 24: 1215-1228.
26. Keedwell P, Snaith RP. What do anxiety scales measure? Acta Psychiatr Scandinav 1996; 93: 177-180.
27. Cohen S, Hoberman HM. Positive events and social supports as buffers of life change stress. J Applied Soc Psychol 1983; 13: 99-125.
28. Glynou E, Jerusalem M, Schwarzer R. Greek version of the General Self-Efficacy Scale, 1992. http://www.ralfschwarzer.de. Accessed December 1, 2010.
29. Mystakidou K, Parpa E, Tsilika E, Galanos A, Vlahos L. General perceived self-efficacy: validation in Greek cancer patients. Support Care Cancer 2008; 16: 1317-1322.
30. Connell CM, Gallant MP, Davis WK. Psychosocial impact of diabetes on depression: Age differences among young, middle-aged and older adults. J Mental Health Aging 1995; 1: 37-53.
31. Pollock S. Adaptation to chronic illness: A program of research for testing nursing theory. Nurs Sci Q 1993; 6: 86-92.
32. Livneh H, Antonak RF (Eds). Psychosocial adaptation to chronic illness and disability. Gaithersburg, MD: Aspen Publishers, 1997.
33. van't Spijker A, Trijsburg RW, Duivenvoorden HJ. Psychological sequelae of cancer diagnosis: A meta-analytical review of 58 studies after 1980. Psychosom Med 1997; 59: 280-293.
34. Usai S, Grazzi L, D'Amico D, Andrasik F, Bussone G. Psychological variables in chronic migraine with medication overuse before and after inpatient withdrawal: Results at 1-year follow-up. Neurol Sci 2009; 30: 125-127.
35. Gulec H, Sayar K, Topbas M, Karkucak M, Ak I. Alexithymia and anger in women with fibromyalgia syndrome. Turk Psikiyatri Derg 2004; 15: 191-198.
36. Dobkin PL, Fortin PR, Joseph L, Esdaile JM, Danoff DS, Clarke AE. Psychosocial contributors to mental and physical health in patients with systemic lupus erythematosus. Arthritis Care Res 1998; 11: 23-31.
37. LeResche L. Epidemiologic perspectives on sex differences in pain. In: Fillingim RB (Ed): Progress in Pain Research and Management: Sex, gender and pain. Vol. 17. Seattle: IASP Press, 2000.
38. Jones A, Zachariae R, Arendt-Nielsen L. Dispositional anxiety and the experience of pain: Gender-specific effects. Eur J Pain 2003; 7: 387-395.
39. McCathie HC, Spence SH, Tate RL. Adjustment to chronic obstructive pulmonary disease: the importance of psychological factors. Eur Respir J 2002; 19: 47-53.
40. Mystakidou K, Tsilika E, Parpa E, Gogou P, Theodorakis P, Vlahos L. Self-efficacy beliefs and levels of anxiety in advanced cancer patients. Eur J Cancer Care 2010; 19: 205-211.
41. Larson LM, Suzuki LA, Gillespie KN, Potenza MT, Bechtel MA, Toulouse AL. Development and validation of the counselling self-estimate inventory. J Couns Psychol 1992; 39: 105-120.
42. Girgis A, Boyes A. Proactive routine monitoring and intervention to reduce the psychosocial impact of cancer therapy. Clin Psychologist 2005; 9: 70-73.
43. Williams DA, Cary M, Groner KH, Clauw DJ. Beliefs in pain control improve with cognitive-behavioral therapy (CBT) for fibromyalgia. J Rheumatol 2002; 29: 1280-1286.
44. Navarrete-Navarrete N, Peralta-Ramírez MI, Sabio-Sánchez JM et al. Efficacy of cognitive behavioural therapy for the treatment of chronic stress in patients with lupus erythematosus: A randomized controlled trial. Psychother Psychosom 2010; 79: 107-115.
45. Quek T. Understanding Chronic Pain. Cited at: http://webhome.idirect.com/~readon/pain.html. Accessed July 5, 2010.
46. van Dixhoorn J, White A. Relaxation therapy for rehabilitation and prevention in ischaemic heart disease: a systematic review and meta-analysis. Eur J Cardiovasc Prev Rehabil 2005; 12: 193-202.
47. Astin JA, Beckner W, Soeken K, Hochberg MC, Berman B. Psychological interventions for rheumatoid arthritis: a meta-analysis of randomized controlled trials. Arthritis Rheum 2002; 47: 291-302.
48. National Breast Cancer Centre and National Cancer Control Initiative. Clinical practice guidelines for the psychosocial care of adults with cancer. Sydney: National Breast Cancer Centre, 2003. http://www.nhmrc.gov.au/publications /synopses/cp90syn.htm. Accessed: November 27, 2011.
49. Hofman C, Rice D, Sung HY. Persons with chronic conditions. Their prevalence and costs. JAMA 1996; 276: 1473-1479.
50. Renders CM, Valk GD, Griffin SJ, Wagner EH, Eijk Van JT, Assendelft WJ. Interventions to improve the management of diabetes in primary care, outpatient, and community settings: A systematic review. Diabetes Care 2001; 24: 1821-1833.
51. Glasow RE, Davis CL, Funnell MM, Beck A. Implementing practical interventions to support chronic illness self-management. Jt Comm J Qual Patient Saf 2003; 29: 563-574.
52. Bayliss EA, Steiner JF, Fernald DH, Crane LA, Main DS. Descriptions of barriers to self-care by persons with comorbid chronic diseases. Ann Fam Med 2003; 1: 15-21.
53. Alfano CM, Rowland JH. Recovery issues in cancer survivorship: A new challenge for supportive care. Cancer 2006; 12: 432-443.