

RESEARCH ARTICLE

Psychological Treatment for Pain Among Cancer Patients by Rational-Emotive Behavior Therapy - Efficacy in both India and Iran

Foroogh Mahigir¹, Ali Khanehkeshi², Ayatollah Karimi^{1*}

Abstract

The aim of the present study is to find out the influence of rational-emotive behavior therapy (REBT) on pain intensity among cancer patients in India and Iran. The study followed a quasi-experimental, pre-post test, carried out with a sample of 88 cancer patients, aged 21-52 years, referred to the Baharat cancer hospital of Mysore in India and Shahidzade hospital of Behbahan in Iran. They were randomly assigned to the experimental (n=India 21; Iran 22) and control (n=India 22; Iran 23) groups. Pain was measured with the McGill Pain Questionnaire-MPQ (1975), the intervention by REBT has given to the experimental group for 45 days (ten sessions) and at the end of intervention, the pain of patients was again evaluated. Concerning to hypothesis of the study, two independent sample T test and three ways mixed ANOVA is used to analyze the data. Results showed that the experimental group in post test had less pain than the control group, but there were no statistically significant differences between Indian and Iranian patients in pain perception. With respect the outcome of study, it has realized that REBT can be used in hospitals and other psychological clinics to reduce the pain of cancer patients.

Keywords: Intervention - rational emotive behavior therapy (REBT) - pain - cancer patients - India - Iran

Asian Pacific J Cancer Prev, **13** (9), 4561-4565

Introduction

Pain often does not make sense to those who have never experienced it. Pain is a serious medical condition that affects thoughts, feelings and the ability to function in everyday life. Pain results from abnormal functioning of the brain (Morales, 2001). The International Association for the study of pain defines pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage (Bernabei, 1998). Pain is not just feeling sad, "blue," or discouraged. It is much more than the normal "downs" that can be a part of everyday living. It is an illness that affects the person's thoughts, feelings, behavior and physical health. In its mildest form, pain can keep otherwise healthy individuals from enjoying their lives. Psychological factors are important contributors to the intensity of pain and to the disability associated with chronic pain (Melzack, 1999). Current approaches to the management of chronic pain have increasingly transcended the reductionist and strictly surgical, physical, or pharmacological approach to treatment. From a REBT perspective, "individuals who can accept events and attributes, no matter how negative, will experience natural feelings of disappointment and frustration, but will rarely manifest clinical pain" (Bernard, 2006).

Current approaches recognize the value of a multidisciplinary treatment framework that targets not only nociceptive aspects of pain but also cognitive-

evaluative and motivational affective aspects alongside equally unpleasant and impacting sequelae.

Psychological approaches for the management of chronic pain initially gained popularity in the late 1960s with the emergence of Melzack and Wall's "gate-control theory of pain" (Melzack, 1965) and the subsequent "neuro matrix theory of pain (Melzack, 1999). Briefly, these theories posit that psychosocial and physiological processes interact to affect perception, transmission, and evaluation of pain, and recognize the influence of these processes as maintenance factors involved in the states of chronic or prolonged pain.

Current psychological approaches to the management of chronic pain include interventions that aim to achieve increased self-management, behavioral change, and cognitive change rather than directly eliminate the locus of pain. As such, they target the frequently overlooked behavioral, emotional, and cognitive components of chronic pain and factors contributing to its maintenance. Informed by the framework offered by Hoffman et al. (2007) and Kerns et al. (2010) mind/body approaches address these issues and provide a variety of benefits, including a greater sense of control, improved coping skills, decreased pain intensity and distress, changes in the way pain is perceived and understood, and increased sense of well being and relaxation. These approaches may be very valuable for adults and children with pain (Rusy, 2000).

¹Teacher Training Centre of Imam Sadegh Behbahan, The Holy Prophet Higher Education Complex of Iran, ²Department of Psychology, Islamic Azad University, Behbahan Branch, Iran *For correspondence: AYAT191@gmail.com

One of the most frequently employed psychologically-based treatments is Cognitive-Behavioral Therapy (CBT). CBT has been found to be effective as part of a treatment regimen for a variety of pain conditions including chronic cancer pain (Thomas, 2000), rheumatoid arthritis and osteoarthritis (Bradley, 2002), fibromyalgia (Berman, 1999), chronic low back pain (Van Tulder, 2001), and chronic pelvic pain (Reiter, 1998).

Relaxation also includes a range of therapeutic techniques that may decrease the pain (Barkin et al., 1996). According to the 1996 National Institutes of Health report on the treatment of chronic pain and insomnia, there is strong evidence for the effectiveness of relaxation techniques in reducing chronic pain in a variety of medical conditions. Effects may include reduced pain and muscle tension, reduced anxiety and insomnia, and increased activity level (Good, 1996; Carroll, 1998). Biofeedback is one of the other psychological treatments that have been designated as an efficacious treatment for pain associated with headache and temporomandibular disorders (TMD) (Yucha, 2008). Biofeedback has been shown to be effective in the management of a variety of pain conditions (DePalma, 1997). Other studies have shown effectiveness of hypnosis for pain associated with burns, cancer, and rheumatoid arthritis (Sellick, 1998) and pain and anxiety reduction related to surgery (Lang, 2000).

Cancer is a general term applied to tumors or growths. The terms oncology, anaplasia, neoplasm's may all be used as an alternative to the word 'cancer'. Body cells normally regenerate and die continually so the number of cells remains constant. Cancer can develop in people of all ages, but it is more common in people over 60 years old. The incidence of cancer is increasing possibly due to lifestyle and the increasing age of the population (Gabriel, 2004).

There are 1/250th men and 1/300th women diagnosed as suffering from cancer every year (Souhami and Tobias, 2003). Although the treatment and management of the primary tumors have obviously been the main focus of medical input, metastatic spread is still the main cause of death (Tobias and Eaton, 2001). This spread often develops before diagnosis and treatment have begun, so prognosis is not altered by treatment of the primary cancer. Early intervention with cancer treatment invariably has a better chance of survival.

Today the therapeutic methods have created a large number of survivors of cancer patients. It would seem that the problems of the cancer patient would be solved by his survival alone, but unfortunately this is not so. Progress in treatment, like all other advances, has created problems. The National Institute of Nursing Research reports that pain affects more Americans than cancer combined (National Institutes of Health. Fact sheet, 2011). Pain in the cancer patients is a common occurrence; with emotional, cognitive and physical sequel and some may have clinical levels of pain (Antonio, 2000). Cancer patients also experience different levels of stress and emotional upsets. Important issues in the life of any person with cancer may include the fear of death, interruption of life plans, changes in body image and self-esteem changes in social role and life style.

The need to understand which therapeutic and technique is most applied a major key for health studies. Rational Emotive Behavior Therapy (REBT) is one of the most widespread psychological approaches and with respect to the previous studies it can be used as a therapeutic method with cancer patients.

REBT developed by Albert (1950) based on the principle that whenever we become upset, it is not the events taking place in our lives that upset us; it is the beliefs that we hold, make us to become depressed, anxious, enraged, etc (Dryden, 2003). The first of the modern cognitive behavior therapies and a pioneering philosophy was developed in 1955 by Albert Ellis in Eastern USA, in New York. Coming and strongly influenced by the perspective of a Freudian Sexual-Therapist (Ellis, 2003).

The researchers have recently demonstrated the important of REBT in managing cancer-related pain (Syrjala, 1995). Summarizing twenty years of research on clinical Anxiety, the American Psychiatric Association concluded that REBT is probably as good as drug treatment and better than other forms of psychotherapy. The basic process of change which REBT attempts to foster begins with the client acknowledging the existence of a problem and identifying any 'meta-disturbances' about that problem. The client then identifies the underlying irrational belief which caused the original problem and comes to understand both, why it is irrational and why a rational alternative would be preferable (Ellis, 2001). The client challenges their irrational belief and employs a variety of cognitive, behavioral, emotive and imagery techniques to strengthen their conviction in a rational alternative. They identify impediments to progress and overcome them, and they work continuously to consolidate their gains and to prevent relapse. Further, REBT advocates 'selective eclecticism', which means that REBT counselors are encouraged to make use of techniques from other approaches, while still working specifically within the theoretical framework of REBT.

Despite of the many studies about effectiveness of Psychological interventions on different forms of pain, there is rarely any documentation on the influence of REBT on pain in cancer patients. The present study therefore focuses on these issues that if the REBT treatment has a significant affect in reducing pain among cancer patients.

Cancer patients in this study refer to the patients with any kind of cancer that is recognized by specific tests in cancer and patients with pain are defined in this study as compromise of those cases that show high scores on McGill Pain Questionnaire., more over the main objective of this research is to use the Rational Emotive Behavior Therapy (REBT) to reduce levels of pain among cancer patients in India and Iran.

Materials and Methods

The sample of the study contains of 88 patients in two countries (By the age range of 21-52 years) and randomly divided in control (n=India22+Iran 23) and experimental (n=India 21+Iran 22) groups.

In order to assess the pain perception of the cancer

patients in this study the McGill Pain Questionnaire^[31]. MPQ was used. The MPQ is a validated multidimensional clinical tool that assesses pain in three dimensions-sensory, affective, and evaluative-based on 20 sets of words that patients select to describe their pain. The words selected by the patient can be used to describe the quality of their pain, such as burning, shooting, electric, or pins and needles, and as throbbing, aching, or heavy. The description of these types of pain can suggest underlying neuropathic mechanisms. The MPQ takes between 5 and 15 minutes to complete, and thus has been used in pain research rather than clinical practice. The MPQ provides two indexes of pain: (1) the total number of items chosen and (2) the pain rating index (PRI), which is an index of the severity of the items chosen.

Study was carried out in 3 phases

Phase 1, (pre test): In this phase, McGill Pain Questionnaire (MPQ) administered to selected cancer patients and the level of pain in two groups was computed.

Phase 2, (Intervention): The second phase of this study Rational-emotive behavior therapy (REBT) treatment manual has evaluated to reduce pain. The intervention that was conducted for this research involved eight sessions which lasted for two hours for each session. All sessions were carried out on Monday, Wednesday and Friday of the week, at the center of cancer patients. The first session, focused on preparing the right environment for intervention and conditions for worth such as empathy, warmth and respect; relationship building and assessment of family background. The second session encouraged cancer patients to have an insight of their personal experiences in their respective environment; the third session prepared patients to go through counseling intervention, as well as to be introduced to REBT counseling approach. The fourth to seven sessions were the intervention phases based on REBT and the eight sessions was the final or the concluding session, which aimed at preparing members to conduct themselves well when they are confronted with stressful situations in their daily lives. In the rational emotive behavior therapy (REBT), the total time spent by the patients on the REBT at the work setup was 55 minutes and participants were given a workbook with a summary of the material presented in each session and worksheets used in sessions and for home practice assignments. The psychosocial techniques were distributed as follows: Cognitive techniques, Imagery techniques and Behavioral techniques.

Phase 3, (post test): After 10 days from phase 2, McGill Pain Questionnaire (MPQ) was administered again on all samples groups and the obtained data was processed and computed by SPSS. In this study, testing was done in a quiet atmosphere. The instruction was given clearly without any ambiguity and there was no time limit for answering the questionnaire.

Results

Pretesting

Before analyze of hypothesis of the research, two independent sample T test has been used to find out

the difference between pre test of both control and experimental groups. The mean scores and T value of total pain indicated that there were no significant differences between pre test scores. The mean scores and T value of 4 subscales of pain questionnaire also indicates that there are no significant differences between pre test of experimental and control groups.

Effect of intervention (Repeated measure ANOVA)

Regarding to the hypothesis of the present study, three ways mixed ANOVA is used to analyze the data. In this design, three independent variables are [group (experimental and control) and country are between Subjects and scores of pretest- posttest are within subjects], and the scores of pain are dependent variable. Descriptive statistics and analysis by repeated measure ANOVA for total pain scores and four subscales have shown in the following tables and figures.

As it has shown above, in India the mean and S.D of total Experimental group in pre-test is 34.47-4.63 and in post-test is 15.00-3.52 nevertheless for control groups is 33.95-6.00 for pre-test and 30.43-5.55 for post-test. In Iran also the mean and S.D of total Experimental group in pre-test is 35.72-2.81 and in post-test is 16.18-4.38 nevertheless for control groups is 34.86-2.37 for pre-test and 33.18-4.36 for post-test. Mean and S.D of four subscale in experimental group has shown reduction from pre test to post test where as there is no differences shown in control group.

As it has been shown in Table 2, In total pain scores with respect to within-Subjects Effects, there are significant differences between pretest and posttest [F (1, 84)=248.31, P<001].

The interaction between Change * Group and Change * Group * Country are not significant but between Change * Country, it is significant [F (1, 84)=145.19, P<001]. With respect to the effect of Country and group as independent variables (Between Subject), The effect of group is significant [F (1, 84)=156.71, P<001] and the effect of

Table 1. Mean and S.D of Pre and Post-Test of Total Pain Scores.

Variable	India				Iran			
	Pretest		Post Test		Pretest		Post Test	
	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
Total								
Exp	34.47	4.63	15.00	3.52	35.72	2.81	16.18	4.38
Control	33.95	6.00	30.43	5.55	34.86	2.37	33.18	4.36
Sensory								
Exp	21.19	4.34	8.95	3.21	22.54	2.52	9.90	3.58
Control	21.43	4.35	20.26	5.60	22.40	1.86	22.86	4.55
Affective								
Exp	4.19	1.03	1.61	.58	3.81	0.66	1.90	1.06
Control	3.69	1.10	2.86	1.21	3.68	0.83	2.54	0.96
Evaluation								
Exp	3.19	1.40	1.8	1.10	3.04	0.72	1.63	.84
Control	3.04	1.46	2.26	.91	2.95	0.89	2.36	0.95
Miscellaneous								
Exp	5.90	1.64	2.57	0.92	6.31	0.89	2.72	1.31
Control	5.78	1.56	5.04	1.36	5.81	1.18	5.40	0.90

*Exp= Experimental

Table 2. Results of Repeated Measure ANOVA for Pre and Post-Test Sessions of Total Pain and Four Subscale Scores

	Total		Sensory		Affective		Evaluation		Miscellaneous	
	F	p	F	p	F	p	F	p	F	p
Within-Subjects Effects										
Source of variation										
Change	248.31	0	117.46	0	126.99	0	47.32	0	105.25	0
Change*Group	0.39	0.53	0.27	0.6	0.37	0.54	0.03	0.84	0	0.92
Change*Country	145.19	0	104.63	0	19.39	0	5.23	0.02	53.88	0
Change*Group*Country	0.46	0.49	0.73	0.39	2.89	0.09	0.2	0.65	0.55	0.45
Between-Subjects Effects										
Intercept	8886.34	0	3914.75	0	1716.85	0	879.45	0	2945.97	0
Country	6.02	0	6.06	0	0.51	0.47	0.26	0.6	1.77	0.18
Group	156.71	0	103.94	0	4.57	0.03	1.69	0.19	38.62	0
Group*Country	0.24	0.62	0.28	0.59	0.19	0.66	0.3	0.58	0.05	0.81

country also is significant [F (1, 84)=6.02, P<001].

In Sensory pain scores, there are significant differences between pretest and posttest [F (1, 84)=117.46, P<001] and interaction of Change * Country [F (1, 84)=104.63, P<001].but the interaction between Change * Country and Change * Group * Country are not significant.

More over the effect of group is significant [F (1, 84)=103.94, P<001] and the effect of country also is significant [F (1, 84)=6.06, P<001].

In Affective pain scores, there are significant differences between pretest and posttest of affective pain scores [F (126.99, P<001] and interaction of Change * Group, it is significant [F (1, 84)=19.39, P<001] but the interaction between Change * Country and Change * Group * Country are not significant. With respect to the effect of country and group, only the effect of group is significant [F (1, 84)=4.57, P<.05].

In Evaluation pain scores, there are significant differences between pretest and posttest scores in pain [F (47.32, P<001] but the effect of country, group and all interactions are not significant

In miscellaneous pain scores, there are significant differences between pretest and posttest of miscellaneous pain scores [F (105.25, P<001] and interaction of Change * Group also is significant [F (1, 84)=53.88, P<001] but the interaction between Change * Country and Change * Group * Country are not significant.

With respect to the effect of Country and group, only the effect of group is significant [F (1, 84)=38.62, P<.01].

Discussion

The objective of the study was to explore the effect of REBT therapy on pain among cancer patients in pre and post test of experimental and control groups. The literature review has revealed that present study is the first work in this area. The finding revealed that intervention session was highly effective in reducing pain in the Experimental groups. The results of this study have approved the current hypothesis and are agreement with previous studies. These findings corroborate previous studies which have considered the use of psychological interventions in the treatment of pain following Cancer patients (Lustman, 1998). It is also in agreement with Syrjala, Donaldson,

Davis et al.; Cappeliez (Cappeliez, 2000); Kush and Fleming (Kush and Fleming, 2000) and Ebrahimi (2007). According to the above mentioned results, REBT is highly effective in reducing pain in the Experimental group and it can be used on cancer patient. With regard to mentioned results it is recommended that these groups of patients should be prepared in counseling and interventional classes with individual or group therapy. Few studies have assessed or reported the effectiveness of REBT therapy on pain among cancer patients. From this perspective, the obtained results are important.

Regarding the limitation of psychotherapy treatments and effectiveness of this kind of intervention, REBT can be used in cancer hospitals and other psychological clinics to reduce the pain of patients.

References

- Antonio MH, Lutgendorf S (2000). Psychosocial factors and disease progression in cancer. *J Curr Dir Psychol Sci*, **16**, 42-6.
- Barkin RL, Lubenow TR, Bruehl S, et al (1996). Management of Chronic Pain. Part II. *Disease-a-Month*, **42**, 461-507.
- Berman BM, Swyers JP (1999). Complementary medicine treatments for fibromyalgia syndrome. *Best Practice & Res in Clinical Rheumatology*, **13**, 487-92.
- Bernard ME, Ellis A, Terjesen MD (2006). Rational-emotive behavioral approaches to childhood disorders. *J History, Theory, Practice, And Res*, **23**, 43-59.
- Bernabei R, Gambassi G, Lapane K, et al (1998). Management of pain in elderly patients with cancer. *J Am Med Assoc*, **279**, 23.
- Bradley LA, McKendree-Smith NL (2002). Central nervous system mechanisms of pain in fibromyalgia and other musculoskeletal disorders: behavioral and psychologic treatment approaches. *Current Opinion in Rheumatology*, **14**, 45-51.
- Cappeliez P (2000). Presentation of pain and response to group cognitive therapy with older adults. *J Clinical Gerontology*, **6**, 156-74.
- Carroll D, Seers K (1998). Relaxation for the relief of chronic pain: a systematic review. *J Advanced Nursing*, **27**, 476-87.
- DePalma MT, Weisse CT (1997). Psychological influences on pain perception and non-pharmacologic approaches to the treatment of pain. *J Hand Therapy*, **10**, 183-91.
- Dryden W (2003). Rational Emotive Behavior Therapy. *J Theoretical Developments Brunner*, **18**, 43-57.
- Ebrahimi A (2007). Effectiveness of cognition, behavior therapy

- on pain of cancer patients. PhD thesis (Unpublished). University of Esfahan, Iran.
- Ellis A (2001). *Overcoming Destructive Beliefs, Feeling and Behaviors*. Amherst, NY: Prometheus Books.
- Ellis A (2003). Early theories and practices of rational emotive behavior theory and how they have been augmented and revised during the last three decades. *J Rational-Emotive Cognitive-Behavior Therapy*, **21**, 3-4.
- Gabriel J (2004). *The Biology of Cancer*. 2nd ed. John Wiley: London.
- Good M (1996). Effects of relaxation and music on postoperative pain: a review. *J of Advanced Nursing*, **24**, 905-14.
- Hoffman BM, Papas RK, Chatkoff DK, Kerns RD (2007). Meta-analysis of psychological interventions for chronic low back pain. *Health Psychol*, **26**, 1-9.
- Kerns RD, Sellinger J, Goodin BR (2010). Psychological treatment of chronic pain. *Annu Rev Clin Psychol*, **7**, 411-34.
- Kush FR, Fleming LM (2000). An innovative approach to short-term group cognitive therapy in the combined treatment of anxiety and pain. *J Group Dynamics*, **4**, 176-83.
- Lang EV, Benotsch EG, et al (2000). Adjunctive non-pharmacological analgesia for invasive medical procedures: a randomized trial. *Lancet*, **355**, 1486-90.
- Lustman P, Griffith L, Freedland K, Kissel SS, Clouse R (1998). Cognitive behavior therapy for pain in type 2 diabetes Mellitus. *J Annals of Internal Med*, **129**, 613-31.
- Melzak R (1975). The McGill Pain Questionnaire: Major properties and scoring methods. *J Pain*, **1**, 277-99.
- Melzack R (1999). Pain and stress: a new perspective. In: Gatchel RJ, Turk DC, editors. *Psychosocial Factors in Pain: Critical Perspectives*. New York: Guilford Press, 89-106.
- Melzack R, Wall PD (1965). Pain mechanisms: a new theory. *Science*, **150**, 971-9.
- Morales LS. *Assessing Patient Experiences with Assessing Healthcare in Multi-Cultural Settings 2001*; from <http://www.rand.org/publications/RGSD/RGSD157/> Routledge.
- National Institutes of Health (2011). Fact sheet: pain management. Available from: <http://www.ninr.nih.gov/NR/rdonlyres/DC0351A6-7029-4FE0-BEEA-7EFC3D1B23AE/0/Pain.pdf>.
- Reiter RC (1998). Evidence-based management of chronic pelvic pain. *Clin Obstets Gynecol*, **41**, 422-35.
- Rusy LM, Weisman SJ (2000). Complementary therapies for acute pediatric pain management. *Pediatric Clinics North America*, **47**, 589-99.
- Sellick SM, Zaza C (1998). Critical review of 5 nonpharmacologic strategies for managing cancer pain. *Cancer Prevent Control*, **2**, 7-14.
- Souhami R, Tobias J (2003). *Cancer and its Management*. 2003. 4th ed. Blackwell Science: Oxford.
- Syrjala KL, Donaldson GW, Davies MW, Kippes ME, Carr JE (1995). Relaxation and imagery and cognitive-behavioral training reduce pain during cancer treatment: A controlled clinical trial. *J Pain*, **63**, 189-98.
- Thomas EM, Weiss SM (2000). Nonpharmacological interventions with chronic cancer pain in adults. *Cancer Control*, **7**, 157-64.
- Tobias J, Eaton K (2001). *Living with Cancer*. 2001; 2nd ed. Bloomsbury: London.
- Van Tulder MW, Ostelo R, Vlaeyen JW, et al (2001). Behavioral treatment for chronic low back pain: a systematic review within the framework of the Cochrane Back Review Group. *Spine*, **26**, 270-81.
- Yucha C, Montgomery D (2008). *Evidence-based practice in biofeedback and neurofeedback*. Wheat Ridge, CO: AAPB; 2008.