RESEARCH ARTICLE

Positive Effects of Cognitive Behavioral Therapy on Depression, Anxiety and Stress of Family Caregivers of Patients with Prostate Cancer: A Randomized Clinical Trial

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Abstract

   Background: The family caregivers of patients with cancer mightexperience various physical, mental, and spiritual difficulties, the neglect of which can causeseriousproblems for theentirefamily. If caregivers are left without appropriate treatment and intervention, their level of physical and mental health will substantially decrease-they will, in other words, become"hidden patients." **Materials and Methods:** The current study is a clinical trial of 80 family caregivers of patients with prostate cancer, who were allocated to control and experimental groups. The experimental group received 10 sessions of group cognitive behavioral therapy. The 21-item Depression Anxiety Stress Scales were completed before the intervention as well4 and 8 weeks after. Data were analyzed using descriptive statistics (means and standard deviations) andvariousstatistical tests. **Results:** The results showed thatthecognitivebehavioral intervention reduceddepression, anxiety, and stress among familycaregivers. **Conclusion:** Because of the positive impact of this intervention, its implementation in clinical care by nurses is recommended.

   Keywords: Care- cognitive behavioral therapy- prostate cancer

Introduction

   Cancer is a major health problem that humans worldwide can encounter at any point in their lives. It is currently the third leading cause of death and the second leading cause of chronic non-communicable disease. Cancer is responsible for 12% of deaths globally, and it is predicted that by 2015, about 54% of all deaths in the world will be due to non-communicable diseases; at least 10% of these deathswill be related to cancer (Jamal et al., 2011). According to the World Health Organization, it is expected that the numberof deaths from cancer will increase from about 9 millionin 2015 to 11.4 million in 2030, with about 70% ofthesedeathsoccurring in low and middle-income countries. In Iran, about 70,000 cases of cancer are reportedannually,and this number is expected to increase as the population of elderly increases (Vafajo et al., 2014).

   Chronic disease and disability noticeably interfere in daily life, and the impact of the disease on both the patient and their family can often lead to changes in compliance and family dynamics (Varaei et al., 2013). In Iran, most cancer patients are cared for at home by family members owing to the strongfamily foundations in this country. Studieshaveshown, however, that thepressureof such care onbothpatients and their families can lead to a family crises (Weitzner et al., 2008) and problems such as role limitations, changes in maritallife, and poorhealth (Khanjari et al., 2012; Rivera Jr, 2009). Although some believe that caregiving isassociated with rewardand positive reinforcement (Navidian and Bahari, 2008) existing studies have shown that the diversity and intensity of care canlead to mental health problems in the family caregivers (Navidian and Bahari, 2008; Grandón et al., 2008). Family caregivers in particular mightexperience various physical, mental, and spiritual problems as a result of caring forpatients with cancer, andneglecting theseproblems can have adverse effects on thefamily (Grunfeld et al., 2004; Glajchen, 2003). If these caregivers are left without treatment and intervention, they are likely to develop poor physical and mental health, becoming so-called"hidden patients" (Goode, 1998).

   Stress is often considered a self-created experience, which means that people have the ability tocontrol their anxiety and stress. Controlling stress and anxiety is ateachableskill that is necessary for maintaining mental health (Mahmoodi et al., 2016). In recent years, the field of health psychology has deepened our understanding of how

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todeal with stress and life challenges in order to improve people's physical and mental health, and researchers in this field have claimed that the most direct way of intervening in stress is strengthening individuals'adaptive coping responses and cognitive abilities (Alloy and Riskind, 2006) Intervention programs aremorelikely to be successful when they are based on sound theory and empirical evidence. For adolescents, particularly effective interventionsare based on thecognitivebehavioral approach. Among the many advantages of this approach for preventing illness and promoting mental health are its strong evidence base, systematic approach, educational capacity, and multidimensional focus(including cognitive, emotional, behavioral, and social components) (Hollon et al., 2006).

The cognitivebehavioral model is based on the notionthat mental health problems such as depression, anxiety, and anger are often aggravated by overthinking. The role of the therapist, then,is to help the patient identify their thinking style and changeits properties using evidence and logic. Cognitive behavioral therapy can be considered the continuation of the long and reliable path that began with Socrates's logic and Aristotle's method of collecting and categorizing information about the real world. The cognitive model emphasizes the central role of cognitive and schematic processing as a determining factor of information processing, and is regarded as areflection of the cognitive revolution in psychology in the late 1970s (Basco and Rush, 2005). Cognitivebehavioral therapy appearseffective forimproving mental health and irrational beliefs (Dryden and Neenan, 2014; Harris et al., 2006). The aim of this type of treatment is to help clientsidentifytheir dysfunctional behavior and distorted patternsof thoughtthrough regular discussion and organized behavior (Gaviţa et al., 2012; Gumport et al., 2015). Given this background, we might conclude that a program aimed at supporting caregivers of patients with cancer and teaching them problem-focusedcoping strategies would bevery effective in reducingtheirdepression, stress, and anxiety. Therefore, we conducted the present study to investigate the influence of cognitivebehavioral therapy on depression, stress, and anxiety among thecaregivers of patients with prostate cancer.This study was conducted in 2015 in Ilam, Iran.

Materials and Methods

This was aclinical trial involving 80 caregivers of patients with prostate cancer who were referred to Shahid Taleghani Hospital or doctors' offices in Ilam. Data were collectedbefore the intervention as well as 4 and 8 weeks after. For each patient, two caregivers were enrolled. The inclusion criterion for patients was having a diagnosis ofcancer,while those for caregivers werebeing a family member of the patientand having fullresponsibilityfor treating and supporting him/her; being between 18 and 65 years of age; and being able to communicate and attend the sessions. Caregivers who were not willing to attend the sessions, who were absent formore than two sessions, or who experienced a crisis such asthe death of a family member during the study were removed from the experiment.

The data-gathering tool comprised two parts. The first part included a patient information form, and the second part the 21-item Depression Anxiety Stress Scales (DASS-21). The DASS-21 consists of a total of 21 items, 7 each for measuring depression, anxiety, and stress. Totalscores of 0-4, 5-11, and 12 or moreindicate normal, moderate, and severesymptoms, respectively. Each item is rated on a4-point Likert scale with response options of none at all, low, medium, and too much.The validity of the questionnaire was confirmed inpaststudies, bothinside and outside Iran (Seyed Ahmadi Nejad et al., 2015; Crawford and Henry, 2003).

Toselect the participants, we first identified the patients and caregivers, after which the caregiverswere allocatedinto control (40 individuals) and experimental (40 individuals) groups. The training was performed in 1.5-hoursessions, giventwice perweek for 8 consecutive sessions,followed bytwo further sessions as asummary (for a total of 10 sessions). All sessions were conducted by the researcher.

The primary content of the intervention program was based on Meichenbaum's method ofcognitive behavior modification-namely, the stress inoculation training protocol. Stress inoculation training can be considered part of acontinuousstress management program that seeks to extend the benefits of this education into the future.It has been shown to be beneficial and potentiallyapplicable to the prevention and treatment of a variety of mental healthproblems. In the clinical setting,it can be integrated intoanger and stress management training, assertiveness training, improvement ofcreative thinking, and the treatment of depression andvarioushealth problems.Stress inoculation training has beensuccessfullyimplemented for bothmedical and psychiatric patientsof all ages, includingchildren, adolescents, and adults,and for numerous health problems, such as anger, anxiety disorders, phobias, social incompetence, addiction, alcoholism, sexual dysfunction, social withdrawal, and posttraumatic stress disorder (PTSD). Meichenbaum believes that the flexibility of stress inoculation training has contributed to its strong efficacy (Seyed Ahmadi Nejad et al., 2015).

Stress inoculation training is considered a type of cognitivebehavioral therapy and was developed by Meichenbaum (1985, 2007, 2008). This training is based on the assumption that stress coping ability can be determined by changing one'sbeliefs and engaging in self-talks that we have about our performance in stressful situations.

Stress inoculation training comprises a combination of providing information, Socratic evaluation plans, cognitive restructuring, problem solving, relaxation training, behavioral training, self-monitoring, self-education, strengthening sense of self, and modifying environment factors. Clients can acquire effective strategies for dealing with stressful situations by learning how to change their "mental set" or basic ideas. The following specific methods are used to teachcoping skills Seyed Ahmadi Nejad et al., (2015).

- Exposure stressful situations viarole playing and

imagery.

- Self-evaluatinglevel of anxiety.
- Being taught to recognize disturbing experiences in stressful situations.
- Re-evaluation ofself-talk in order to assess clients'thoughts.
- Consideration oftheir anxiety after reassessment of their thoughts.

Meichenbaum further claimed that stress inoculation training comprised three steps (Seyed Ahmadi Nejad et al., 2015)

Conceptual andEducational Phase

This stage focuses on establishing working relationships and a therapeutic alliance with clients; helping clients better understand the nature of stress insocialinteractions;obtaining clients' cooperation and collaboration inthinking about stressful issues;simply stating the conceptual framework toclients to help inform them of the different ways to react in stressful situations;making clients' aware of the role of cognitions and emotions increating and managing stressthrough educational material; questioning and use of guided self-discovery; encouraging clients to narrate theirself-talk;makingclients aware of their role in creating stress and their life stories; carefully monitoring internal discussions that results in maladaptive behaviors;makingdetailed notes ofone'sthoughts; writing regularly about their emotions and unique behaviors in a notebook;implementingflexible coping techniques with thetherapist during training; and ensuring the therapist issensitive to the client's individual circumstances, culture, and situation.

Skills Acquisition and Consolidation Phase

This phase involves training clients indifferent cognitive and behavioral coping skills and helping thempractice in dealing withstressful situations;teaching clients to useindirect actions such as gathering information about theirfears;helping clients become aware of stressful situations;organizing the various methods of reducing stress, such as distracting oneself with other activities; learning physical and mental relaxation techniques; informing clients of the relationship between adaptive and maladaptive behaviors through internal discussion; learning and practicing new types of self-talk;informing clients of the different behavioral interventions including relaxation training, social skills training, time management training, and development of self-learning; changing lifestylesthrough reassessment ofpriorities; developing support systems and direct action to change stressful situations; learning progressive relaxation skills through training; and roleplaying and guided practice.

Application and Follow-Through Phase

Finally, thisphase revolves around having clients learn new self-talk exercises and implementnew skills in everyday life; participatingin training sessions and various activities, including behavioral practice, mental imagery, roleplaying, role modeling, and gradually

building to real confrontation;doing less difficult behavior homework;writing down their own favorite behavioral homework;engaging in a careful examinationof practice results in subsequent meetings, assessing the reasons for either the client's or the therapist's failure in the practice;prevention of breakdown by teaching clients to consider slips as "learning opportunities" and not as "disastrous failures"; andevaluating potentially dangerous stressful situations.

Ethical Considerations

Ethical considerations in this study included obtaining participants' informed consent to participate in the study, randomly assigning the experimental and control groups, maintaining the principle of confidentiality, and avoiding publication bias. Participants were also assured oftheirconfidentiality. After entering the data into SPSS Statistics 16, descriptive statistics, frequency tables, and inferential statistics (paired t-test) were employed for thedata analysis. The significance level was set at 0.05. The current study is a clinical trial that was approved bythevice president for research of the Medical University of Ilam. Furthermore, the present study was approved by the Research Ethics Committee of the Medical University of Ilam.

Results

Caregivers' personal characteristics are shown in Table 1. As shown in thetable, before the intervention, we observed no significant differences in theindividual characteristics of the participants between the experimental and control groups.

The results showed that there was a statistically significant difference inthe mean scores of depression, stress, and anxiety between before and after the

Table 1. Frequency Distribution of Demographic Characteristics

Variable	Group		p-value
	Experimental	Control	
Gender			0.1
Male	24 (60)	24 (60)	
Female	16 (40)	16 (40)	
Marital status			0.27
Married	7 (17.5)	9 (22.5)	
Widow	33 (82.5)	31 (77.5)	
Education			0.97
illiterate	3 (7.5)	5 (12.5)	
Diploma	16 (40)	19 (47.5)	
University	21 (52.5)	16 (40)	
Caregivers			
Boy	13 (32.5)	15 (37.5)	0.85
Girl	16 (40)	16 (40)	
Spouse	6 (15)	4 (10)	
Other relatives	5 (12.5)	5 (12.5)	
Age (Mean±Sd)	39.48±9.74	40.13±11.28	0.15

Table 2. Repeated Measure ANOVA at Two Times Measures

Outcome Measure	group	Depression		Anxiety		Stress	
		Mean (SD)	P value	Mean (SD)	P value	Mean (SD)	P value
Before	Experimental	7.50 (3.76)		11.32 (5.59)	0.26	12.45 (5.04)	0.09
	Control	7.80 (3.82)	0.74	11.87 (4.84)		13.12 (4.08)	
4 weak After	Experimental	6.37 (3.50)		8.47 (3.78)	0.001	7.07 (4.80)	
	Control	8.10 (3.77)	0.001	11.90 (4.55)		13.62 (4.19)	0.59
8 weak After	Experimental	5.53 (3.30)		7.40 (3.36)	0.001	5.37 (3.37)	
	Control	8.47 (3.52)	0.001	12.27 (4.22)		13.77 (3.74)	0.15

interventionin the experimental group.This suggested that implementation of this cognitivebehavioral intervention reducedthese participants' symptoms of depression, stress, and anxiety. In the control group, however, none of themain variables showed significant differences before orafter the intervention (Table 2).

Discussion

In this study, the mean depressionscoreofthe experimental group was significantly lower than was that of the control group after the intervention. These findings were consistent with the studies of Jabari et al., (2012) who examined12 pregnant women in the city of Shah Reza (Chinchai et al., 2003), and Dehghani et al., (2009) who examined 12 patients with alopecia areata in Isfahan (Crawford and Henry, 2003). The instruments used in past studiesincluded the depression subscale of the DASS-42 questionnaire, the depression subscale of the Symptom Checklist Revised (SCL-90-R), and Beck's Depression Inventory. By contrast, we usedthedepression subscale of the DASS-21. Regardless of the tools used,cognitive behavioral therapy was consistently found to reduce depression scores.

Themean anxietyscore of the experimental group wasalsostatistically lower than was that of the control group after implementation of cognitive behavioral therapy. This finding was consistent with the results of the studies by Jabari et al., (2012) and Dehghani et al., (2009). These studies used the Self-Rating Anxiety Scale andSelf-Rating Anxiety Sensitivity Scale to measure anxiety, whereas we used the DASS-21 anxiety subscale. Nevertheless, for all threetools, anxietyscores decreasedafter the implementation of the cognitivebehavioral therapy.

We also found significantly lowerstress scores in the experimental group than in the control group after the intervention. These results are consistent with the findings of the studies by Jabari et al., (2012); Nesiyani et al., (2011) who examined 12 women with systemic lupus erythematosus in Isfahan; and Groarke et al., (2013) who studied 177 women with breast cancer in Ireland. The former study used the stress subscale of the DASS-42, while the latter two utilized thePerceived Stress Scale. This study utilized the stress subscale of the DASS-21. Regardless of the tool, thelevel of stress decreased significantly after cognitivebehavioral therapy.

In Narlund et al.'s study (2015), an internet-based cognitivebehavioral therapyinterventionfor the treatment of depression and anxiety in patients with recent myocardial infarction was found to be effective. Stefan et al., (2012), conducted a review study on the effects of cognitivebehavioral therapy,selecting106 studies out of 269 as a representative sample for meta-analysis. They found the strongest support for cognitivebehavioral therapy targeted atstress and anxiety disorders. Anotherreview study, conductedin 2014 by Shubina (2015) revealed thatcognitivebehavioral therapy can effectively reduce symptoms of anxiety and stress in patients with PTSD. However, that study emphasized that predicting responses to cognitivebehavioral therapy is often difficult.Shubina recommended that, in order to enrich our understanding of the effects of cognitivebehavioral theory, further studies should focus on the mechanism of change, the relationship between patients' individual differences and characteristics, which symptoms respond to specific interventions, how to treat PTSD early onand prevent its development entirely,andthetreatment of specific symptoms .

In past studies, the implementation of cognitive behavioral therapy form an aging stress, anxiety, and depression had positive consequences. This study showed that this therapy is similarly beneficial for patients with prostate cancer. Other positiveconsequences areimprovements ingeneral health, increasedhappiness, and improvement in quality of life. In a study conducted by Rezai et al., (2011) cognitive behavioral stress management therapy was found to improve the general health of 12 patients with asthma , while in Famil Sharifian et al., (2013) study, cognitivebehavioral therapy improved the general health of 14 patients withearly-onsetmultiple sclerosis. Hashemi et al., (2013) in a study of 12 infertile women, concluded that cognitive behavioral stress management can also lead to increased happiness . The studies by Neshatdoost et al., (2009) on 10 patients with alopecia areata, and Javaheri et al., (2010) on 13 patients with temporal lobe epilepsy, revealed that cognitivebehavioral stress management therapy canimprove the quality of life of these patients . In all of these past studies and the present study, the content of the cognitivebehavioral therapy sessions, number of sessions, and administration and procedure of the sessions differed. Additionally, these studies differed in their samples, sample sizes, presence or absence of a control group, the number of variables, data collection methods, and data analysis methods. The common point of all these studies is, of course, the implementation of cognitive behavioral therapy. Notably, the concepts and

principles of such therapy do not differ when the therapy is delivered individually or to a group. Thus, the therapist's timely and appropriate transfer of these basic concepts and principles can help patients deal with stress, anxiety, and depression.

Limitations and Strengths

A limitation of this study was that the cognitivebehavioral therapy lasted for only 10 sessions. Furthermore, the participants' own time limitations and lack of a proper experimental environment had a negative impact on this study. Cognitivebehavioral group therapy sessions might be increased to 25 sessions in order to enhance thetherapeuticeffects. In contrast, a major strength of this study was running the whole experiment in five weeks. Groarke et al. concluded in their study that a brief cognitivebehavioral intervention (in 5 weeks versus 9–20 weeks) was associated with increased treatmentcompliance among women with breast cancer; especiallythose with highstress. Another strength was thesufficient sample size (40 in each group), which helps with the generalization of the results. We also used the DASS-21, which was a short questionnaire-thus, we couldobtain comprehensiveinformation about the three main outcome variables in less time. Finally, we ran thecognitivebehavioral therapy sessions in groups,which are less time consuming thanare individualsessions and can lead to benefits for alarger number ofpeople at a time.

In conclusion, This cognitive be havioral interventionreduced depression, anxiety, and stress among caregivers in the experimental group. Because of the positive impact of this intervention, its implementation by nurses in clinical care is recommended.

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