

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 might experience various physical, mental, and spiritual difficulties, the neglect of which can cause serious problems for the entire family. 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 well as 4 and 8 weeks after. Data were analyzed using descriptive statistics (means and standard deviations) and various statistical tests. **Results:** The results showed that the cognitive behavioral intervention reduced depression, anxiety, and stress among family caregivers. **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

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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 deaths will be related to cancer (Jamal et al., 2011). According to the World Health Organization, it is expected that the number of deaths from cancer will increase from about 9 million in 2015 to 11.4 million in 2030, with about 70% of these deaths occurring in low and middle-income countries. In Iran, about 70,000 cases of cancer are reported annually, and this number is expected to increase as the population of elderly increases (Vafajoo 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 strong family foundations in this

country. Studies have shown, however, that the pressure of such care on both patients and their families can lead to a family crisis (Weitzner et al., 2008) and problems such as role limitations, changes in marital life, and poor health (Khanjari et al., 2012; Rivera Jr, 2009). Although some believe that caregiving is associated with reward and positive reinforcement (Navidian and Bahari, 2008) existing studies have shown that the diversity and intensity of care can lead to mental health problems in the family caregivers (Navidian and Bahari, 2008; Grandón et al., 2008). Family caregivers in particular might experience various physical, mental, and spiritual problems as a result of caring for patients with cancer, and neglecting these problems can have adverse effects on the family (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 to control their anxiety and stress. Controlling stress and anxiety is an achievable skill 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 are more likely to be successful when they are based on sound theory and empirical evidence. For adolescents, particularly effective interventions are based on the cognitive behavioral 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 cognitive behavioral model is based on the notion that 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 change its 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 a reflection of the cognitive revolution in psychology in the late 1970s (Basco and Rush, 2005). Cognitive behavioral therapy appears effective for improving mental health and irrational beliefs (Dryden and Neenan, 2014; Harris et al., 2006). The aim of this type of treatment is to help clients identify their dysfunctional behavior and distorted patterns of thought through regular discussion and organized behavior (Gavița et al., 2012; Gumpert et al., 2015). Given this background, we might conclude that a program aimed at supporting caregivers of patients with cancer and teaching them problem-focused coping strategies would be very effective in reducing their depression, stress, and anxiety. Therefore, we conducted the present study to investigate the influence of cognitive behavioral therapy on depression, stress, and anxiety among the caregivers of patients with prostate cancer. This study was conducted in 2015 in Ilam, Iran.

Materials and Methods

This was a clinical trial involving 80 caregivers of patients with prostate cancer who were referred to Shahid Taleghani Hospital or doctors' offices in Ilam. Data were collected before 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 of cancer, while those for caregivers were being a family member of the patient and having full responsibility for 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 for more than two sessions, or who experienced a crisis such as the 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. Total scores of 0-4, 5-11, and 12 or more indicate normal, moderate, and severe symptoms, respectively. Each item is rated on a 4-point Likert scale with response options of none at all, low, medium, and too much. The validity of the questionnaire was confirmed in past studies, both inside and outside Iran (Seyed Ahmadi Nejad et al., 2015; Crawford and Henry, 2003).

To select the participants, we first identified the patients and caregivers, after which the caregivers were allocated into control (40 individuals) and experimental (40 individuals) groups. The training was performed in 1.5-hour sessions, given twice per week for 8 consecutive sessions, followed by two further sessions as a summary (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 of cognitive behavior modification—namely, the stress inoculation training protocol. Stress inoculation training can be considered part of a continuous stress management program that seeks to extend the benefits of this education into the future. It has been shown to be beneficial and potentially applicable to the prevention and treatment of a variety of mental health problems. In the clinical setting, it can be integrated into anger and stress management training, assertiveness training, improvement of creative thinking, and the treatment of depression and various health problems. Stress inoculation training has been successfully implemented for both medical and psychiatric patients of all ages, including children, 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 cognitive behavioral 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's beliefs 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 teach coping skills (Seyed Ahmadi Nejad et al., (2015).

- Exposure stressful situations via role playing and

imagery.

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

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

Conceptual and Educational Phase

This stage focuses on establishing working relationships and a therapeutic alliance with clients; helping clients better understand the nature of stress in social interactions; obtaining clients' cooperation and collaboration in thinking about stressful issues; simply stating the conceptual framework to clients to help inform them of the different ways to react in stressful situations; making clients' aware of the role of cognitions and emotions in creating and managing stress through educational material; questioning and use of guided self-discovery; encouraging clients to narrate their self-talk; making clients aware of their role in creating stress and their life stories; carefully monitoring internal discussions that results in maladaptive behaviors; making detailed notes of one's thoughts; writing regularly about their emotions and unique behaviors in a notebook; implementing flexible coping techniques with the therapist during training; and ensuring the therapist is sensitive to the client's individual circumstances, culture, and situation.

Skills Acquisition and Consolidation Phase

This phase involves training clients in different cognitive and behavioral coping skills and helping them practice in dealing with stressful situations; teaching clients to use indirect actions such as gathering information about their fears; 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 lifestyle through reassessment of priorities; developing support systems and direct action to change stressful situations; learning progressive relaxation skills through training; and role playing and guided practice.

Application and Follow-Through Phase

Finally, this phase revolves around having clients learn new self-talk exercises and implement new skills in everyday life; participating in training sessions and various activities, including behavioral practice, mental imagery, role playing, role modeling, and gradually

building to real confrontation; doing less difficult behavior homework; writing down their own favorite behavioral homework; engaging in a careful examination of 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"; and evaluating 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 of their confidentiality. After entering the data into SPSS Statistics 16, descriptive statistics, frequency tables, and inferential statistics (paired t-test) were employed for the data analysis. The significance level was set at 0.05. The current study is a clinical trial that was approved by the vice 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 the table, before the intervention, we observed no significant differences in the individual characteristics of the participants between the experimental and control groups.

The results showed that there was a statistically significant difference in the 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			0.85
Boy	13 (32.5)	15 (37.5)	
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)	0.74	11.32 (5.59)	0.26	12.45 (5.04)	0.09
	Control	7.80 (3.82)		11.87 (4.84)		13.12 (4.08)	
4 weak After	Experimental	6.37 (3.50)	0.001	8.47 (3.78)	0.001	7.07 (4.80)	0.59
	Control	8.10 (3.77)		11.90 (4.55)		13.62 (4.19)	
8 weak After	Experimental	5.53 (3.30)	0.001	7.40 (3.36)	0.001	5.37 (3.37)	0.15
	Control	8.47 (3.52)		12.27 (4.22)		13.77 (3.74)	

intervention in the experimental group. This suggested that implementation of this cognitive behavioral intervention reduced these participants' symptoms of depression, stress, and anxiety. In the control group, however, none of the main variables showed significant differences before or after the intervention (Table 2).

Discussion

In this study, the mean depression score of the 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 examined 12 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 studies included 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 used the depression subscale of the DASS-21. Regardless of the tools used, cognitive behavioral therapy was consistently found to reduce depression scores.

The mean anxiety score of the experimental group was also statistically 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 and Self-Rating Anxiety Sensitivity Scale to measure anxiety, whereas we used the DASS-21 anxiety subscale. Nevertheless, for all three tools, anxiety scores decreased after the implementation of the cognitive behavioral therapy.

We also found significantly lower stress 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); Nesiyan 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 the Perceived Stress Scale. This study utilized the stress subscale of the DASS-21. Regardless of the tool, the level of stress decreased significantly after cognitive behavioral therapy.

In Narlund et al.'s study (2015), an internet-based cognitive behavioral therapy intervention for 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 cognitive behavioral therapy, selecting 106 studies out of 269 as a representative sample for meta-analysis. They found the strongest support for cognitive behavioral therapy targeted at stress and anxiety disorders. Another review study, conducted in 2014 by Shubina (2015) revealed that cognitive behavioral therapy can effectively reduce symptoms of anxiety and stress in patients with PTSD. However, that study emphasized that predicting responses to cognitive behavioral therapy is often difficult. Shubina recommended that, in order to enrich our understanding of the effects of cognitive behavioral 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 on and prevent its development entirely, and the treatment 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 positive consequences are improvements in general health, increased happiness, and improvement in quality of life. In a study conducted by Rezaei 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, cognitive behavioral therapy improved the general health of 14 patients with early-onset multiple 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 cognitive behavioral stress management therapy can improve the quality of life of these patients. In all of these past studies and the present study, the content of the cognitive behavioral 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 cognitive-behavioral 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. Cognitive-behavioral group therapy sessions might be increased to 25 sessions in order to enhance the therapeutic effects. 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 cognitive-behavioral intervention (in 5 weeks versus 9–20 weeks) was associated with increased treatment compliance among women with breast cancer; especially those with high stress. Another strength was the sufficient 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 could obtain comprehensive information about the three main outcome variables in less time. Finally, we ran the cognitive-behavioral therapy sessions in groups, which are less time consuming than are individual sessions and can lead to benefits for a larger number of people at a time.

In conclusion, this cognitive-behavioral intervention reduced 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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