Journal of Psychosomatic Research 113 (2018) 52–57

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

journal homepage: www.elsevier.com/locate/jpsychores

Differential psychological effects of cognitive-behavioral stress management among breast cancer patients with high and low initial cancer-specific distress

Ashley W-T. Wang[a], Laura C. Bouchard[b], Lisa M. Gudenkauf[c], Devika R. Jutagir[d,e], Hannah M. Fisher[e], Jamie M. Jacobs[f], Bonnie B. Blomberg[g,h], Suzanne C. Lechner[e,i], Charles S. Carver[e,h], Michael H. Antoni[e,h,j,*]

[a] Department of Psychology, Soochow University, Taipei, Taiwan.
[b] Department of Medical Social Sciences, Northwestern University Feinberg School of Medicine, Chicago, IL, United States
[c] Department of Psychiatry and Psychology, Mayo Clinic, Rochester, MN, United States
[d] Department of Psychiatry and Behavioral Sciences, Memorial Sloan Kettering Cancer Center, New York, NY, United States
[e] Department of Psychology, University of Miami, Coral Gables, FL, United States
[f] Massachusetts General Hospital, Harvard Medical School, Boston, MA, United States
[g] Department of Microbiology and Immunology, University of Miami, Miller School of Medicine, Miami, FL, United States
[h] Sylvester Cancer Center, University of Miami, Miller School of Medicine, Miami, FL, United States
[i] Research Advisor, LLC in Hallandale Beach, FL, United States
[j] Department of Psychiatry and Behavioral Sciences University of Miami, Miller School of Medicine, Miami, FL, United States

ARTICLE INFO

Keywords:
Cognitive-behavioral stress management
Cancer-specific distress
Intrusive thoughts
Negative and positive affect
Breast cancer

ABSTRACT

Objective: Cognitive-behavioral stress management (CBSM) improves adaptation to primary treatment for breast cancer (BCa), evidenced as reductions in distress and increases in positive affect. Because not all BCa patients may need psychosocial intervention, identifying those most likely to benefit is important. A secondary analysis of a previous randomized trial tested whether baseline level of cancer-specific distress moderated CBSM effects on adaptation over 12 months. We hypothesized that patients experiencing the greatest cancer-specific distress in the weeks after surgery would show the greatest CBSM-related effects on distress and affect.

Methods: Stages 0-III BCa patients (N = 240) were enrolled 2–8 weeks after surgery and randomized to either a 10-week group CBSM intervention or a 1-day psychoeducational (PE) control group. They completed the Impact of Event Scale (IES) and Affect Balance Scale (ABS) at study entry, and at 6- and 12- month follow-ups.

Results: Latent Growth Curve Modeling across the 12-month interval showed that CBSM interacted with initial cancer-related distress to influence distress and affect. Follow-up analyses showed that those with higher initial distress were significantly improved by CBSM compared to control treatment. No differential improvement in affect or intrusive thoughts occurred among low-distress women.

Conclusion: CBSM decreased negative affect and intrusive thoughts and increases positive affect among post-surgical BCa patients presenting with elevated cancer-specific distress after surgery, but did not show similar effects in women with low levels of cancer-specific distress. Identifying patients most in need of intervention in the period after surgery may optimize cost-effective cancer care.

1. Introduction

A cancer diagnosis induces a serious crisis in the lives of patients, and leads to confrontation of one's mortality [1]. Despite good prognosis at early stages, breast cancer (BCa) remains a distressing diagnosis. Multiple studies have assessed the effectiveness of psychological interventions on patients' psychological adaptation. Group-based cognitive-behavior stress management intervention (CBSM) has been designed to facilitate adaptation during and after BCa treatment [2] and evidence supports its favorable effects on mood and other indicators of adaptation [2–4].

Although CBSM has shown to be efficacious for BCa patients, studies

* Corresponding author at: Department of Psychology, University of Miami, 5665 Ponce De Leon Blvd, Coral Gables, FL 33124, United States.
E-mail address: mantoni@miami.edu (M.H. Antoni).

https://doi.org/10.1016/j.jpsychores.2018.07.011
Received 14 May 2018; Received in revised form 22 July 2018; Accepted 22 July 2018

have commonly reported results based on samples regardless of their initial distress level. Although facing BCa diagnosis and treatments are generally distressing, there is substantial heterogeneity in the level of perceived cancer stress after BCa diagnosis [5]. It has been postulated that cancer patients with elevated distress have greater benefits from psychosocial interventions [6], but moderator analyses of BCa intervention effects have shown mixed results. One study found greater reduction in stress and anxiety for women reporting greater baseline levels of stress [7]. However, another study showed that the intervention was equally effective in reducing anxiety regardless of levels of baseline BCa-related stress [8]. It's possible that the mixed findings were due to differences in intervention type and length, as well as phase in cancer trajectory. This has not been tested for CBSM, specifically targeting post-surgery BCa patients. It is desirable to test whether subgroups of BCa patients presenting with elevated cancer-specific distress might benefit most from approaches such as CBSM, as approaches in treating cancer distress are moving to a stepped-care approach [9].

Cancer-related thought intrusions about the diagnosis and its treatment have been used as an indicator of cancer-specific distress in BCa [10–12]. Prior to and during adjuvant therapy, such distress may emanate from commonly observed concerns about being physically damaged from the treatment and fears of cancer recurrence or death [13]. Intrusive thoughts about these adversities are common [14] and can compromise patients' emotional well-being by continuously and recurrently generating cancer-related reminders [11]. Thus it is plausible that patients experiencing elevated intrusive thoughts might benefit the most from psychosocial interventions such as CBSM, which specifically targets intrusive thoughts through skills such as relaxation, cognitive restructuring, and coping skills training, to build awareness, reduce tension and modify cognitive appraisals [15].

This study is a secondary analysis of a previous trial, which showed that CBSM affected negative and positive affect among BCa patients. This secondary analysis tests whether these effects on are moderated by initial level of cancer-specific distress (i.e., cancer-related intrusive thoughts). We also explored whether the effectiveness of CBSM on reducing frequency of intrusive thoughts was greater among patients with initially higher cancer-specific distress. We hypothesized that women presenting with greater distress in the period after surgery would receive the greatest benefit from CBSM intervention over a 12-month follow-up period encompassing primary BCa treatment.

2. Method

2.1. Participants and procedures

Participants were 240 women (aged 18–75 years old) with stage 0 – IIIb BCa, recruited from South Florida cancer treatment centers between 1998 and 2005. Women with new primary BCa diagnosis and treated with surgery within the past 2 to 8 weeks were included. Exclusion criteria were (1) a history of prior cancer or neoadjuvant treatment, (2) having already initiated adjuvant chemotherapy or radiation treatment, (3) severe psychiatric illness, (4) acute or chronic comorbid medical conditions, (5) not being fluent in English, and (6) unwillingness to be randomized to study conditions. The study was approved by the institutional review board (University of Miami, Coral Gables IRB# 93/536), and all participants provided written informed consent. For full details see prior reports on the parent trial [16].

Initial assessments were completed prior to randomization (T1). Follow-ups were completed at approximately 6-months (T2) and 12-months (T3) after study entry. Following data collection at T1, participants were randomized to a 10-week CBSM intervention or 1-day psychoeducation (PE) control seminar. There were no differences between those assigned to CBSM or PE in age, education, income, ethnicity, marital/partner status, cancer stage, surgical procedure, chemotherapy receipt, radiation therapy receipt, or any of the study outcome variables ($p > .05$). Participants were randomized to one of two conditions using a computer program.

2.1.1. CBSM: intervention condition

The CBSM intervention was a manualized 10-week group intervention targeting the needs of women under treatment for BCa [15]. The CBSM intervention aimed at ameliorating cancer- and treatment-related stress by teaching women to cope effectively and optimize the use of social resources. This intervention comprised cognitive restructuring, coping effectiveness training, interpersonal skills training (assertiveness, anger management, ways to enhance social support receipt), and relaxation training (muscle relaxation, deep breathing, relaxing imagery, meditation) [15]. The intervention addressed these topics through weekly didactic presentations, and in-session demonstration exercises as well as through at-home practice. Over the course of ten weeks, groups of 3–9 BCa patients met weekly for 2 h led by pairs of pre-doctoral and post-doctoral female interventionists, supervised by clinical psychologists via videotaped sessions and weekly face-to-face meetings.

2.1.2. PE: control condition

A 1-day, 5–6 h psychoeducational (PE) group seminar served as the control condition, and occurred midway through the 10-week CBSM intervention period for each cohort. Women were given cancer-related health information and condensed educational information about stress management techniques. PE was designed as a self-help seminar, so women did not have the opportunities to practice those techniques in the group and had minimal experience in a supportive group environment.

2.2. Measures

2.2.1. Cancer-specific distress

The baseline (T1) Intrusion subscale scores on the Impact of Event Scale IES; [17] served as the measure of cancer-specific distress. In this study, the IES was anchored to the extent to which one experiences unwanted thoughts and images related to the experience of diagnosis of and treatment for BCa. The intrusion subscale (7 items) measures intrusive symptoms (intrusive thoughts, nightmares, anxiety and imagery). Respondents were asked to rate the items on a 4-point scale according to how often each of these experiences occurred in the past week as follows: 0 (not at all), 1 (rarely), 3 (sometimes), and 5 (often). Alpha for this subscale in the present study averaged .86 across time points.

2.2.2. Affect

The Affects Balance Scale ABS; [18] was used to measure positive and negative affect. The ABS items include a set of adjectives assessing aspects of positive (i.e., affection, contentment, vigor, and joy) and negative moods (i.e., depression, hostility, guilt, and anxiety) separately. Respondents indicate the degree to which [from never (0) to always (4) on a 5-point Likert scale] they have experienced each of the negative (20 items) and positive (20 items) emotional states during “the past week including today.” The average alpha was .93 and .95, for negative and positive affect, respectively, across the study time points.

2.3. Statistical analysis

To test whether women with greater cancer-specific distress at baseline demonstrate greater CBSM effects, latent growth-curve modeling (LGM) was carried out separately for each of the three outcome measures (i.e., negative affect, positive affect, and intrusive thoughts). LGM uses all available data, estimated by a full information maximum likelihood method, so all participants are represented in the intent-to-treat approach. LGM depicts repeated measures as a growth parameter with inter-individual differences. The LGM models were assessed with the Lisrel 8.7 program [19]. The data collected at T1, T2, and T3 were