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POSITIVE PSYCHOLOGY GROUP INTERVENTION FOR BREAST CANCER PATIENTS: A RANDOMISED TRIAL[1]

M. VICTORIA CEREZO AND MARGARITA ORTIZ-TALLO

Department of Methodology
University of Málaga, Spain

VIOLETA CARDENAL

Department of Personality, Assessment and Psychological Treatment
University Complutense of Madrid, Spain

ALEJANDRO DE LA TORRE-LUQUE

Research Institute of Health Sciences
University of the Balearic Islands, Spain

Summary.—This study assessed the effects of a psychological group intervention based on positive psychology in women with breast cancer. 175 women were randomly assigned either to an experimental group, receiving the 14-session intervention ($n=87$), or to a waitlist group ($n=88$) that did not receive any type of intervention. For treatment, a group intervention was applied, based on improving psychological strengths and enhancing positive psychology-based styles of coping. Strength-related outcomes, self-esteem, well-being, and happiness were assessed before and after the intervention. The experimental group showed higher scores on all of the study variables after the intervention. Participants reported improved self-esteem, emotional intelligence-related abilities, resilience, and optimism, as well as positive affectivity, well-being, and happiness. The results show a beneficial effect of this psychological intervention based on positive psychology on female breast cancer patients' psychological health.

Positive psychology is a branch of psychology that studies the processes that are responsible for strengths and positive emotions in human beings. The processes related to this discipline have not always been taken into account, primarily because pathology and weaknesses have been the main focal point for many psychological investigations in the past, leaving out more positive attributes such as optimism, creativity, humour, or hope, among many other positive traits and strengths that help humans adapt to new situations and reach success (Seligman & Csikszentmihalyi, 2000).

Researchers have found this positive outlook to be useful for preventing mental illnesses, because it tends to enhance certain human strengths, namely courage, perseverance, faith, hope, honesty, self-awareness, and flow, to mention a few (Peterson, Park, & Seligman, 2006). Thus, the existence of a strong link between positive psychology (well-being, optimism, and other positive emotions) and health indicates that having good mental

[1]Address correspondence to M. Victoria Cerezo, Department of Methodology, Faculty of Psychology, University of Málaga, Campus de Teatinos, 29071 Málaga, Spain or e-mail (mvcerezo@uma.es).

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health can help protect humans from suffering from certain disorders and ameliorate physical condition in several diseases. A related analysis carried out by Seligman (2008) concluded that positive states can predict longevity, suggesting that people in positive states live longer (Cohen, Alper, Doyle, Treanor, & Turner, 2006; Cohen & Pressman, 2006), have better quality of life and fewer handicaps (Andersen, Bowen, Morea, Stein, & Baker, 2008), generate lower health care costs, and have a better prognosis in case of disease (Kubzansky & Thurston, 2007). Indeed, different studies have highlighted that the promotion of coping strategies based on optimism or resilience shows clinical benefits among samples with various diseases (Aspinwall & Tedeschi, 2010b; Casellas-Grau, Font, & Vives, 2014).

In the context of cancer, the effects of illness and treatment-related side-effects may cause important psychological distress (Rabkin, McElhiney, Moran, Acree, & Folkman, 2009; Decat, de Araujo, & Stiles, 2011; Costa-Requena, Rodríguez, & Fernández-Ortega, 2013). The subsequent trauma can significantly damage higher-order schemas about the self, the world, and the future (Horgan, Holcombe, & Salmon, 2011). Lower self-esteem, self-efficacy, and emotional intelligence-related abilities have frequently been associated with psychological distress (Martins, Ramalho, & Morin, 2010; Rey, Extremera, & Trillo, 2013). However, psychological improvements are not always observed when cancer is overcome (Holland & Reznik, 2005; Pedersen, Rossen, Olesen, von der Maase, & Vedsted, 2012).

Some studies have found significant health benefits from positive psychology-based interventions in the oncologic population (for a review, see Casellas-Grau, *et al*., 2014). It is also important to point out alternative forms of psychosocial support, such as groups focusing on creative activities (Collie, Bottorff, & Long, 2006), online support groups (Han, Shaw, Hawkins, Pingree, McTavish, & Gustafson, 2008), or group psychological interventions, mainly when working with patients with breast cancer. Such groups offer the opportunity for patients to talk about their illness and listen to their peers, which allows them to speak about their own experience and feelings in a relaxed, therapeutic environment (Yaskowich & Stam, 2003; Kim, Han, Shaw, McTavish, & Gustafson, 2010; Cousson-Gélie, Brouchon-Schweitzer, Atzeni, & Houede, 2011). Group psychological interventions are becoming increasingly common when dealing with the psychosocial challenges that arise with breast cancer, and have shown their usefulness to reduce distress and enhance coping skills. Font and Rodríguez (2007) indicated in their review study that structured group interventions lead to quality of life improvements for patients, reduce emotional distress, improve adjustment to new situations, and enhance coping strategies and self-efficacy, contributing to greater physical, psychological, and social health in the short and medium term. Likewise, psychologi-

cal group interventions with women suffering from breast cancer seemed to improve their sense of well-being as well as health markers (Manne & Andrykowski, 2006; Andersen, Farrar, Golden-Kreutz, Emery, Glaser, Crespin, *et al*., 2007; Butler, Koopman, Neri, Giese-Davis, Palesh, Thorne-Yocam, *et al*., 2009; Cerezo, Ortiz-Tallo, & Cardenal, 2009a, 2009b, 2009c).

Cancer patients who participated in group interventions based on the fundamentals of positive psychology have demonstrated significantly higher self-esteem, optimism, and self-efficacy when compared to a control group (Lee, Cohen, Edgar, Laizner, & Gagnon, 2006; Garlick, Wall, Corwin, & Koopman, 2011). Currently, research in the field of breast cancer revealed that positive psychology techniques, such as mindfulness and meaning-making exercises, are related to a better mental adjustment to the disease, improved perception of control over one's health state, and greater well-being (for a review, see Casellas-Grau, *et al*., 2014). Also, group interventions seem to improve self-esteem (Lee, *et al*., 2006; Sebastián, Manos, Bueno, & Mateos, 2008; Kim, Min, Park, Kim, Jun, Lim, *et al*., 2009). In addition, dispositional optimism, defined as the disposition to expect good outcomes in life (Scheier & Carver, 1985), appears to be a predictor of future quality of life in women with breast cancer (Carver, Smith, Antoni, Petronis, Weiss, & Derhagopian, 2005) and promotes resilience (Bozo, Gündogdu, & Büyükasik-Çolak, 2009), defined as the ability to overcome adversity, recover, and emerge stronger and more successful, as well as develop coping skills despite being exposed to severe psychosocial stress (Aspinwall & MacNamara, 2005; Becoña, 2006; Aydin, 2008; Bennett, Cameron, Brown, Whitehead, Porter, & Parkes, 2008).

The variables included in the current research were well-being (differentiating between cognitive and affective components), emotional intelligence, optimism, resilience, and self-esteem. Well-being is the positive evaluation of one's life, based on the congruence between aspirations and goals met (cognitive component), as well as having an optimal affective and emotional state (affective component); incongruence between expectations and the goals one has reached, as well as the prevalence of unpleasant emotions and affects, is considered to be a lack of well-being (Fierro, 2006, 2008). Emotional intelligence was defined by Mayer and Salovey (1997) as "the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth." Emotional intelligence comprises three factors: attention, clarity, and emotional repair of negative feelings. Optimism is a disposition that mediates between outside events and the interpretations of those events; it is the tendency to expect that the future will bring good outcomes, which helps people confront hardships with good

humour and perseverance, discovering positivity in others and the circumstances, as well as what makes people trust in their own capabilities and possibilities along with the help they may receive (Scheier & Carver, 1985; Avia & Vázquez, 1998). Self-esteem can be defined as a set of attitudes that depend on the perceptions, thoughts, evaluations, feelings, and behavioral tendencies people have towards themselves, their traits, behavior, bodies, and personalities (Bonet, 1997), important in the context because women who have had mastectomies have lower self-esteem (Sebastián, *et al*., 2008; Markopoulos, Tsaroucha, Kouskos, Mantas, Antonopoulou, & Karvelis, 2009).

This study was designed to assess the effectiveness of positive psychology in treatment for breast cancer. A psychological group intervention based on positive psychology was applied.

Hypothesis. The intervention will benefit the psychological health of women with breast cancer, in terms of personal well-being, happiness, emotional intelligence, optimism, resilience, and self-esteem.

Method

Participants

Eligible participants were women with breast cancer, aged 18 and older. They had all joined the breast cancer association ASAMMA (Association for the Care of Women with Breast Cancer, Malaga, Spain), at least 6 months prior to the study. ASAMMA was founded 25 years ago to aid both breast cancer patients and their families. The association offers psychological treatment, physical therapy, and cotton prostheses for women who have had recent mastectomies, as well as testimonial volunteers for hospitalized patients, informative awareness meetings, prevention workshops, group interventions, etc. Patients from all over the province of Malaga, typically women who have had surgery or some other medical treatment, seek assistance from ASAMMA. New members are generally greeted by veteran volunteers and a psychologist to guide and inform them through the beginning of their illness. In case of need, they may also receive psychological or physical therapy.

Inclusion criteria for the participants were: having an oncological disease diagnosis; having a primary breast cancer diagnosis between Stage I and Stage III, according to the TNM tumour classification system (Sobin, Gospodarowicz, & Wittekind, 2009); and informed consent. Exclusion criteria were: prior psychiatric morbidity (such as schizophrenia, personality disorders, etc.) according to American Psychiatric Association classification (APA, 2000); having been diagnosed with advanced or metastatic cancer (Stage IV); and having participated in the past year in any type of group or individual psychological intervention.

This study enrolled participants from 2007 to 2011. The participants were all ASAMMA members who wished to participate, and only those who satisfied the selection criteria were included in the study. *A priori* sample size estimation was conducted considering a medium effect size of psychological intervention, and $\alpha = 0.05$, $1 - \beta = 0.80$, for visualizing main and interaction effects from analysis of covariance. Calculations were carried out by G*Power 3.1.3 (University of Kiel, Germany). A sample of 128 participants was needed.

Measures

For the purposes of the study, the following variables were assessed: Sociodemographic data, well-being (cognitive and affective components), happiness, the three main factors of emotional intelligence (namely attention, clarity, and emotional repair), optimism, resilience, and self-esteem.

Sociodemographic data and clinical history.—Descriptive features of the sample were obtained by a structured interview created for study purposes. Specifically, data concerning selection criteria and relevant descriptive variables were collected during this interview: age, civil status, level of education, employment status, number of children, medication, affected breast, type of surgery, time since surgery, and current medical treatment. The interview was conducted by the therapist individually.

On the other hand, a medical history report was also attached. Relevant medical data was verified with this document, in order to make decisions about participant enrolment and to register important study-related medical concerns.

Cognitive and affective components of personal well-being and happiness.—The cognitive component of personal well-being was evaluated by: a) the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) and b) a single item that evaluated happiness ("I feel happy"), with responses on the same Likert-type scale. The Satisfaction with Life Scale evaluates life satisfaction based on a seven-point Likert scale (with anchors 1: I totally disagree to 7: I totally agree). High scores in this scale indicate high life satisfaction. The instrument has been validated in a Spanish population (Spanish version from Vázquez, Duque, & Hervás, 2013). Furthermore, the scale showed good reliability for this sample (Cronbach's $\alpha = .82$).

The affective component of well-being was assessed by using the Affectivity Scale (Mroczek & Kolarz, 1998), which consists of positive and negative affectivity subscales (6 items each subscale). Scores are based on a five-point Likert scale (with anchors 1: Never and 5: Always). Both subscales showed good reliability for this sample (positive affectivity: Cronbach's $\alpha = .87$; and negative affectivity: $\alpha = .91$).

Emotional intelligence.—The Trait Meta-Mood Scale–24 (TMMS–24) is the reduced version (24 items) of Trait Meta-Mood Scale (TMMS–48; Sa-

lovey, Mayer, Goldman, Turvey, & Palfai, 1995; adapted to the Spanish population by Fernández-Berrocal, Alcaide, Domínguez, Fernández-McNally, Ramos, & Ravira, 1998; Fernández-Berrocal, Extremera, & Ramos, 2004). This scale was administered to assess metacognition of emotional status. This scale evaluates (a) the extent to which people are conscious of their feelings (Attention), (b) have a clear sensations about them (Clarity), and (c) use positive thinking to repair negative moods (Repair); it is based on a five-point Likert scale (with anchors 1 = I totally disagree and 5 = I totally agree). For female populations, scoring fewer than 24 points on Attention items indicates poor attention, while 25 to 35 points indicate an adequate attention, and more than 36 points excessive attention. For Emotional Clarity and Mood Repair, scoring fewer than 23 points indicates low clarity and repair, 24 to 34 points indicate adequate clarity and repair, and a score higher than 35 points is considered excellent. All components show high reliability: Attention (Cronbach's $\alpha = .90$); Clarity ($\alpha = .90$), and Repair ($\alpha = .86$).

Optimism.—Optimism was assessed using the Life Orientation Test–Revised (LOT–R; Scheier & Carver, 1985; Spanish version by Fernández & Bermúdez, 1999); this scale consists of 13 binary items that assess optimism as a personality disposition. High scores reveal high optimism. The scale has acceptable reliability (Cronbach's $\alpha = .78$).

Resilience.—To evaluate resilience, the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003; Spanish version by Bobes, Bascaran, García-Portilla, Bousoño, Sáiz, & Wallance, 2001) was administered. The scale consists of 25 items assessed on a 5-point Likert scale with anchors 0: Absolutely not true and 4: Almost always true). Higher scores are equivalent to higher resilience. The scale has good reliability (Cronbach's $\alpha = .89$).

Self-esteem.—The Rosenberg Self-Esteem Scale (Rosenberg, 1965; Spanish version by Echeburúa, 1995) was administered to evaluate self-esteem. This scale consists of 10 items, some of them reverse scored, rated on a 4-point Likert scale (with anchors 1: I totally disagree and 4: I totally agree). Scores 30 to 40 points indicate a normal to high self-esteem, scores 26 to 29 points indicate a self-esteem that should be improved, and scores fewer than 25 points indicate a low self-esteem with problems. The scales have good reliability (Cronbach's $\alpha = .89$).

Procedure

A randomized clinical trial was conducted. A pre-test/post-test design was applied to two different patient groups, the experimental group and a waitlist group (which received psychological intervention after the experimental group). The experimental group was assessed twice: before the group intervention (pre-test or baseline data) and immediately

after the psychological intervention (14 weeks later, post-test). The waitlist group did not participate in any psychological treatments during this time, in order to be functionally equivalent to the experimental group.

All of the breast cancer patients were recruited in ASAMMA. Moreover, all study participants provided written informed consent. In order to assure that patients were eligible for the study, a structured interview was carried out by two trained psychologists, each with more than five years of experience. Furthermore, a patient's report of medical history was requested, to check medical, oncological, and treatment records. After assessment, the participants were randomly assigned to either the experimental ($n=87$) or waitlist group ($n=88$), using an application to generate random sequences of numbers. Calculations were conducted using Microsoft Excel 2010.

Intervention

The psychological intervention was applied during 14 two-hour sessions, once per week, to groups of 10 to 15 women. It was based on a positive-psychology perspective and guided patients with breast cancer toward health and recovery. The main focus of this treatment was to provide positive psychology-related coping strategies, to better adjust to their context as patients and enhance psychological strengths. Intervention particularities can be found in Cerezo (2011). Techniques were based on reactivation, repair, and enhancement of emotional strength, with the goal of promoting better well-being, happiness, emotional intelligence, optimism, resilience, and self-esteem.

The psychological intervention was structured as follows (Table 1): the first three sessions were focused on improving self-knowledge by using psychoeducation, mindfulness-based exercises, and mutual support exercises. The following seven sessions were focused on encouraging positive psychology-related skills, i.e., promoting change towards positive attitudes, introducing emotional communication skills and assertiveness, adequate expression and repair of negative emotions, changing maladaptive attitudes, searching for reinforcement, increasing the number and quality of pleasant situations, and promoting self-control and adequate coping in difficult situations. For these purposes, a series of techniques such as cognitive restructuring and role-playing were integrated into the intervention, which was oriented to conscience, self-awareness, and adequate emotional expression to improve emotional and interpersonal communication. The last four sessions were oriented towards the improvement of optimism and resilience as trait-related coping skills. Humour enhancement and gratitude techniques were also included. Each session was ended with approximately 20 min. of relaxation, meditation, and guided imagery, in order to induce patients to mindfulness and to promote the use of these techniques, so as to aid the patients to cope with difficult situations.

TABLE 1
PSYCHOLOGICAL GROUP INTERVENTION: CONTENT

Module	Sessions	Module Purposes	Techniques	Outcomes	Outcome Measures
Self-knowledge	1–3	To promote psychoemotional introspection skills; i.e., self-knowledge and self-awareness.	Psychoeducation Mindfulness Relaxation techniques Social support meetings	Emotional intelligence Self-esteem	TMMS–24 Self–Esteem Scale
Positive psychology-related skills	4–9	To promote coping styles using positive psychology-related skills, positive-based behavioral and emotional activation.	Communication skills training Pleasant activities program Role playing Cognitive restructuration Relaxation techniques	Affectivity Emotional intelligence	Affectivity Scale TMMS–24
Trait-related coping skills	10–14	To enhance psychological strengths (gratitude, sense of humour, optimism, resilience). To apply skills derived from psychological strengths towards adequate coping in difficult situations.	Group discussion Role playing Cognitive restructuration	Optimism Resilience	CD-RISC LOT–R

Note.—Treatment consisted of three therapy modules associated with the improvement of different outcomes. Treatment as a whole is expected to lead to an improvement of well-being and happiness.

After the experimental group intervention concluded, the waitlist group was administered the psychological intervention for the same amount of time as the experimental group (14 weeks), which was followed by a post-test assessment. The interventions for both groups were carried out by the same therapist.

Statistical Analyses

A descriptive analysis was conducted as well as a hypothesis contrast test to check for differences in sociodemographic and clinical variables between the experimental and waitlist group before conducting the psychological intervention. Specifically, Student's *t* test and χ^2 tests were used to compare scalar and non-scalar data between groups, respectively.

Subsequently, an analysis of covariance (ANCOVA) was conducted to explore whether the psychological intervention had benefits for the patients by different criteria. Psychological intervention was the independent variable (experimental vs waitlist group), whereas well-being (cognitive well-being and positive, negative, and total affect), emotional intelligence (emotional attention, clarity, and repair), optimism, resilience, and self-esteem were the dependent variables. Pre- and post-test assessments were defined as repeated-measures. As covariates, sociodemographic and medical history variables were considered, but only those that were associated with each criterion variable.

Another ANCOVA was used to assess the effect of treatment on the waitlist group outcomes. Thus, three assessment times were considered: Pre-test 1 (baseline assessment), Pre-test 2 (post waitlist period assessment), and Post-test (post treatment assessment). The same dependent variables and covariates were used in both analyses. Also, the Bonferroni correction was applied to explore the differences between pairwise of assessment measures.

Calculations related to happiness scores were based on χ^2 due to the ordinal nature of this variable. All analyses were conducted using SPSS v.19.

Results

One hundred and fifty-five women were enrolled into the study. Only 32 participants withdrew from the study and were not assessed at post-test sessions. A CONSORT diagram is attached to show the sample selection process (Fig. 1).

Descriptive statistics of both experimental groups were compared using the *t* test or χ^2 test as described in Table 2. No significant group differences were found on the following sociodemographic variables: age, civil status, educational level, occupation, time since surgery, and information about treatments. Thus, the groups can be considered initially comparable.

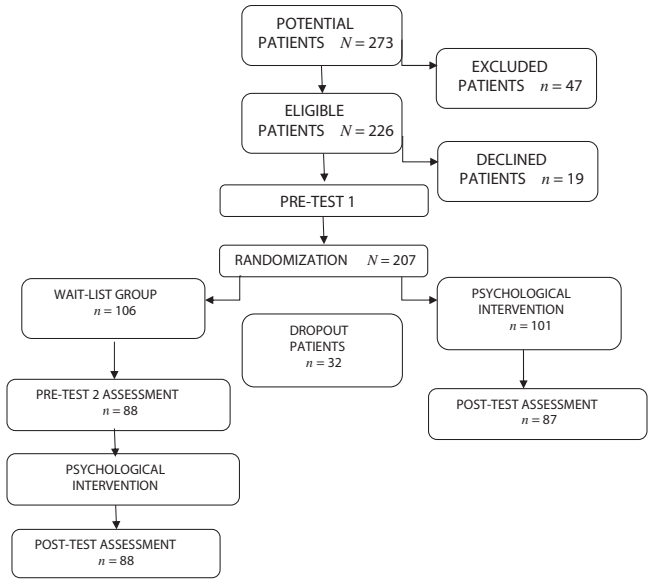

FIG. 1. CONSORT diagram

In relation to intervention, the ANCOVA analysis after the psychological intervention revealed significant differences on all variables between the experimental and waitlist group after adjusting for covariates. Antidepressant and anxiolytic intake also were used as covariates for these models due to the observed correlations between these variables and outcomes (rs = –.15 and .16; $p < .05$). It is noteworthy that the experimental group showed higher scores on well-being (cognitive well-being, and positive, negative, and total affect) and emotional intelligence (emotional attention, emotional clarity, and emotional repair), as well as in optimism, resilience, and self-esteem. Results are shown in Table 3. Happiness, measured by one item, was significantly different between groups [$\chi^2(6) = 80.21$, $p < .001$, phi = .68]; the experimental group had higher scores ($M = 6.16$, $SD = 0.87$) than the waitlist group ($M = 4.34$, $SD = 1.26$).

In relation to the waitlist group, the one-factor ANCOVA analysis with Bonferroni correction revealed no significant differences between the two pre-test measures: Pre-test 1 (immediately before the psychological intervention was applied to the experimental group) and Pre-test 2, which was made before the waitlist group received psychological intervention. After receiving the psychological intervention, significant differences were found between the Pre-test 2 and Post-test of the waitlist group, showing higher scores in all variables ($p < .05$). Results of the one-factor ANCOVA can be

TABLE 2
SAMPLE DESCRIPTION: SOCIODEMOGRAPHIC AND CLINICAL VARIABLES (PERCENTAGE IN BRACKETS)

Variable		Waitlist ($n=88$)		Experimental ($n=87$)		Comparison	p	Effect Size
		M	*SD*	*M*	*SD*			
Age		49.35	9.85	50.71	9.44	0.91	.36	.14
Time since surgery, wk.		20.29	12.69	21.32	12	0.38	.71	.08
		n	%	*n*	%			.05
Marital status	Single	21	23.9	17	19.5	0.95	.81	
	Married	53	60.2	52	59.8			
	Separated/ Divorced	12	13.6	15	17.2			
	Widowed	2	2.3	3	3.4			
Education	Primary	36	40.9	33	37.9	0.33	.85	< .01
	Secondary	23	26.1	26	29.9			
	High school	29	33.0	28	32.2			
Employment status	Employment	69	78.4	70	80.5	0.11	.74	< .01
	Non-employment	19	21.6	17	19.5			
Children	Yes	57	64.8	59	67.8	0.18	.67	< .01
Psychopharmacology	Anxiolytics	60	68.2	60	69.0	0.01	.91	< .01
	Antidepressant	44	50.0	52	59.8	1.68	.19	< .01
Affected breast	Left	41	46.6	34	39.1	1.81	.40	.01
	Right	46	52.3	50	57.5			
	Both	1	1.1	3	3.4			
Type of surgery	Mastectomy	54	61.4	62	71.3	1.92	.16	.01
	Lumpectomy	34	38.6	25	28.7			
Current treatment	Chemotherapy	67	76.1	67	77.0	0.02	.89	< .01
	Hormone therapy	44	50.0	46	52.9	0.04	.70	< .01
	Radiotherapy	47	53.4	51	52.0	0.48	.48	< .01
	Monoclonal therapy	12	13.6	9	10.3	0.45	.50	< .01

Note.—Comparison statistic is Student's *t* or (for Happiness) χ^2. Effect size statistics were Cohen's *d* and phi, respectively.

seen in Table 4. In relation to happiness, significant differences were found by using the Friedman test [$\chi^2(2)=82.97$, $p<.001$, phi = .47]. Thus, there was no statistical difference between the pre-test measures; i.e., between Pre-test 1 ($M=4.42$, $SD=1.22$), and Pre-test 2 ($M=4.34$, $SD=1.26$). Scores found at Post-test were greater than those that were observed in the other prior assessments ($M=5.94$, $SD=0.72$).

TABLE 3

GROUP INTERVENTION EFFICACY: RESULTS FROM ANALYSIS OF COVARIANCE (ANCOVA), CONTROLLING BY PSYCHOPHARMACOLOGY

	Waitlist				Experimental						
	Pre-test 1		Pre-test 2		Pre-test 1		Post-test		Effect	*F*	η^2
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*			
Cognitive well-being	25.36	3.92	24.36	3.92	24.63	4.43	31.36	4.07	Phase	10.89†	0.06
									Group	29.51‡	0.15
									Phase*Group	109.27‡	0.39
Positive affect[a]	17.64	3.63	17.34	3.66	17.84	4.31	23.40	3.25	Phase	5.44*	0.03
									Group	65.70‡	0.28
									Phase*Group	56.91‡	0.25
Negative affect[a]	14.13	4.07	14.23	3.93	14.16	5.26	10.62	2.03	Group	21.08‡	0.11
									Phase*Group	17.18‡	0.09
Total affect[a]	3.24	6.98	2.84	6.79	3.53	9.37	12.78	4.74	Group	48.66‡	0.22
									Phase*Group	43.33‡	0.20
Emotional attention[a]	27.93	6.07	27.87	5.92	27.68	6.57	24.68	2.46	Group	8.06†	0.04
									Phase*Group	7.17†	0.04

(continued on next page)

Note.—Main scores and standard deviations (between brackets) are shown. Pre-test 1 measures represent baseline data. Post-test measures correspond with the measures taken after the waitlist period for the waitlist group (Pre-test 2) and post treatment measures for the experimental group (Post-test). [a]Significant effect was found for Antidepressive use covariate on this criterion ($p < .05$). [b]Significant effect was found for Anxiolytic use covariate on this criterion ($p < .05$). *$p < .05$. †$p < .01$. ‡$p < .001$.

TABLE 3 (CONT'D)

GROUP INTERVENTION EFFICACY: RESULTS FROM ANALYSIS OF COVARIANCE (ANCOVA), CONTROLLING BY PSYCHOPHARMACOLOGY

	Waitlist				Experimental						
	Pre-test 1		Pre-test 2		Pre-test 1		Post-test		Effect	*F*	η^2
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*			
Emotional clarity[b]	26.37	6.27	25.89	6.44	26.18	6.60	31.57	4.67	Group	14.24‡	0.08
									Phase*Group	24.16‡	0.12
Emotional repair[a]	25.87	6.86	25.35	7.14	24.83	9.33	35.23	4.33	Group	40.34‡	0.19
									Phase*Group	30.82‡	0.25
Optimism[a, b]	0.22	2.62	0.03	2.74	−0.74	3.29	1.54	0.86	Group	18.20†	0.09
									Phase*Group	38.98‡	0.19
Resilience[a]	62.68	11.51	61.75	11.29	60.57	17.94	72.09	12.01	Group	11.84†	0.06
									Phase*Group	16.05‡	0.09
Self-esteem[a]	30.80	4.94	30.35	5.28	29.85	6.15	33.00	3.53	Group	4.08*	0.02
									Phase*Group	10.04†	0.05

Note.—Main scores and standard deviations (between brackets) are shown. Pre-test 1 measures represent baseline data. Post-test measures correspond with the measures taken after the waitlist period for the waitlist group (Pre-test 2) and post treatment measures for the experimental group (Post-test). [a]Significant effect was found for Antidepressive use covariate on this criterion ($p < .05$). [b]Significant effect was found for Anxiolytic use covariate on this criterion ($p < .05$). *$p < .05$. †$p < .01$. ‡$p < .001$.

TABLE 4
THE WAITLIST GROUP: RELATED-MEASURES ANCOVA

Variable	Waitlist Group						*F*	η^2
	Pre-test 1		Pre-test 2		Post-test			
	M	*SD*	*M*	*SD*	*M*	*SD*		
Cognitive well-being	25.36	3.92	24.36	3.92	30.34	3.71	28.72‡	0.25
Positive affect[a]	17.64	3.63	17.34	3.66	22.67	2.24	31.73‡	0.27
Negative affect[a]	14.13	4.07	14.23	3.93	10.51	2.31	15.95‡	0.27
Total affect[a]	3.24	6.98	2.84	6.79	12.16	3.83	29.20‡	0.41
Emotional attention	27.93	6.07	27.87	5.92	24.15	1.56	3.05*	0.07
Emotional clarity[b]	26.37	6.27	25.89	6.44	30.43	5.11	16.16	0.28
Emotional repair[a]	25.87	6.86	25.35	7.14	34.28	3.42	21.93‡	0.20
Optimism[a, b]	–0.22	2.62	0.03	2.74	2.07	1.08	9.83‡	0.19
Resilience	62.68	11.51	61.75	11.29	71.97	12.48	5.72†	0.06
Self-esteem[a]	30.80	4.94	30.35	5.28	32.86	3.66	4.42*	0.05

Note.—Main scores and standard deviations (between brackets) are shown. Pre-test 1 measures represent baseline data. Pre-test 1 measures correspond with the measures taken after the waitlist period. Post-test measures represent data taken at the post treatment assessment. Pairwise significant differences were observed to favour post-test measures rather than the assessment moment ($p < .05$). [a]Significant effect was found for Antidepressive use covariate on this criterion ($p < .05$). [b]Significant effect was found for Anxiolytic use covariate on this criterion ($p < .05$). *$p < .05$. †$p < .01$. ‡$p < .001$.

DISCUSSION

The purpose of this study was to investigate whether a psychological group intervention focused on positive psychology could have beneficial effects for women with breast cancer by promoting coping skills related to psychological strengths. The evidence reveals that the experimental group showed significantly higher scores on well-being (cognitive well-being, happiness, positive, negative, and total affect), emotional intelligence (emotional attention, clarity, and repair), optimism, resilience, and self-esteem, when compared to the group that did not receive the psychological intervention. Such results were corroborated by data that was obtained from a waitlist group, which also showed significant improvements in all the aforementioned variables after receiving the same psychological intervention as the experimental group. Thus, the results of this study suggest that the application of a psychological group intervention focused on positive psychology may have beneficial effects on the mental health of women with breast cancer.

The psychological group intervention used was based on the fundamentals of positive psychology. Unlike traditional psychology, which usu-

ally focuses more on mental illness and relieving pathological symptoms, positive psychology leans towards strengths that allow people to learn, enjoy, be happy, generous, serene, supportive, and optimistic (Seligman & Csikszentmihalyi, 2000; Seligman, 2002; Vera, 2008). The results obtained from this study are compatible with the following conclusion reached by Aspinwall and Tedeschi (2010a): "Well-validated measures of positive phenomena should become routinely incorporated into a broader array of health psychology studies to provide a rigorous test of their role in human health and adaptation to disease."

In the past, scientific research has made clear efforts to prove that effective psychological interventions can ameliorate mental health of women with breast cancer (Antoni, Lechner, Kazi, Wimberly, Sifre, Urcuyo, *et al*., 2006; Manne & Andrykowski, 2006; Andersen, *et al*., 2007; Cameron, Booth, Schlatter, Ziginskas, & Harman, 2007; Sebastián, *et al*., 2008; Butler, *et al*., 2009; McGregor & Antoni, 2009; Cerezo, *et al*., 2009a, 2009b; Cousson-Gélie, *et al*., 2011). The results of this study replicate these findings and also shed light on the effectiveness of positive psychology interventions, overcoming one of the main limitations of these studies, i.e., low sample sizes (Casellas-Grau, *et al*., 2014).

According to Seligman (2002, 2008), authentic happiness can be cultivated by identifying and using strengths and traits. Applying these strengths to important areas of life can help humans develop strategies to prevent and manage depression and negative emotions by cultivating and promoting resilience, self-esteem, positive affects, and well-being, thus improving life (Seligman & Csikszentmihalyi, 2000; Seligman, 2002; Lyubomirsky, 2008; Vera, 2008; Giannopoulos & Vella-Brodrick, 2011). Adapting this positive psychology perspective to the participants, the psychological intervention applied in the present study guided patients with breast cancer towards psychological health by promoting their strengths and the use of related coping skills. Also, a special emphasis was made on recognising and repairing negative emotions, in order to implement the positive psychology-related skills that can ameliorate the mental and spiritual states of patients (Seligman & Csikszentmihalyi, 2000; Vera, 2008), thus avoiding what some authors call "the tyranny of positive thinking," which can create pathological states by attempting to force positivity. One of the purposes of this study was to reject a radical focus on positive outcomes of illness and debunk spurious active claims about the curative power of positive strengths (Aspinwall & Tedeschi, 2010a), by working with both positive and negative emotions in the psychological intervention.

In addition, several relevant breast cancer factors were integrated into the design, offering a comprehensive perspective. This intervention in-

cluded a series of techniques such as emotional regulation training, cognitive restructuring, and mutual support from a peer group, to promote a sense of gratitude and change towards an optimistic coping style. Visualizations, relaxation, and guided imagery were also used to promote a sense of control over the disease as well as to help the participants adapt to the situation and reduce stress and discomfort. Moreover, strategies based on mindfulness and resilience promotion were also included in the intervention. Including these strategies into an integrative intervention has shown positive benefits on clinical outcomes among breast cancer patients (Tacón, Caldera, & Ronaghan, 2004; Aydin, 2008; Chambers, Gullone, & Allen, 2009).

Limitations and Conclusions

Although the present study clearly offers an innovative perspective, some limitations should be taken into account when interpreting its results. First, all of the participants were members of a breast cancer association, which suggests that there was already some use of active coping strategies and perhaps a previous motivation or predisposition for participating in the study. Therefore, it would be interesting to replicate these findings using a different type of recruitment, such as a random selection of hospital patients. Second, the application of a distinct or less integrative type of therapy (i.e., only cognitive) to a third experimental group could have led to further conclusions about the effectiveness of the positive psychology-based intervention that was used, as it could have been compared with a different type of intervention based on traditional psychology. Thus, although these results suggest that psychological group interventions led to an overall mental health improvement for women receiving them, it is not possible to assess whether positive psychology-oriented interventions are more effective than those based on traditional psychology, an issue that should be researched in the future (Gorin, 2010). Moreover, inclusion of objective health outcomes (i.e., immunological or hormonal markers) could also be considered for future research.

In summary, the present study was designed to show the efficacy of a psychological group intervention which was destined to guide breast cancer patients towards a more healthy coping style by changing their attitudes and strengthening their own positive attributes, instead of focusing on widely-studied variables in cancer patients such as anxiety or depression. Corroborating previous studies (Font & Rodríguez, 2007), the results showed that these psychological interventions had beneficial outcomes for participants when compared to those who did not receive it. Specifically, the results suggest that after receiving the aforementioned psychological intervention, women with breast cancer reported greater well-being and a greater ability to cope with life difficulties, as well as having

more positive affect and greater optimism, resilience, and self-esteem. On the whole, the data suggest that a structured psychological group intervention based on positive psychology may be beneficial for the overall health of women with breast cancer.

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