

The effects of Cognitive-Behavioral techniques on hot flushes, depression and anxiety related to menopause in Spanish women

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Abstract

Background: Menopause is associated with a wide variety of physical and psychological symptoms. The main complaints are focused on those related to vasomotor symptoms (hot flushes). Correlation among hot flushes, depression and anxiety have also been reported.

The high percent of Spanish women complaining of these incapacitating symptoms, lead to research more in depth to find a successful treatment. Objectives: To investigate the effects cognitive-behavioural techniques on Spanish woman suffering from menopausal symptoms. Methods: 53 women ages from 42 to 55 years were assigned to experimental or control group. Experimental groups were trained in three different centres depending on the women's location; therefore it was an incidental sample. Each group was led by two therapists. All women presented from moderate to severe hot flushes measured by the Blatt's Kupperman Index (BKMI), also they experienced anxiety and depression symptoms assessed by the Hospital Anxiety and Depression Scale (HADS). Experimental group attended during eight weeks a full training on behavioural-cognitive techniques. Results: Experimental group showed a significant reduction on BKMI ($t_{27}=8, 71; p<0.001$), anxiety ($t_{27}=6.11; p<0,001$) and depression ($t_{27}= 3.41; p< 0,001$) symptoms, control group did not exhibit any reduction. Therapist effects were also tested, no differences were found. Discussion: The application of the program has shown to be effective reducing menopausal symptoms and improving life quality.

Keywords: hot flushes, menopause, Cognitive-behavioral therapy, Spanish woman

1. Introduction

Menopause is the permanent cessation of menstruation due to the depletion of ovarian follicular activity, a depletion that is part of the natural aging process in women (Sánchez-Cánovas, 1996).

It usually begins between 45 and 55 years of age and it has been documented that there is a sociocultural factor effect (Obermeyer, 2000), in Spain the mean age of onset around 51.4 years old (Spanish Society of Gynaecology and Obstetrics, 2006). Different studies reveal that at least 50% of menopausal women suffer from symptoms that are frequent and bothersome (Matthews, 1991). However, few studies focus on information about menopause, associated symptoms, causes, effects and intervention programs to reduce this symptomatology suffered by a very high percent of women; in Spain 61% of menopausal women do not know that symptoms as osteoporosis, vascular diseases, or dysphonic states are related to menopause (Spanish Society of Gynaecology and Obstetrics, 2006). Previous studies report that also the intensity and variety of symptoms might be related to cultural differences (Anderson, Yoshizawa, Gollschewski, Atogami & Courtney, 2004; Obermeyer, 2000). In cultures where mature women are considered important by their experience and are integrated within their social status, they refer minor symptoms related to menopause. Nevertheless, in western cultures, where beauty and youth are excessively valued by the society or in those cultures where the reproductive role is very important, mature women go through the menopause with many more difficulties and more intense symptomatology (Anderson, Yoshizawa, Gollschewski, Atogami & Courtney, 2004; Fu, Anderson & Courtney, 2004; Larroy, 2004; Obermeyer, 2000). The symptoms of menopause can vary widely, but hot flushes and psychological reactions are very frequent in Spanish women (MUMENESP, 2010).

Some studies show the relation among hot flushes, stress and anxiety (Gast et al. 2011; Hunter & Liao, 1995; Swartzman, Edelberg & Kerman, 1990; Gannon, Hansel & Goodwin, 1987). Authors compared premenopausal women who had hot flushes, with premenopausal women who had never suffered any hot flushes (control group). The results showed that women who had hot flushes were significantly more anxious and seemed more willing to express their problems or discomforts with somatic symptoms. These authors suggested a hypothesis that stress can precipitate or exacerbate hot flushes affecting catecholamines, which interfere on thermoregulation centers, concluding that women who suffer hot flushes and nocturnal sweats have a significantly greater risk of moderate coronary disease (Gast et al., 2011).

Traditional intervention in menopause involves medical treatment: Hormone Replacement Therapy (HRT). However the cost of the HRT and its side effects which have become particularly evident in the last few years, make it difficult to consider this medical treatment as the main intervention plan for menopause. This fact lead to the search of new types of intervention programs to reduce menopause symptoms. Current studies have demonstrated the relevance of psychological intervention reducing anxious and depressive symptoms in menopausal women, which has been reported to play an important role on physical symptoms as hot flushes (Hunter & Liao, 1996). Some studies have proved the efficacy of deactivation techniques (as relaxation, yoga, breathing, etc.) for the control of hot flushes as well as the efficacy of other cognitive- behavioural techniques (Lindh-Åstrand & Nedstrand, 2012; Rada et al. 2010; Booth-Laforce, Thurston & Taylor, 2007; Wijm, Melin, Nedstrand, Hammar, 1997; Hunter & Liao, 1996; Irvin, Domar, Clark, Zuttemzeister & Friedman, 1996; Swartzman & Edelberg, 1983;). Psych education has been also demonstrated to reduction hot flushes (Tremblay, Sheeran & Aranda, 2010). The most significant results yielded by those studies show a reduction of physical and psychological symptoms of menopause and an improvement of patients' quality of life after applying cognitive-behavioural techniques. These intervention programs integrated different elements that converge during climacteric, emphasizing alternatives to medical treatment and offering a strategy of assistance, prevention and education. Furthermore, it emphasized the need to incorporate into interventions aspects to promote health and prevent certain disorders which might be considered long term effect of menopause such as cardiovascular disorders and osteoporosis. It was confirmed that training women by providing them with adequate alternatives to combat the symptoms that sometimes arise as a consequence of menopause, will enable them to cope with it in a healthy way. It was also

confirmed that if the factors that mediate or exacerbate different symptoms are directly stated, a significant remission in symptoms will occur (Hanisch, Hantsoo, Freeman, Sullivan & Coyne, 2008).

This approach has been demonstrated to be effective and efficient, however the cultural difference stressed in many studies led us to research the effects in a Spanish sample, and this is one of our proposals in this study. It has been also widely documented the therapist effects when applying an intervention program. Results may vary depending on the therapist who applied the treatment (Crits-Christoph et al., 1991), in order to establish a protocol of intervention; we considered the need to control the therapist effect. To do so, in a subsequent study the treatment was applied by different therapists and results were compared.

1.1 Instruments

Although this is a part of a larger study where several instruments were employed to assess the dependent variables (symptoms associated with menopause and quality of life), we will focus in hot-flushes, anxiety and depression, so only data from BKMI and Hospital Anxiety and Depression Scale (HADS) will be considered in this study (and just specific measures and no global scores).

2. Method

2.1 Participants

53 women aged between 42 and 55 years with menopausal symptoms were recruited from different Women's Care Centers in Madrid, which have a cooperation agreement with the university. Treatment was conducted by different therapists (two therapists in each group), psychologist from the Master of Clinical Psychology of Universidad Complutense de Madrid.

Blatt's Kupperman Index (BKMI) (Kupperman & Blatt, 1953) and Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983) were used to assess the symptomatology.

Subjects were assigned to one of the two groups (experimental or control group). Assignment depended on disponibility of woman to carry out the intervention. Control group was formed using the snowball effect contacting with a former woman in each Center.

Experimental group was comprised of 28 women from 42 to 55 years ($M = 48.86$; $SD = 3.61$). Women in experimental group attended to one of the three subgroups depending on their location. Three Women's Care Centers agreed to be part of the study: they were placed in Fuenlabrada, Leganés and Collado-Villalba. Women who were interested in being part of the study and had time disponibility, attended the training on cognitive-behavioral techniques (CBT), and chose the Centre more convenient depending on their location. Each group was composed of 8 -10 women.

The control group consisted of 25 women. They ranged in age from 44 to 55 years old ($M = 49.88$; $SD = 2.65$). A summary of demographic data is on table 1. Women of this group accomplished the same criteria as experimental group, but they were not trained on cognitive and behavioral techniques. Control group was formed applying the snow ball methodology. This method assumes that the researcher identifies one or more individuals that could be interviewed according to previously set criteria for the study, women who presented menopausal symptomatology, at the end of each interview, the interviewees asked to recommend other potential women to be part of the control group.

2.2 Instruments

As it is commented above, this is a part of a larger study where several instruments were employed to assess the dependent variables (symptoms associated with menopause and quality of life), but only data from BKMI and Hospital Anxiety and Depression Scale (HADS) will be considered in this study.

Blatt's Kupperman Menopausal Index – BKMI - is comprised of 11 symptoms evaluated on an intensity scale from 0 to 3, where 0 indicates the symptom's absence, and 3 indicates its maximum intensity. A menopausal index was obtained by multiplying a factor provided by the authors by the

intensity index indicated by the women themselves. The most characteristic symptoms of menopause (hot-flushes) were assigned a higher factor. Scores ranged from 0 to 48 points. An index lower than 15 indicated slight symptoms, between 15 and 19 moderate, between 20 and 35 moderate to severe, and above 35 severe. The BKMI is one of the most commonly used instruments to assess the symptoms of menopause in Spain, to the extent that it is a required reference for the majority of menopause researchers. Women were required to score $BKMI \geq 20$ to take part of the study. The Anxiety and Depression Scale (HADS) developed by Zigmond and Snaith (1983) is commonly used by doctors to determine the degree of anxiety and depressive symptoms that the patient present. It is a fourteen items scale, seven related to anxiety and seven to depression. Each item score from 0-3, this means that a person may score from 0-21 in anxiety and from 0-21 in depression.

The cut-off point is 8/21 for both anxiety and depression. Women were required to score $HADS \geq 8$ at least in one of the scales to take part of the study.

The therapists who conducted the program administered the instruments.

2.3 Procedure

A quasi-experimental design with repeated measures and a control group was applied. The independent variable was the application of cognitive-behavioral techniques and the dependent variables were vasomotor symptoms associated with menopause (especially hot flushes, due to they are described as the most distressing symptom and it has been recently reported to be the most frequent and long lasting), anxiety and depression symptoms.

Experimental group was trained during eight sessions, held weekly, over a span of two hours' each, in an in-group setting where participation was involved. It included the following components: psycho education about menopause, relaxation techniques, training in exercise and nutrition, Kegel exercises and sexual re-education, identification and control of excessive worries and irrational beliefs and training in problem-solving and time management.

Muscular relaxation techniques and breathing techniques were the axis of the program from the second session to the end of intervention. These techniques have been used especially to reduce vasomotor symptoms (hot flushes and night sweats), insomnia, and anxiety, but they also help to relieve symptoms in general by contributing to an improvement in one's subjective evaluation of their experience of menopause (Ellen & Freeman, 2014; Larroy & Gutiérrez, 2011).

Due to this, they were used as main techniques of the intervention.

3. Results

Firstly, some different analysis of homogeneity of samples using t de Student test were carried out, to assure both samples homogeneity. Also, since the experimental group was divided into three subgroups, with a different therapist in each, an analysis was performed to detect possible interference of the therapist variable, since consistency or balancing as control methods could not be applied. No statistically significant differences were observed among the groups (table 2).

Although both groups showed a $BKMI \geq 20$ and $HADS \geq 8$ at baseline, in the experimental group the average scores of all variables decreased after treatment: BKMI ($t_{27}=8, 71$; $p<0.001$), hot flushes ($t_{27}=6.87$; $p<0.001$), nervousness ($t_{27}=2.75$; $p<0,05$) and melancholia ($t_{27}=4.94$; $p<0,001$) ; anxiety ($t_{27}=6.11$; $p<0,001$) and depression ($t_{27}= 3.41$; $p< 0,001$). The symptoms most intense among this group were hot flushes (78.6%) nervousness (78.6%) and melancholia (78.6%) at baseline. At post-treatment, 53.6% of women showed total scores less than $BKMI < 20$. Meanwhile in the control group hot flushes (92%), melancholy (68%), and nervousness (68%) were the most frequent and intense symptoms, keeping in the same grade of intensity, at post-treatment, compared to baseline (table 4).

A Student's T test and Repeated Measures ANOVA were made for BKMI and HADS scores in both, experimental and control group. As it can be appreciated, all analysis indicated a decline in women in the experimental group's global scores on the BKMI, and in hot flushes scores, depression and anxiety (table 3). In relation to the control group, no statistically significant differences were registered in the post-treatment in any dependent variable (Table 4).

The effect size yielded by the intervention program at reducing symptoms was calculated using the G*Power program (Buchner, Erdfelder, Faul & Lang, 2009).

The statistical power and effect size of the treatment in terms of each dependent variable for the experimental group, at post-treatment were calculated. They are also reflected at table 3.

A multivariate ANOVA 2x2 (treatment and time of assessment) was also made. Statistically significant differences were found in all the variables after the intervention. In addition, when considering the variables interaction (group x moment of assessment), these differences are maintained except in nervousness (table 5).

A decrease in scores on the depression (although not significantly) was observed, and 50% of women who at the baseline had higher scores on depression reach no clinical scores at posttreatment.

4. Discussion

The results confirm our hypothesis and support previous studies: behavioral-cognitive therapy reduced the vasomotor symptoms of menopause, encouraging the inclusion of the programs into the plans offered in Women's Care Centers and in Health Centers. This study also shows that there is no a therapist effect when applying the program. This indicates that the professional who applies the program will not need a specific training (just being qualified, knowledge on menopause and behavioral techniques), subsequently and due the presence of mental health professional within the Health Centers and Women's Care Centers, no more funding would be needed to carry out this program.

An important point of this paper concerns the intervention on psychological variables associated with menopause, anxiety and depression. The high scores achieved in the items of nervousness and melancholy of BKMI in the pretreatment situation, are consistent with data obtained on both scales of the HADS. These data indicate that psychological symptoms are very important in the menopausal process. For this reason, interventions should consider strategies to alleviate both psychological and physiological symptoms. The fact that both coexist in the menopausal process makes suspect a "vicious circle." Thus, the physical symptoms exacerbates the onset of psychological symptoms (e.g., hot flushes, continually repeated causes of discomfort or anxiety and fatigue in women, by the associated insomnia, getting to limit their daily life, which is likely to cause dysphoria and depression). The psychological symptoms precipitate physical symptoms (situations that create stress or anxiety predispose women to hot flushes and insomnia). In this sense, and in order to improve the program, it would be desirable to focus on the intervention of anxiety and depression, by, for example, the inclusion of purely behavioral techniques (reinforcement schedules, pleasurable activities, etc.)

Actually, a significant decrease in HADS and BKMI symptoms, especially hot flushes melancholia, and anxiety in the experimental group were found in both studies. This could support the relationship between anxiety and hot flushes suggesting that both variables may be fed back, and that controlling one can help to reduce the other. This hypothesis has also been supported by other studies (Freeman, Sammel, Lin, Gracia, Kapoor & Ferdousi, 2005; Juang, Wang, Lu, Lee, & Fuh, 2005).

Taking into consideration current studies about behavioral-cognitive therapy to reduce menopausal

symptoms, the results might be attributed, at least partially, to the deactivation techniques but it is necessary to highlight the importance that psycho education techniques had in our group of women. The great majority referred scarce knowledge about menopause. These findings might result paradoxical: even without knowledge of the possible consequences of this new event in their lives, they judge in advance that it will be seriously detrimental to them. It is highly probable that the lack of information, or the confusing information that circulates in our society, including stereotypes and prejudices surrounding menopause, were responsible for this misinterpretation. This lack of information could also trigger high levels of anxiety, especially if the little information they do have available is erroneous and, in many cases, negatively biased. Anxiety and stress are strongly related to hot-flashes, as it has been told before, so psycho education and relaxation training are very important for the decrease of symptomatology.

Although we have not included the follow-up data in the results due to significant experimental mortality (in the first study only 9 women from experimental group and only 11 women in the control group finished it) we considered important to mention the data yielded from this stage of the study. The follow-up data was collected six months after the intervention. During these months, the women had to apply the techniques learnt during the program. There was a significant reduction of HADS and BKMI scores in the experimental group at the follow-up when comparing to baseline. No changes occurred in the control group (Larroy y Gutiérrez, 2009).

With these results, we can also conclude that, without therapy time can't make you feel better. So, it is possible to stress that change (the improvement) was gradual and started to occur when women learned how to implement the techniques they had learned and felt some control over some of the symptoms.

The proposed program seems to be a good alternative to treat menopausal symptoms, especially in cases in which hormone therapy is contraindicated. Actually, cognitive-behavioural intervention, related to HRT, has the following advantages: it lacks of secondary or undesirable effects; it saves pharmaceutical expense; it has no contraindications; and it is effective at remitting symptoms. Moreover, it has a simple intervention protocol that is easy to apply, it is administered as a group (which improves its efficiency) and is adaptable to use in different institutions for women.

Actually, the interventions presented in this article were carried out within the context of habitual practice and using truly helpful tools, both of which contributed to its effectiveness. We have found similar results in all the experimental groups showing that there are no therapist effects in the application of this program, which increases its value. Finally, it incurred in very little cost compared to other therapeutic options such as pharmacology, so it was efficient, too. Since it is a group dynamic, it allowed for a greater number of women to be administered treatment in a small amount of time, maximizing the cost-benefit ratio. The group format also provided a normative marker for symptoms, favored the women's expression and participation, and contributed to their adherence to treatment. Similar results have been reported with breast cancer patients suffering from hot flushes (Fenlon, Corner & Haviland, 2008; Nedstrand, Wijma, Wyon & Hammar, 2005).

In summary, and bearing in mind that the findings of these studies should be considered with caution, due to N of samples, we can confirm that the intervention presented here is both effective and efficient at remitting symptoms of menopause especially hot flushes, Melancholia, anxiety and depression. The fact that the control group did not exhibit these changes highlights the intervention's effectiveness.

The significant decrease on depression levels only shown in the first experimental group could be due to the low levels of depression symptoms shown in the second experimental group. It is necessary to remember that the request to take part in the study was to score HADS > 8 in at least one of the scales (anxiety or depression).

However, it is crucial we do not forget that these are preliminary studies and that they have several important limitations which will need to be solved in future studies. Among them, we would like to emphasize: (a) small sample size; the strength of the results might be improved by a larger sample; (b) the huge number of techniques included in the program making it difficult to know the importance of each in the results.

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Tables

Table 1. Sample's Sociodemographic Variables

Variables	Experimental Group (N = 28)		Control Group (N = 25)	
	%	M	%	M
Age		48,86		49,88
Civil Status				
Married	89,3%		76%	
Separated	10,7%		24%	
Occupational Situation				
Active	10,7%		28%	
Homemaker	85,7%		72%	
Unemployed	3,6%			
Number of Children		2,32		2,20

Table 2. Results of the ANOVA to determine therapists effect

Variables	Pre-tt		Pos-tt	
	<i>F</i> (<i>df</i>)	<i>Sig.</i>	<i>F</i> (<i>df</i>)	<i>Sig.</i>
Kupperman and Blatt Menopausal Index	0.46 ₍₄₎	Not significant	0.93 ₍₄₎	Not significant
Anxiety	0.48 ₍₄₎	Not significant	1.07 ₍₄₎	Not significant
Depression	1.16 ₍₄₎	Not significant	0.74 ₍₄₎	Not significant

Table 3. Experimental Group. Student's t-test

Variables	Pre-tt		Pos-tt		Pre-trt./Post-trt.(N=28)			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (df)	<i>Sig.</i>	<i>ES.</i>	<i>SP.</i>
Kupperman and Blatt Menopausal Index	28.75	5.75	19.36	8.62	8,71 ₍₂₇₎	p<0,001	1.28	0.99
Hot Flashes	8.29	3.91	4.29	3.76	6,87 ₍₂₇₎	p<0,001	1,33	0.96
Nervous	4.64	1.64	3.64	2.04	2,75 ₍₂₇₎	P<.05	0.58	0.95
Melancholia	2.14	0.93	1.25	0.84	4,94 ₍₂₇₎	P<0.001	0.71	0.95
Anxiety	11.79	3.05	8.14	3.19	6,11 ₍₂₇₎	p<0,001	1.17	0.99
Depression	6.71	3.71	4.79	2.63	3,41 ₍₂₇₎	p<0,001	0.60	0.71

Table 4. Control group: Student's t-test

Variables	Pre-tt		Pos-tt		Pre-trt./Post-trt.(N=25)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (df)	<i>Sig.</i>
Kupperman and Blatt Menopausal Index	28.88	6.63	28.48	5.97	-0.80 ₍₂₄₎	Not significant
Hot Flashes	10.4 2.58		10.8 2.86		1,45 ₍₂₄₎	Not significant
Melancholia	1.68	1.18	1.60	1.19	1,36 ₍₂₄₎	Not significant
Nervous	3.4 1.91		3.60	2.00	0.53 ₍₂₄₎	Not significant
Anxiety	10.60	1.98	10.28	1.43	1,77 ₍₂₄₎	Not significant
Depression	4.62	3.69	4.88	3.39	-0.84 ₍₂₄₎	Not significant

Table 5. A multivariate ANOVA 2x2 (treatment and time of assessment)

Variables	Time of assessment		Treatment x Time of assessment			
	<i>F</i> (df)	<i>Sig.</i>	<i>F</i> (df)	<i>Sig.</i>	<i>ES.</i>	<i>SP.</i>
Hot Flashes	44.04 ₍₁₎	p<0,001	31.96 ₍₁₎	p<0,001	1,97	0.99
Nervous	8.74 ₍₁₎	P<.0.01	3.3 ₍₁₎	Not significant	0,2	0.47
Melancholia	16.55 ₍₁₎	P<0.001	11.55 ₍₁₎	P<0.01	0,70	0.95
Anxiety	36.75 ₍₁₎	p<0,001	25.83 ₍₁₎	p<0,001	0,40	0.68
Depression	8.13 ₍₁₎	p<0,01	11.33 ₍₁₎	p<0,01	0.53	0.99