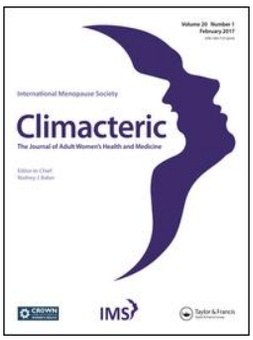

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ORIGINAL ARTICLE

Self-regulation model applied to menopause: a mixed-methods study

F. Pimenta[a], M. M. Ramos[a], C. C. Silva[b], P. A. Costa[a], J. Maroco[a] and I. Leal[a]

[a]William James Center for Research, ISPA – Instituto Universitário, Lisbon, Portugal; [b]Manchester Centre for Health Psychology, Division of Psychology and Mental Health, The University of Manchester, Manchester, UK

ABSTRACT

Objectives: Considering that bio-psycho-sociocultural variables influence menopause, this research aimed to assess the suitability of the self-regulation model in explaining the menopausal experience, and to explore differences among participants with different characteristics (e.g. health, sexual related) regarding menopause representations.

Methods: Overall, 27 Portuguese women aged 40–65 years were assessed for sociodemographics, health, and sexual activity, as well as menopausal status and symptoms. Semi-structured in-depth interviews were conducted. A directed content analysis was performed, and the qualitative data presented. Afterward, the frequencies of the categories were analyzed through quantitative methods (Mann–Whitney *U* tests).

Results: Aging was the most frequently mentioned feature regarding menopause Identity, whereas vasomotor symptoms were the most mentioned regarding Negative Consequences and menses cessation regarding Positive Consequences. Features related to Cause (hormonal changes) and Control (need for acceptance) of menopause were also identified. No differences were found in the frequency of menopause representations between women with different characteristics (e.g. with higher vs. lower vasomotor symptom severity).

Conclusion: The suitability of the self-regulation model to explain these women's menopause experience was confirmed and the representations did not vary among participants with different characteristics. This research might help professionals and researchers in developing comprehensive interventions, based on this theoretical model.

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Menopause; representations; self-regulation model; mixed methods

Introduction

Menopause is seen as the transition between reproductive and non-reproductive life stages[1] and refers to the moment when menses cease occurring, subsequent to the decline of ovarian function[1–3]. This process may result in an enduring symptom experience[2], with both physical and psychological consequences[4–6]. These changes may impact women's health and quality of life[2]. However, discussion around which symptoms are associated with this transition still persists[2,7], despite hot flashes and night sweats – also known as vasomotor symptoms – being frequently indicated as the most experienced and impactful[8].

Both the impact and the experience of menopausal symptoms are culturally and socially influenced[1,3,7–10], as well as affected by individual and psychological factors[1,3,8,9]. Menopausal symptoms seem to be more frequently reported in western countries[3], and negative attitudes around menopause might result in increased symptomatology[11]. Accordingly, the self-regulation model[12] seems particularly useful to explain individual differences regarding the menopausal experience, since it allows accounting for women's cognitive representations of menopause and for how women cope with their experienced symptoms[1,13]. This model has been vastly used in health-related studies to explain how people represent their clinical conditions; these representations will be based on people's experience with previous disease, information collected through interactions with significant others, and current symptomatology. These mental models are idiosyncratic and might be changed through interaction with health professionals, the social support network, and media exposure[14–16]. The self-regulation will determine the extent to which people will implement health-related behaviors, such as search for medical help, adhere to prescribed medication, perform regular physical exercise, and eat healthily, among others[17,18]. Hale *et al.*[19] describe that a patient might develop an expectation about a prescribed medication effectiveness from the abstract (e.g. 'My symptoms will disappear once I start taking this') to the experiential (e.g. 'I haven't noticed any change in my symptoms, so this might not work for me'); while clinicians might be oriented by an evidence-based expectation (e.g. 'In two months the treatment will start to take effect'). Health-care professionals benefit from understanding how representations (e.g. related to menopause) might influence people's interpretation of their condition and subsequent behaviors toward it so that professionals can respond as appropriately as possible[19].

CONTACT F. Pimenta filipa_pimenta@ispa.pt William James Center for Research, ISPA – Instituto Universitário, Rua Jardim do Tabaco, 34, 1149-041 Lisboa, Portugal

According to Hunter and O'Dea[1], Identity, Consequences, and Control were identified as the most relevant components of the self-regulation model, accounting for the menopausal experience. Identity includes the label and symptoms attributed to menopause, such as hot flashes and night sweats, menstrual changes, and more general symptoms (e.g. anxiety); Consequences reflect the perceived severity and impact of menopause, including Negative Consequences (an impact on women's sense of self) and Positive Consequences (a relief regarding menses cessation and the end of reproductive life); and Control regards perceived self-management of menopause. Furthermore, the authors refer to two additional components: Time frame (perceived short/long duration) and Cause (hormonal changes), also part of the self-regulation model regarding menopause. Nevertheless, these two were not mentioned as often as the three previous ones (Identity, Consequences, and Control) by menopausal women[1]. This previous study resulted in the development of the Menopause Representations Questionnaire, which is broadly used to assess the cognitive appraisal of menopause according to the self-regulation model[20].

Considering the multiplicity of factors influencing the menopausal experience (including sociocultural ones), it seems important to analyze this experience in the light of the self-regulation model[1,12], which enables a bio-psycho-sociocultural perspective[3], the suitability of which is still unknown in Portuguese samples. Furthermore, qualitative methods have the advantage of exploring women's experiences comprehensively, allowing cultural specificities to be identified, which may not emerge through quantitative assessment. Hence, this mixed-methods study aims: to explore the suitability of the self-regulation model as applied to menopause, in a Portuguese sample of women, through in-depth interviews; and to investigate differences between participants with distinctive characteristics (i.e. age, parity, health, menopause, and sexual-related variables), regarding the frequency of categories of menopause representations, identified in the qualitative analysis.

Method

Participants

This study used an intentional non-probabilistic sample of 27 Portuguese women, aged between 40 and 65 years (mean = 50.48, standard deviation = 6.60). Table 1 summarizes the characteristics of the sample.

Table 1. Participants' sociodemographic, health, lifestyle, and menopause-related characterization.

	Participants	
Characteristic	n	%
Age class		
40–47 years	7	25.9
48–55 years	14	51.9
56–65 years	6	22.2
Menopause status		
Premenopause	9	33.3
Perimenopause	2	7.4
Postmenopause	16	59.3
Type of menopause		
Natural	9	56.3
Surgical	7	43.7
Education		
<9th grade	8	29.6
9th–12th grade	6	22.2
Higher education	13	48.1
Professional status		
Active	21	77.8
Inactive	6	22.2
Current romantic relationship		
No	5	18.5
Yes	22	81.5
Current sexual life		
Non-active	6	22.2
Active	21	77.8
Parity		
No	3	11.1
Yes	24	88.9
Diseases/relevant clinical condition		
No	15	55.6
Yes	12	44.6
Current hormonal problems[a]		
No	20	74.1
Yes	7	25.9
Psychological problem/mental disease		
No	21	77.8
Yes	6	22.2
Regular exercise/physical activity		
No	12	44.4
Yes	15	55.6
Body mass index		
Adequate weight (18.5–24.9 kg/m^2)	13	48.1
Overweight/obesity (≥25 kg/m^2)	14	51.9

[a]Related to thyroid, suprarenal, pituitary, or other.

Material

Self-report questionnaires assessed sociodemographic (e.g. age, education), health (e.g. diseases and relevant clinical episodes), lifestyle (e.g. regular physical activity/exercise), menopause-related (e.g. menopausal status), and sexual activity (i.e. either sexually active or non-active) variables. Menopausal status was determined according to the Harlow *et al.*[21] criteria as follows: premenopause, absence of modifications in the menstrual cycle; perimenopause, variable menstrual cycle length (with a difference of 7 days or more, or two or more skipped cycles and an amenorrhea period superior to 60 days); and postmenopause, an amenorrhea period equal to or superior to 12 months.

The Vasomotor Symptoms subscale (composed of three items) from the Menopause Symptoms Severity Inventory (MSSI-38) was also used[22]. This subscale assesses the perceived severity (given by both frequency and intensity, on a 5-point Likert scale) of these symptoms, and has overall good psychometric properties[22].

Additionally, a semi-structured interview protocol was used to perform in-depth interviews. This regarded menopause representations ('What is menopause for you?'), perceived positive consequences of menopause ('Does menopause have any positive consequences? If so, which ones?'), and perceived negative consequences of menopause ('Does menopause have any negative consequences? If so, which ones?'), based on the conclusions of Hunter and O'Dea[1].

Procedure

This study was part of the second phase of the research project 'Experiências de Vida | Saúde na Adultícia' [Life Experiences | Health in Adulthood] (EVISA). At the first phase, several quantitative variables were assessed, including sociodemographic, health, lifestyle, and menopause-related variables. Participants were then invited to provide their contact details if they were available to be interviewed about their menopause representations. Fifty-nine women made their contact available, but only 30 consented to proceeding when contacted afterward and had a valid interview for analysis. From these, three were excluded because they were older than 65 years (see Figure 1).

Interviews were conducted by telephone after participants' verbal consent was obtained along with the authorization for audio-recording and subsequent treatment of data. This research followed the standards of the Ordem dos Psicólogos Portugueses[23] and the American Psychological Association[24] regarding the ethical treatment of participants, and ethical validation of the project was given by the Translational Group Coordination of the William James Center for Research.

Interviews were transcribed into their verbal and non-verbal content (e.g. pauses, laughter) and a qualitative content analysis was performed in accordance with a directed approach[25], also known as a deductive use of theory[26]. This approach allows the identification of both units of the interviews and the frequency of each category after an initial coding scheme has been developed and operationalized according to existing theory and prior research. The followed coding procedure was: identification of mutually exclusive emerging categories regarding the latent content of each of the three pre-existing categories (menopause representations, menopause positive consequences, and menopause negative consequences); conception of customized codes; analysis and identification of speech excerpts which met the emerging categories; and evaluation of coding decisions made by comparing speech excerpts with categories' theoretical definitions and with other speech excerpts within the existing categories. This analysis was made of 25 interviews by two psychology researchers in a dependent way, using MAXQDA software (v. 2012). Afterward, the last two transcribed interviews were coded independently by two researchers to assess inter-rater reliability (Cohen's kappa coefficient, κ). The reliability assessment indicated a fair agreement ($\kappa = 0.34$, $p = 0.001$) and the final coding of the interviews was achieved by consensus.

Lastly, Mann–Whitney *U* tests were performed to test differences regarding the frequency of emergent categories, between groups of: specific sociodemographic characteristics (younger vs. older; with children vs. with no children), health (with a clinical condition/disease vs. without any clinical condition/disease), weight status (adequate weight vs. overweight/obesity), sexual activity (sexually active vs. non-active) and menopause-related variables (premenopausal or perimenopausal vs. postmenopausal); and higher–lower severity of vasomotor symptoms. Descriptive analysis, Cohen's κ, and Mann–Whitney *U* tests were performed using SPSS software (v. 25).

Results

From the qualitative analysis of the interviews, several dimensions of the self-regulation model[1] emerged, namely, Identity, Cause, Control, and Consequences. No categories related to the Time frame dimension were found. All emergent categories, along with their frequencies and speech excerpts (illustrating each category), are presented in Table 2.

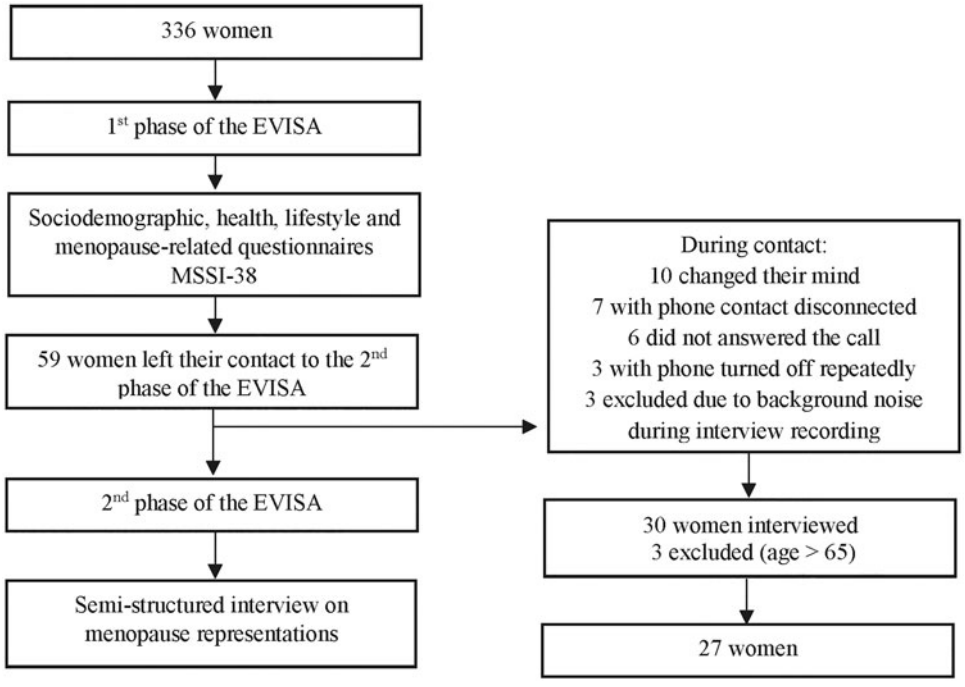

Figure 1. Sample recruitment process through the study. EVISA, 'Experiências de Vida | Saúde na Adultícia' [Life Experiences | Health in Adulthood]; MSSI-38, Menopause Symptoms Severity Inventory.

Table 2. Emergent categories resulting from directed content analysis regarding menopause representations.

Category	*Example*	n *(NM)*	n%
Identity			
Aging	'it's a change, it's part of the aging process'	19 (50)	70.4
Vasomotor symptoms	'one has flashes'	18 (40)	66.7
Menses cessation	'one stops being menstruated'	12 (15)	44.4
Physical changes	'the body will suffer changes'	13 (21)	48.2
Weight gain	'a tendency to gain weight'	10 (19)	37.0
Health problems	'new diseases begin to appear'	8 (16)	29.6
Natural process	'it's a time … it's a natural time … for a woman'	7 (15)	25.9
Osteoporosis/bone problems	'bones begin to weaken'	7 (11)	25.9
Perception of loss	'I felt there was something less'	7 (16)	25.9
Irritability/lack of patience	'people then get … super annoyed'	6 (10)	22.2
Depression/anxiety	'anxiety, that's it. Yes, those anguishes'	6(9)	22.2
Sleep disturbance	'They sleep badly at night'	5 (5)	18.5
Psychological and behavioral changes	'behaviors slightly different from those they used to have'	5 (9)	18.5
Life changes	'I think life changes a little bit'	5 (6)	18.5
Skin related	'our skin gets more and more drier'	5 (5)	18.5
Vaginal dryness	'the vagina also becomes drier'	5 (5)	18.5
Discomfort	'people feel very … uncomfortable'	3 (4)	11.1
Pain	'body pain'	4 (6)	14.1
More sensitivity/emotionality	'people get more sensitive'	4 (5)	14.1
Changes in sexuality	'changes at a sexual level'	4 (5)	14.1
Mood swings	'some mood swings'	4 (4)	14.1
Low libido	'sometimes … I miss the sexual desire a bit'	4 (4)	14.1
Negative affect	'they are much more bitter towards life'	3 (5)	11.1
Milestone	'it's a remarkable stage of a woman's life'	3 (5)	11.1
Hair/nails related	'the hair changes'	3 (4)	11.1
Tiredness/less energy	'I feel tired'	3 (3)	11.1
Maturity	'there is a growth […] during menopause we realize we have lived a lot and probably things will be different from now on'	1 (2)	3.7
Calm/tranquility	'it's calmer'	2 (3)	3.7
End of reproductive capability	'it's a phase following the fertile phase'	2 (2)	7.4
Stigma	'and also considering the stigma that menopause has today, even among women and among society in general'	1 (2)	3.7
Proximity to death	'I'm almost in the end, I'm in the final stretch because menopause is the final stretch for me'	1 (2)	3.7
Vaginal bleeding	'there can be strong bleeding during that phase'	1 (1)	3.7
Onset of menopause prior to final period	'it's the time before menses cessation'	1 (1)	3.7
Different menstrual cycle	'the menstrual cycle changes'	1 (1)	3.7
Undefined Identity			
Ambivalence	'It's a time a bit … it's a calmer but also a more complicated time'	5 (10)	18.5
Lack of information on menopause characterization	'To be honest I'm still not awakened to that situation and I still did not research much about it'	1 (2)	3.7
Cause			
Hormonal changes	'a transitional phase … in hormonal terms'	7 (11)	25.9
Control			
Need for acceptance	'you have to accept it, and that's it!'	10 (30)	37.0
Need for medical care	'really had to take medication'	5 (14)	18.5
Difficulties in coping	'I have certain difficulties, sometimes I get … angry'	6 (20)	22.2
Need for self-care	'if we follow a correct diet and hmm do daily exercise'	5 (7)	18.5
Undefined Consequences			
Absence of negative consequences	'I do not think there's anything negative'	2 (2)	7.4
Absence of positive consequences	'neither that'	1 (1)	3.7
Negative Consequences			
Vasomotor symptoms	'I was dying from the heat, I was really unwell and it was a great inconvenience'	10 (21)	37.0

(*continued*)

Table 2. Continued.

Category	*Example*	n *(NM)*	n%
Health problems	'people … get sick more often … easily and quickly'	9 (18)	33.3
Aging	'the fact that a woman becomes aware that she is aging'	8 (17)	29.6
Osteoporosis/bone problems	'osteoporosis and that kind of things'	5 (7)	18.5
Weight gain	'weight gain turns out to have a certain influence, isn't it … Personally, I feel that it's much harder to lose weight now than when I was younger, isn't it? '	4 (8)	14.8
Vaginal dryness	'there are people complaining that they begin to … hmm … get … drier, less lubricated'	4 (4)	14.8
Menses cessation	'look … I think … there might be negative things … at least, there's no more that thing every month … […] it's that thing, for health … for health that's negative'	3 (3)	11.1
Tiredness/less energy	'my resistance is no longer the same'	3 (4)	11.1
Skin related	'the skin gets uglier … '	3 (4)	11.1
Depression/anxiety	'I feel that anxiety, that pressure in the heart'	3 (3)	11.1
Physical changes	'associated with physical changes'	3 (3)	11.1
Changes in sex life	'life at a sexual level, things do not run as before'	2 (2)	7.4
Body image	'there are always things that are no fun … a person's appearance'	2 (2)	7.4
Less quality of life	'there is a noticeable decline in the quality of life'	2 (2)	7.4
Sleep disturbance	'and few sleep hours, I mean, one never ever sleeps the same way as before'	1 (2)	3.7
End of reproductive capability	'but sometimes it can also have a negative side, that is, I don't know … sometimes people could still want to have children'	1 (2)	3.7
Low libido	'lose sexual desire'	1 (1)	3.7
Mood swings	'Today I'm … ok, tomorrow I'm already anxious'	1 (1)	3.7
Vaginal bleed	'then I had many blood losses'	1 (1)	3.7
Family/conjugal problems	[have symptoms] and this might impact the family and conjugal life	1 (1)	3.7
Irritability/lack of patience	'patience … is no longer the same'	1 (1)	3.7
Higher hunger	'more desire to eat or … '	1 (1)	3.7
Death proximity	'consciousness that they no longer have as much time as they thought they had'	1 (1)	3.7
Positive Consequences			
Menses cessation	'gets rid of that problem, the menstruation'	15 (19)	55.6
End of reproductive capability	'no longer has to worry of something happening and getting pregnant'	11 (14)	40.7
More sexual freedom	'freedom to not use contraception because … then you have the freedom to more peacefully enjoy your sexuality'	8 (13)	29.6
Pads related	'I stop buying pads, I stop to annoy myself with that'	5 (7)	18.5
End of discomfort associated with menstruation	'and also, not having that discomfort associated with menstruation'	3 (5)	11.1
Maturity	'it may be a sign of maturation'	3 (5)	11.1
Aging	'I think that getting in another phase of life can also be seen on a positive side, we already got here, there are people who don't even get here'	2 (3)	7.4
Freedom to plan/do activities	'I can, I finally can do everything and anything I want'	2 (3)	7.4
Better health	'[…] I had two fibroids. I still have. Hmm, I believe that, hmm, over the years and during menopause, hmm, they are reducing in size'	1 (1)	3.7

n, number of women who mentioned the category; NM, number of times the category was mentioned; *n*%, percentage of women who mentioned the category.

Differences regarding the frequency of emergent categories were tested. Concerning Identity of menopause, Mann–Whitney *U* tests revealed no significant differences, specifically in the frequency of: the aging category, between younger and older women; the vasomotor symptoms category, between women with higher and lower symptom severity; and the weight gain category, between women with an adequate weight and with overweight/obesity.

Regarding the Negative Consequences of menopause, no significant differences were found in the frequency of: the vasomotor symptoms category, between women with higher and lower symptom severity; and the health problems category, between women who had and did not have a disease/clinical condition.

Concerning the Positive Consequences of menopause, Mann–Whitney *U* tests also revealed no significant differences in the frequency of: the end of reproductive capability category, between postmenopausal women and women in either premenopause or perimenopause; the end of reproductive capability category, between sexually active and non-active women; the menses cessation category, between postmenopausal women and counterparts in either premenopause or perimenopause; and the more sexual freedom category, between sexually active and non-active women (as presented in Table 3).

Discussion

This study intended to test the suitability of a theoretical model regarding menopause representations in a sample of Portuguese women. The overall results confirmed the self-regulation model dimensions (namely, Identity, perceived Consequences, Control, and Cause), as suggested by Hunter and O'Dea[1], and showed no differences regarding frequent and specific representations among participants with different sociodemographic, health, weight, sexual, and menopausal characteristics.

Considering the categories that emerged from the qualitative analysis for Identity of menopause, we found a high prevalence of categories related to aging, vasomotor symptoms, and menses cessation, as well as physical changes, weight gain, and health problems. Aging entails several biological and social changes and losses[27], with menopause, in fact, resulting from an age-related decline in ovarian function[2]. As mentioned by the participants: 'Menopause is the body aging' (age 48 years; postmenopause, surgical); 'We know we have lived a lot, and now probably things will be different, we have less time ahead' (age 53 years; postmenopause, surgical). Participants in premenopause also associated aging with menopause Identity: 'Menopause is the end of youth and we start thinking things differently [...] We start having more external signs of aging' (age 48 years; premenopause); 'Menopause it's an aging process [...] it's a different stage of life' (age 65 years; postmenopause, natural). Aging has been associated with several physiological changes and a higher risk for various diseases[27]; 'It is a very radical change [...] Menopause provokes severe changes in your body, in all aspects [...] new health problems and diseases, or something like that, begin to appear' (age 45 years; postmenopause, surgical).

A previous study highlighted vasomotor symptoms, menstrual changes, and diverse symptoms (e.g. anxiety, sleep problems) as part of menopause Identity[1]. This was verified in the present study. Also, vasomotor symptoms stood out as the second most frequently mentioned category of menopause Identity: 'Menopause brings anxiety and anguishes, especially because of those hot flashes, that heat [...] I already had had the menopause experience through my mother, I used to see my mother suddenly starting to sweat, to perspire heavily, that water running down her face ... and I used to say "Oh my God" [...]. [Nowadays] I am always having these hot flashes, I have to learn how to live with these, but I haven't yet' (age 61 years; postmenopause, surgical); 'The hot flashes are terrible, terrible, at least in my case. They are an unbearable heat [...] What I most felt was the

Table 3. Menopause representations: comparisons of participants with different characteristics.

Characteristic	*Subgroup*	n	*Mean rank*	U	W	*Significance level*[a]
Identity						
Aging	Younger	14	13.00	105.000	196.000	0.519
	Older	13	15.08			
Vasomotor symptoms	Higher severity symptoms	14	15.07	106.000	211.00	0.488
	Lower severity symptoms	13	12.85			
Weight gain	Adequate weight	13	13.65	95.50	200.50	0.830
	Overweight/obesity	14	14.32			
Negative Consequences						
Vasomotor symptoms	Higher severity symptoms	14	13.93	90.00	195.000	0.981
	Lower severity symptoms	13	14.08			
Health problems	Disease/clinical condition	12	14.00	90.00	168.00	1.000
	Without disease/clinical condition	15	14.00			
Positive Consequences						
End of reproductive capability	Premenopausal or perimenopausal	11	14.95	77.50	213.50	0.610
	Postmenopausal	16	13.34			
	Sexually active	21	13.60	71.50	92.50	0.629
	Non-active	6	15.42			
Menses cessation	Premenopausal or perimenopausal	11	15.55	71.00	207.00	0.422
	Postmenopausal	16	12.94			
More sexual freedom	Sexually active	21	13.24	79.00	100.00	0.376
	Non-active	6	16.67			

[a]*p* value (two-tailed) from Mann–Whitney *U* test. U - Mann-Whitney's U statistic; W - Wilcoxon's W statistics.

hot flashes. They started around 40, 42 years old' (age 52 years; postmenopause, natural).

Neither experiencing a higher or a lower severity of vasomotor symptoms (assessed quantitatively) resulted in a higher or lower frequency of acknowledging this symptomatology as part of the Identity or as a Negative Consequence of menopause. This suggests that these symptoms are associated with menopause regardless of the personal experience of these. Sood *et al.*[28] also concluded that women might recognize vasomotor symptoms as emerging around menopause and, therefore, these symptoms might be expected regardless of objective experience.

Both vasomotor symptoms and menses cessation – which distinctively characterizes menopause, since this phenomenon literally refers to the final menstrual cycle[1–3] – have presented a strong association in the literature[29]. Moreover, there is also evidence that vasomotor symptoms might be biomarkers of chronic diseases[30]. One woman described the following: 'With menopause, all the other health problem we already had, become more severe. I don't know if it is right or if it is just a coincidence' (age 40 years; premenopause).

The estrogen decline might affect the urogenital tract and consequently impact on sexual function and quality of life[31]. As part of menopause (Identity), several women referred to: vaginal dryness, 'It's vaginal dryness and all other changes in the reproductive system' (age 48 years; premenopause); changes in sexuality, 'It is a new cycle in terms of sexuality' (age 40 years; premenopause); and low libido, 'It's having less sexual desire' (age 58 years; postmenopause, natural).

Furthermore, increased abdominal fat seems to be associated with menopausal transition[32], a phenomenon also identified as part of menopause Identity (weight gain category): 'I used to hear my mother said that once you enter menopause you become overweight, put on weight … I became very concerned … I don't know if that will happen to me' (age 48 years; perimenopause); 'Women will eat the same amount of food – or even less – and they will gain weight' (age 48 years; perimenopause); 'What I have noticed it's the fat accumulation, especially around the waist' (age 52 years; postmenopause, natural).

A perception of loss was also seen: 'A woman might feel losing some qualities' (age 49 years; postmenopause, natural); 'Some women might think 'I am in menopause, so I will stop having my period, and from that moment on I will feel less woman, I will feel less sexual desire, I will stop to … to … stop doing certain things'' (age 58 years; postmenopause, natural); 'Some woman might feel less "woman" compared with the past' (age 46 years; premenopause); 'We become aware that there is something that has passed' (age 55 years; postmenopause, natural). This emphasizes that women with both natural and surgical menopause, or even in premenopause, might have a representation (or expectation) of loss, which might influence the way women experience this stage.

Regarding Negative Consequences of menopause, vasomotor symptoms were the most referred feature among the women in this study, supporting Hunter and O'Dea's[1] findings. Around 60–80% of women tend to experience vasomotor symptoms during menopause[33] and 37% of our sample perceived vasomotor symptoms as negative. Considering that cognitive appraisal of vasomotor symptoms influences the experience of them[8], negative representations of vasomotor symptoms should be explored in the context of a comprehensive approach to menopause. Women stated as follows: 'The negative consequences are the hot flashes […] I only hear people around me talking about the hot flashes' (age 40 years; premenopause); 'It's the hot flashes, those symptoms which don't stop […] a person sleeps only few hours … stops sleeping [well] as once did' (age 52 years; postmenopause, natural); 'I used to feel nauseated with the heat, it was extremely bothersome and very exuberant' (age 57 years; postmenopause, natural). Planned health education[34] and cognitive-behavioral interventions[35–37], entailing psycho-education, paced breathing, and cognitive-behavioral strategies, have been effective in reducing vasomotor symptoms.

Other frequent Negative Consequence identified were: health problems, 'After the menopause, women get sick more easily, more rapidly' (57 years; postmenopause, surgical); aging, 'The negative is the aging of the body after' (48 years; postmenopause, surgical); osteoporosis/bone-related problems, 'There is a tissues' degeneration, including in the bones' (42 years; premenopause); and weight gain and body image change, 'Women see their waist become larger, they lose their previous body shape' (age 54 years; postmenopause, natural). These two last categories may, in turn, be associated with other menopausal symptoms: body shape and appearance assessment by menopausal women has been associated with the frequency of hot flashes and night sweats, and also psychological symptoms[38].

Regarding Positive Consequences, congruence with Hunter and O'Dea's[1] model was also found. Menses cessation, the end of reproductive capability, more sexual freedom, and pads related were the events most referred to. Menses cessation was stated as follows: 'There are positive things … not having the period and all the associated discomfort, it disappears' (age 48 years; premenopause); 'We become more relaxed, for example, we know that we won't suddenly get our period. I think that is a positive thing, in my opinion' (age 43 years; premenopause); 'Stop having the period. It's not nice to have it, especially during the Summer' (age 54 years; postmenopause, natural). Only one woman with surgical menopause mentioned menses cessation as a Positive Consequence: 'Not having [the period] every month, it's a positive thing' (age 45 years; postmenopause, surgical). The end of reproductive capacity seems to be associated with more sexual freedom: 'You stop having the concern with an undesired pregnancy … thus, there is a different sexual freedom' (age 43 years; premenopause); 'Women become a bit more, more free, regarding pregnancy' (age 48 years; postmenopause, surgical); 'Since I can't get pregnant … there is more freedom, a person doesn't need to be concerned with getting pregnant, which is good, stops taking the pill or using the IUD' (age 52 years; postmenopause, natural). Hence, although there is reference to vaginal dryness and low libido, women perceived an increased sexual

freedom. This matches what Hinchliff *et al.*[39] found in their qualitative study with postmenopausal women, which shows a heterogeneous experience of sexuality during the menopausal years. The authors emphasize that some of the women who expressed low sexual desire at menopause used to have low libido before the last menstrual period. This highlights the importance of not assuming that low libido might be inherent to menopause but might be a phenomenon which has emerged before the menopause. Furthermore, the acknowledgment of more sexual freedom leads us to hypothesize menopause as potentially advantageous to conjugal and sexual relationships, at least to some extent. Only recently has the impact of menopause regarding both partners' sexual satisfaction and intimacy[40] been investigated. This seems to be a promising line of research in the field of couple's sexual health and, thus, should be explored in further research, entailing both men's and couples' perceptions of menopause.

Likewise, menses cessation appear to be directly associated with other Positive Consequence, namely related to pads (including the perception of an economical gain): 'Women stop being concerned about taking with them those products [pads] to use when the period suddenly appears' (age 43 years; premenopause); 'I don't have to spend money on pads anymore' (age 58 years; postmenopause, natural); 'It is more economical, concerning to pads' (age 57 years; postmenopause, natural). Congruent with Hunter and O'Dea[1], our results thus highlight that menopause is not solely a source of distress since women integrate both Positive and Negative Consequences of the phenomenon.

Regarding Control, the most mentioned category was the need for acceptance of menopause and related aspects: 'Because, if you accept it, you see things differently. If you don't accept it, it will be more difficult to live with it' (age 54 years; postmenopause, natural); 'If we accept, it will pass in a natural way … menopause arrives, passes through us, and we pass through it, without difficulty. On the other hand, if a person starts thinking "I am old, I arrived at menopause, what is going to happen to me, I am almost at the end of my life", it's obvious that this person will experience difficulties. If we accept things as they appear, it will be much easier regarding menopause' (age 58 years; postmenopause, natural); 'Women who don't accept it well, it's normal they have a harder time facing it' (age 51 years; postmenopause, surgical). Sakson-Obada and Wycisk[38] emphasized the relevance of the acceptance of menopausal symptoms since this was associated with the ability to cope with emotions and physical states (e.g. fatigue and hunger).

Self and medical-care were also identified as Control categories. Both women with natural and surgical menopause mentioned the need for medical care: 'There is the need to take medication … that was the information I was given' (age 55 years; postmenopause, natural); 'Women who are in menopause and don't take replacement hormones become very … impatient, irritable … and this might impact afterward the conjugal and family life' (age 57 years; postmenopause, natural); 'There are options that will help feeling less [symptoms]. We go to the gynecologists and say what we feel and they will manage this' (age 51 years; postmenopause, surgical); 'When we enter the menopause, we should go to an MD' (age 48 years; postmenopause, surgical). The need for self-care was also highlighted: '[Regarding] Our appearance, we have to take an extra care now' (age 53 years; postmenopause, surgical); 'If a person doesn't do physical exercise and … and … not try to compensate with vitamins and others, a decline in quality of life will be noticed' (age 43 years; premenopause); 'We may take action […] do exercise, walk, take care of our eating habits and our skin' (age 57 years; postmenopause, natural). Several self-management strategies (e.g. physical exercise/activity, adequate eating) verbalized by the participants seem to be adaptive (although only 55.6% of this sample does regular exercise/physical activity and 51.9% presents as overweight/obesity). However, this is not always the case: a recent systematic review focusing self-management strategies used by immigrants to manage menopausal symptoms has shown poor knowledge and the use of culturally-based remedies, which might have a harmful impact on both menopause acceptance and symptom management[41].

This study has some limitations. Only two women were in perimenopause, which restrained the possibility to derive conclusions regarding this menopausal status, during which higher symptom severity might be experienced compared to postmenopause[42]. Nonetheless, diverse symptoms were identified as being part of the Identity and Negative Consequences of menopause by participants in perimenopause, but also in premenopause and postmenopause. Future studies are needed with a more equitable sample distribution per menopausal status. Also, inter-rater reliability revealed a fair agreement between the independently performed coding; this might be due either to the use of only two interviews for this analysis (which might have been to limited to assess agreement) and/or an insufficient familiarity of the two researchers with the detailed coding scheme. Furthermore, the relatively small number of women entailed in this non-probabilistic sample ($n = 27$) can create a bias in the qualitative data obtained. This study has included participants with three different menopausal status levels (premenopause, perimenopause, and postmenopause) and with both types of menopause (surgical and natural); however, given the non-probabilistic nature of this study, the generalization of the present results cannot be assured.

In sum, by simultaneously using in-depth interviews and quantitative analyses to assess the differences regarding the frequency of these appraisals among participants with distinct characteristics, we believe that this research provides relevant evidence for the suitability of Hunter and O'Dea's[1] model on menopause regarding Portuguese women. Additionally, it evidences new categories (e.g. Control – need for acceptance and self-care). Further, this research makes an important contribution to the available knowledge on bio-psycho-sociocultural influences on the menopause process, as experienced by this group of Portuguese women. Hence, this research might be helpful for health professionals to better understand the menopausal experience and,

consequently, to develop and implement more comprehensive and effective clinical interventions.

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ORCID

F. Pimenta http://orcid.org/0000-0002-8659-4393
C. C. Silva https://orcid.org/0000-0003-1814-032X
P. A. Costa http://orcid.org/0000-0001-9826-9881
J. Maroco https://orcid.org/0000-0001-9214-5378
I. Leal https://orcid.org/0000-0002-1672-7912

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