



Symptomatology and quality of life between two populations of climacteric women

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Abstract

Purpose The aim of this study is to compare climacteric symptomatology and sociodemographic conditions and their effect on quality of life in two populations: Monterrey (Mexico) and Madrid (Spain).

Methods 469 women from Monterrey (mean age 50.5 ± 4.3 years) and 452 (mean age 51.7 ± 3.7 years) from Madrid participated in the study. Descriptive analyses of sociodemographic and clinics characteristics of the sample were performed. A cross-sectional design and a regression analysis were performed to establish the sociodemographic and clinical variables that would be used as predictors of quality of life. Data was collected using the Menopause-Specific Quality of Life, MENQOL, the Menopause Rating Scale (MRS), the Hospital Anxiety and Depression Scale (HADS), the Quality of Life Scale for Women Aged From 45 to 64 (QLS), and a sociodemographic and clinical interview designed *ad hoc*.

Results Approximately 60% of both Spanish and Mexican women present symptoms during climacteric that impairs their quality of life. Spanish women suffer more intense symptoms and for a longer period of time than Mexican women, with the exception of anxiety. Mexican women report better quality of life than Spanish women and it is moderated by educational, socioeconomical, and marital status. Women's knowledge about menopause is also related to a better quality of life.

Conclusions Our study confirms the differences in climacteric symptomatology between populations and the impact of educational level and knowledge about menopause as predictors of a better quality of life in climacteric women.

Keywords Climacteric symptoms · Sociodemographic factors · Quality of life · Anxiety · Depression

Natural menopause is defined by the World Health Organization (WHO) as the “permanent cessation of menstruation resulting from the loss of ovarian follicular activity” (WHO 1981). Menopause is included in the climacteric, which is a longer period that begins with the first hormonal changes. Important and significant effort has been done to define and clarify the terminology used during the menopause period. While they are not the same, the term menopausal symptomatology is often used to indicate climacteric symptomatology, and the instruments used to assess the latter often include the term menopause (not climacteric) in their names. In the same line, the Stages of Reproductive Aging Workshop

(STRAW) propose several stages independent of ages; these stages vary in length and they are different between each other due to menstrual cycle changes (Harlow et al. 2012; Sherman 2005). In this article, menopause and menopause symptomatology will refer to the period that comprises the stages from the late reproductive stage, when menstrual cycles remain regular, follicle counts are low and only subtle changes can show up, to late post menopause stage.

Menopause is a critical period in a woman's life, which not only marks the end of reproductive capacity, but also is associated with multiple physical, vasomotor, psychological, and sexual complaints. Different studies reveal that at least 30% of menopausal women suffer from symptoms that are frequent and distressing (Avis et al. 2001, 2015; Larroy and Robles 2016). For this reason, different therapies have been tested to alleviate the symptoms: hormone therapy (Caruso et al. 2017b; Utian and Woods 2013), nutraceuticals (Caruso et al. 2017a), isoflavones (Vitale et al. 2018), and cognitive behavioral interventions (Larroy et al. 2015; Perandones and Larroy 2011); all of them have demonstrate efficacy in their improvement.

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There is a considerable variation in menopausal symptoms for women all over the world (Avis et al. 2001, 2015). Moreover, cultural differences impact the place of women in society and the attention paid to their health and their reproductive status. In Asian countries, menopause, as a natural aging process, is associated with higher social status and wisdom. In the West, women associate menopause with the loss of youth and beauty (Perandones and Larroy 2011), and sexual inability (Pelcastre-Villafuerte et al. 2001). In other countries, menopause equates the loss of ability for motherhood or the loss of feminine identity and womanhood (Avis et al. 2001; Li et al. 2016; Quiroga et al. 2017), which leads to a predominantly negative perception of climacteric and menopause (Pelcastre-Villafuerte et al. 2001).

It is known that positive attitudes towards climacteric and menopause are related to an improvement of symptomatology, while negative expectancies predict increased symptoms, and could trigger anxiety and depression (Yanikkerem et al. 2012). Educational level, socioeconomic status, working status, and family support have also been related to the experience of menopause and climacteric symptomatology (Chedraui et al. 2008, 2009; Mendoza et al. 2013; Yanikkerem et al. 2012); cultural and ethnical conditions are also factors influencing how women experience menopause (Avis et al. 2001; Blumel et al. 2000; Chedraui et al. 2008).

As climacteric symptoms have been related to a poor quality of life, it is necessary to clarify which are the most disturbing and prevalent symptoms in each region or culture, to design and implement specific programs that will improve the quality of life of climacteric women. It is also important to determine how sociodemographic circumstances affect differently the experience of climacteric. The aim of this study is to compare climacteric symptomatology and sociodemographic conditions, and their effect on quality of life in two different populations: Monterrey (Mexico) and Madrid (Spain).

We propose two hypotheses:

1. Symptomatology will be different across the two samples.
2. Symptomatology and sociodemographics will differently explain quality of life according to the region of residence.

Methods

Design and participants

A cross-sectional study was carried out by collecting data from women in two countries, Mexico and Spain.

Women were recruited both in Monterrey (Mexico) and in the Autonomous Community of Madrid (Spain) during 3 months. In Monterrey, Mexico according to the National Institute of Statistics, Geography and Informatics (INEGI,

acronym of Instituto Nacional de Estadística y Geografía 2015), the total population of women between the ages of 45 and 59 is 329,094. In Madrid, Spain, the total population of women in the same age range is 664,585 according to Statistics National Institute (INE, acronym of Instituto Nacional de Estadística 2018). We used the formula for prevalence studies of Pan-American Health Organization (2015) calculating the sample size in a minimum of 384 women for both populations with a 5% confidence interval and a 95% confidence level. A total of 469 women in Monterrey (mean age 50.5 ± 4.3 years) and 452 women in Madrid (mean age 51.7 ± 3.7 years) participated in the study.

Participants were recruited in various public spaces, such as social service centers, private homes, and workplaces. Only those women between 45 and 60 years of age, whose primary language was Spanish, and whom agreed to participate and complete the questionnaire, took part in the study.

All participants were volunteers and were informed about the objective of the study, anonymity of the data, and about the possibility of leaving the study. All women signed an informed consent.

Measures

All measuring instruments indicated good psychometric properties and were presented in their Spanish or Latin American versions. We carried out a pilot study to pre-test and confirm the suitability and clarity of the assessment protocol with 20 women in Madrid and 25 women in Monterrey.

A sociodemographic and clinical interview was applied. We considered age, marital status, number of children, socioeconomic status, educational level, knowledge of menopause, and work status as data for the interview. Interviewers collected further information related to menopausal status; presence of climacteric symptoms; symptom duration, in months, since its appearance; and behaviors to alleviate them. A number of pregnancies and abortions and the use of hormonal contraception were also asked. We used different questionnaires to gather a wide range of information about menopausal symptoms.

These were:

The Menopause-Specific Quality of Life, MENQOL (Hilditch et al. 1996). This questionnaire evaluates the presence and intensity of symptoms through 29 items, evaluated using a Likert-scale. The presence of symptoms is evaluated by dichotomous choices; in those cases, the measure of internal consistency reliability is the Kuder–Ruderhose cases, the measure of internal consistency reliability is the dichotomous choices = .83), psychosocial (RK20 = .81), physical (RK20 = .87), and sexual (RK20 = .67). If the item is present, its intensity is evaluated on a scale of 1 (mild, scored 2) to 6 (extremely intense, scored 8). The total score for each subscale is the mean of their items and the total score is the sum of the

subscales. Thus, the higher the score, the more severe the symptoms are.

The Menopause Rating Scale (MRS) (Heinemann et al. 2003). A 11 items scale divided into 3 dimensions which are: somatic symptoms, psychological symptoms, and urogenital and sexual problems ($\alpha = .861$).

Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith 1983), is a self-administered measurement comprised of two 7-item scales: anxiety ($\alpha = .665$) and depression ($\alpha = .752$). Commonly used in health related studies to determine the degree of anxiety and depressive symptoms.

Quality of life scale for women aged from 45 to 64 (QLS) (Sánchez-Cánovas 1999) SDIN CSL_CITATION {"ci, which consists of a total of 22 items divided into five subscales with information related to physical symptoms, anxiety and depression, sexuality, social support, and family support. This scale also provides extra items focused on the knowledge of the changes associated with menopause. An overall score measures women's quality of life ($\alpha = .890$).

Data analysis

First of all, some descriptive findings were performed, all sociodemographic quantitative variables were tested by the *U* Man–Whitney for independent samples, and differences with *V* Kramer test were found.

A descriptive analysis of the most prevalent items in MENQOL and MRS were also performed, using *t* test and effect size of Hedges' *g*.

We used a cross table design to study the influence of clinical and sociodemographic variables on quality of life in both countries and for the total sample, we recoded QLS total score as Good (1) and Bad (2) quality of life (by using 50% of the total score as cut point, as given by authors). Finally, we calculated a multiple regression analyses by stepwise method for independent samples, including clinical variables (subscales of MENQOL and MRS), sociodemographic variables, and knowledge about menopause (item QLS0) to examine the expected three-way interaction. Data was analyzed using IBM/SPSS 22.0.

Results

The null hypothesis of equal distribution was rejected for all sociodemographic quantitative variables, and we found with *t* test a large effect size (-1.43) for number of children ($M = 1.78 \pm 0.92$ for Spanish women and $M = 2.54 \pm 1.03$ for Mexican women, $t = 11.88$). We also found significant differences ($p < 0.001$) between the two countries in all the variables considered using phi test (see Table 1). The effect sizes of working status and educational level were weakly positive and very small in marital status and socioeconomical level. More Mexican women reported working as employees or on

their own than Spanish women. Women with no studies were three times more present in the Mexican sample than in the Spanish sample.

In relation to the prevalence of the climacteric symptoms, descriptive analysis of interviews reveals that 60.7% of Spanish women and 60.8% of Mexican women report suffering from physical and/or psychological disturbances during climacteric. The 29% (Spanish) and 20.8% (Mexican) women suffered symptoms frequently, while 31.7% (Spanish) and 39.9% (Mexican) suffered occasionally. Spanish women endured these symptoms for up to 160 months ($M = 26.1 \pm 55$), while Mexican women reported climacteric symptoms for up to 132 months ($M = 22.98 \pm 12.45$); 11% of Spanish women sought medication or other help to relief symptoms; for the Mexican sample, this percentage increased to 24.3%.

We compared the questionnaire results for both groups assessing symptomatology (MENQOL, MRS, and HADS). On all measures of symptomatology except somatic discomfort (MRS) and anxiety (HADS), Spanish women rated higher. Statistically significant results for items and subscales are in Table 2.

As seen in the items of MENQOL, there are significant differences between the average intensity of both samples (to a significance of $p < 0.001$) for hot flushes, night sweats, depression, pain, loss of urine, and vaginal dryness; however, the Hedges' effect size is null.

The biggest differences (and with a large effect size) are found in the following items: *more sweat than usual* and *insomnia* (both higher in the Spanish sample), and *anxiety* (higher in the Mexican sample).

For the subscales of the MENQOL, there are differences between both samples with a small size effect on vasomotor and psychosocial, with higher intensity in the Spanish sample. In the rest subscales and total score, the intensity of the symptomatology is similar across samples, with no significant differences between them.

Related to MRS, we found a higher symptomatology in the Spanish sample in *Hot flushes* and *Sexual problems* ($p < 0.001$) and a large size effect (1.41) in both cases. In all subscales of MRS, we found statistically significant differences across samples. Mexican women manifested higher levels in somatic problems ($p < 0.001$, with 0.5 medium effect size); while Spanish women reported higher levels on the psychological ($p < 0.05$ and 0.33, low effect size) and urogenital ($p < 0.001$ and 0.78, large effect size) subscales and also the total score ($p < 0.001$ and 0.33, low effect size).

Related to HADS, Mexican women reported higher intensity of anxiety, while Spanish women reported higher depression. No differences were found between samples in total HADS ($t = 1.78$, $p = .08$).

Related to QLS, we found that 72.7% of Mexican women reported a good quality of life, whereas only 66.3% of Spanish women did ($p < 0.001$).

Table 1 Sociodemographic differences between samples

Variables	Values	Spanish (%)	Mexican (%)	χ^2	<i>p</i> value	Phi
Marital status	Single	10.8	6.2	57.4	< 0.001	0.2
	Married	74.5	78.7			
	Divorced/separated	11.5	12.3			
	Widow	3.2	2.8			
Working status	Self-employed	24.2	50.2	265.8	< 0.001	0.5
	Employed	25.4	36.7			
	Civil servant	25.4	1.1			
	Unemployed/housekeeper	24.4	3.8			
Educational level	Agriculture	0	8.2	294.6	< 0.001	0.5
	No studies	0.8	2.4			
	Primary/technic	15.2	17.0			
	Secondary	39.4	35.0			
Socioeconomical level	University	44.6	45.6	65.9	< 0.001	0.2
	Low/very low	6.5	2.2			
	Medium	73.4	57.2			
	High/very high	20.1	40.6			

To assess the percentages of women affected by different symptomatology, depending on its intensity, we proceeded to recode MENQOL, MRS, HADS, and QLS subscales (selected cut-points as explained above) and compared them with a χ^2 test. The results are shown in Table 3.

As can be seen on Table 3, both samples report 30–35% of intense symptomatology; particularly, Spanish women report higher levels in all scales except in the somatic MRS subscale and in the HADS anxiety subscale. Those results are consistent with Table 2.

To study the influence of sociodemographic variables on quality of life in both countries, we recoded QLS total score as Good (1) and Bad (2) quality of life. Cross tables and χ^2 were generated to study the influence of sociodemographic variables on quality of life in both countries. Results indicate as follows:

- Marital status influences quality of life for Mexican ($p = 0.002$), but not for Spanish women.
- Working status does not influence quality of life, neither for Mexican nor Spanish women.
- Level of education influences quality of life for Mexican women ($p = 0.009$) as well as for Spanish ($p = 0.012$).
- Socioeconomic level only influences Mexican women ($p = 0.025$).
- Suffering climacteric symptoms (as pointed it in the interview) influences quality of life for both samples, Mexican ($p < 0.001$) and Spanish ($p < 0.05$).

However, when we analyze all these variables together, using a regression analysis with the total sample, we found that psychosocial and urogenital symptomatology, educational and socioeconomic level, and the knowledge about

menopause were the most important variables related to a good quality of life. The variable Country (to be Spanish or Mexican women) do not contribute to explain the model (Table 4)

Discussion

Our results confirm the high prevalence of climacteric symptoms, finding that almost 60% of women reported them. Moreover, nearly 30% of Spanish and 20% of Mexican menopausal women suffered frequent climacteric disturbances. We also found that the percentages of women suffering from intense anxious and depressive symptoms in both samples are higher than those obtained in other age groups (Freeman et al. 2004), although Spanish women revealed higher depressive symptomatology while Mexican women present higher anxiety (assessed by HADS). MENQOL and MRS psychosocial subscales also detected the existence of important psychological symptomatology as anxiety and depression. As postmenopausal life span increases, improving quality of life for climacteric women becomes an even more important public health concern.

As shown in scientific literature, culture impacts climacteric symptomatology. The results of this study support Hypothesis 1. In the studied samples, Mexican women report more anxiety (on average, and in the percentage of women with intense anxiety), while Spanish women report more depression and more symptomatology. These results support those of previous studies that found differences in the climacteric symptoms in women across Latin American countries, and also all over the world (Avis et al. 2001; Larroy and Vera 2013; Li et al. 2016).

Table 2 Differences of intensity in the most prevalent items and subscales, between Spanish and Mexican samples (only statistically significant differences)

Questionnaires (items)	Countries	Mean	SD	<i>t</i>	<i>p</i> value	Effect size Hedges'sg	95% CI
MENQOL 1 (flushes)	Spain	2.9	2.2	2.8	0.005	0.0	0.4 (0.1, 0.6)
	Mexico	2.5	2.1				
MENQOL 2 (night sweat)	Spain	2.6	2.2	2.8	0.005	0.0	0.3 (0.1, 0.6)
	Mexico	2.2	2.0				
MENQOL 3 (sweat)	Spain	2.4	2.1	3.9	< 0.001	0.6	0.5 (0.2, 0.7)
	Mexico	1.9	1.8				
MENQOL 5 (anxiety)	Spain	3.1	2.2	4.0	< 0.001	0.5	0.5 (0.2, 0.8)
	Mexico	2.6	2.1				
MENQOL 8 (depression)	Spain	2.4	1.9	2.4	0.016	0.0	0.3 (0.0, 0.5)
	Mexico	2.1	1.9				
MENQOL 12 (pain)	Spain	3.9	2.4	5.1	< 0.001	0.0	0.7 (0.4, 1.0)
	Mexico	3.1	2.2				
MENQOL 14 (insomnia)	Spain	3.1	2.4	3.1	0.002	0.5	0.4 (0.1, 0.7)
	Mexico	2.6	2.3				
MENQOL 26 (loss urine by press)	Spain	2.3	1.9	2.6	0.01	0.0	0.3 (0.0, 0.5)
	Mexico	2.0	1.9				
MENQOL 28 (vaginal dryness)	Spain	2.7	2.2	3.0	0.002	0.0	0.4 (0.1, 0.7)
	Mexico	2.3	2.1				
MRS1 (flushes)	Spain	1.0	1.0	3.4	0.001	1.4	0.2 (0.0, 0.3)
	Mexico	0.7	0.9				
MRS 3 (insomnia)	Spain	1.3	1.1	3.2	0.001	0.0	0.2 (0.0, 0.3)
	Mexico	1.1	1.0				
MRS 7 (fatigue)	Spain	1.2	1.0	3.12	0.002	0.0	0.1 (0.0, 0.3)
	Mexico	1.0	0.9				
MRS 8 (sex)	Spain	1.0	1.0	2.7	0.005	1.4	0.1 (0.0, 0.3)
	Mexico	0.8	0.9				
MENQOL vasomotor	Spain	7.5	5.8	2.3	0.02	0.2	0.8 (0.1, 1.5)
	Mexico	6.7	5.1				
MENQOL psychosocial	Spain	17.4	9.7	2.7	0.007	0.2	1.7 (0.4, 2.9)
	Mexico	15.7	9.2				
MRS somatic	Spain	2.8	2.1	- 4.1	< 0.001	- 0.5	- 0.6 (- 0.9, - 0.3)
	Mexico	3.5	2.5				
MRS psychological	Spain	4.1	3.2	2.2	0.028	0.3	0.4 (0.0, 0.8)
	Mexico	3.7	3.0				
MRS urogenital	Spain	4.1	3.1	10.1	< 0.001	0.7	1.8 (1.5, 2.2)
	Mexico	2.3	2.4				
Total MRS	Spain	11.2	6.9	3.5	< 0.001	0.3	1.6 (0.7, 2.5)
	Mexico	9.6	6.8				
HADS anxiety	Spain	6.3	3.7	- 5.6	< 0.001	- 0.2	- 1.2 (- 1.6, - 0.8)
	Mexico	7.5	3.1				
HADS depression	Spain	4.1	3.6	3.1	0.002	0.3	0.6 (0.2, 1.0)
	Mexico	3.4	3.0				

Spanish women seem to suffer more, more intense climacteric symptomatology, and for a longer period of time, than Mexican women. Perhaps we can explain these differences by

the fact that Mexican women use hormone therapy and other alternative medicine like homeopathy and herbal treatments to alleviate menopause symptoms more frequently than Spanish

Table 3 Differences in prevalence depending on intensity of symptomatology and quality of life in subscales scores between Spanish and Mexican samples

Variables	Countries	Mild	Moderate	Severe	X ²	p value
MENQOL vasomotor	Spain	42.8%	20.0%	37.2%	3.5	--
	Mexico	47.0%	21.5%	31.5%		
MENQOL physical	Spain	31.4%	32.3%	36.3%	1.3	--
	Mexico	36.4%	32.8%	30.8%		
MENQOL psychosocial	Spain	32.4%	33.0%	34.6%	3.7	--
	Mexico	34.2%	34.8%	31.0%		
MENQOL sexual	Spain	36.3%	27.8%	35.9%	9.9	0.007
	Mexico	46.2%	21.4%	32.4%		
MRS somatic	Spain	29.2%	48.7%	22.1%	12.3	0.002
	Mexico	25.4%	42.4%	32.2%		
MRS psychosocial	Spain	36.8%	21.1%	42.1%	5.0	--
	Mexico	42.1%	22.9%	35.0%		
MRS urogenital	Spain	20.9%	38.3%	40.8%	92.1	< 0.001
	Mexico	48.0%	33.7%	16.3%		
HADS anxiety	Spain	64.3%	25.5%	10.2%	14.0	0.001
	Mexico	52.5%	33.7%	13.8%		
HADS depression	Spain	84.6%	11.4%	4.0%	0.6	--
	Mexico	86.4%	10.2%	3.4%		
		Good QoL	Medium QoL	Bad QoL		
QLS emotional	Spain	22.7%	33.0%	43.3%	24.7	< 0.001
	Mexico	31.9%	39.1%	29.0%		
QLS anxiety/depression	Spain	25.5%	32.4%	42.1%	16.2	< 0.001
	Mexico	34.2%	35.7%	30.1%		
QLS sexuality and partner	Spain	34.3%	31.6%	34.1%	5.2	--
	Mexico	36.6%	36.1%	27.3%		
QLS social support	Spain	30.4%	35.6%	34.0%	4.4	--
	Mexico	36.0%	35.3%	28.7%		
QLS family support	Spain	24.9%	37.3%	37.8%	13.2	0.001
	Mexico	35.5%	30.1%	34.4%		

women (24% vs. 11%) other studies point to the improvement in quality of life with use of hormone therapy (Utian and Woods 2013), nutraceuticals (Caruso et al. 2017a), and isoflavones (Vitale et al. 2018). Those differences can also be explained due to a culturally acquired esteem for work and greater labor activity (Swaminathan 2016). The higher depressive symptomatology reported by Spanish women can be directly associated with an increase in the severity of climacteric symptoms (Fecteau 2002; Hunter and Smith 2013; Jiménez-López and Pérez-Silva 1999; Mauas et al. 2014). The difference in symptomatology can also be related to the difference in quality of life: Spanish women suffer more symptoms, greater long-term intensity, and also show a worse quality of life. The relationship between climacteric symptomatology and quality of life has been demonstrated in the analysis of cross tables and regression analysis. Our results are supported by other studies (Davis et al. 2015; Quiroga et al. 2017; Sharma and Mahajan 2015), and in some point contradict the well-known idea that developed countries will give a better quality of life to their citizens, even if we consider that equality and less social violence are factors to improve quality of life (Wilkinson 1996); although the reported socioeconomic

level of the Mexican sample (higher than Spanish) could explain our findings between these two samples.

The results of this study support partially the second hypothesis, the different influence of clinical and sociodemographic variables in quality of life in the samples. The fact that the socioeconomic level explains the quality of life of Mexican women but not of the Spanish (in the cross-sectional design) may be due to the difference in the access to good health services, while for the Spanish sample good health services are assured, for the Mexican sample, public health services are poor, and only women with higher socioeconomic status have access to a private health care services. In this same line, marital status is associated with quality of life among Mexican women but not for Spanish women; similar results already reported (Chedraui et al. 2009; Pelcastre-Villafuerte et al. 2001; Quiroga et al. 2017) showing that Latin American women (age > 50) are more likely to suffer from severe menopausal symptoms if they live alone/are single, possess limited education, live in rural areas, and/or are unemployed. From this data, we can infer that being in a relationship, a higher educational level and income provide a better quality of life, which buffers climacteric symptomatology. Our Spanish sample reported less quality in social and family support; this

Table 4 Regression analysis of symptoms subscales (MRS, MENQOL), sociodemographics, knowledge of menopause, and countries in quality of life

	β	Stand error	Beta stand Coef	<i>t</i>	<i>p</i> value	<i>R</i> ²
MRS, sociodemographics, knowledge, and countries						.431
(Constant)	28.065	6.501		4.317	.000	
MRS somatic	.659	.216	.101	3.048	.002	
MRS psychological	2.432	.163	.499	14.943	.000	
MRS urogenital	.562	.176	.107	3.197	.001	
Age	.231	.109	.061	2.119	.034	
Marital status	− .093	.359	− .007	− .260	.795	
Working status	.399	.350	.031	1.141	.254	
Educational level	− .904	.376	− .075	− 2.405	.016	
Socioeconomical level	− 1.354	.492	− .078	− 2.753	.006	
Knowledge	1.668	.459	.101	3.635	.000	
Countries	.048	1.030	.002	.047	.963	
MENQOL, sociodemographics, knowledge, and countries						.312
(Constant)	22.738	7.891		2.881	.004	
Menqol vasomotor	.080	.103	.028	.777	.438	
Menqol psychosocial	.739	.068	.456	10.932	.000	
Menqol physical	− .030	.033	− .041	− .928	.354	
Menqol sexual	.278	.078	.129	3.560	.000	
Age	.297	.129	.075	2.306	.021	
Marital status	.502	.434	.035	1.158	.247	
Working status	.259	.418	.020	.619	.536	
Educational level	− 1.139	.449	− .092	− 2.536	.011	
Socioeconomical level	− 1.019	.587	− .058	− 1.738	.083	
Knowledge	2.127	.551	.126	3.858	.000	
Countries	− .266	1.144	− .008	− .232	.816	

data can help us understand the complex relationship between social factors, quality of life, and climacteric symptomatology.

In our study, psychological, urogenital and sexual symptomatology, socioeconomical and educational level, and knowledge about menopause and climacteric are variables related to a better quality of life in the global sample. Educational level demonstrate to be a relevant variable in explaining women's quality of life (Legorreta et al. 2013; Yanikkerem et al. 2012) and physical and psychological self-concept (Shu et al. 2007); the role of knowledge about changes in menopause leads to an improved quality of life (Rubinstein 2013; Sharma and Mahajan 2015); the sexual quality of life in menopause moderates the effect of the correlation between depression and climacteric symptoms (Quiroga et al. 2017). The main limitation of this study was that information was self-reported, and this implies risks that social desirability influences how participants answered. Another limitation was the sample distribution in both groups: while Spanish women reported a medium socioeconomical level (73.4%), Mexican women reported both a medium (57.1%), and a high or very high (40.7%), while low or very low level was underreported for both samples. In spite of this, it has been

proven that a higher education and a higher knowledge about menopause predict a better quality of life in climacteric women, and the article sheds light on the impact of sociodemographic variables on the symptomatology of women in the menopausal period.

Conclusions

We wish to underline the importance of giving special attention to physical and psychological health of climacteric women, as well as the importance of regarding climacteric process as a bio-psycho-social process, not only as a biological one. This allows one to pay special attention to the psychological symptomatology in its interconnection with perceived quality of life. In this sense, MENQOL and MRS can be used as tools for health professionals to assess any psychological symptomatology that women going through menopause may exhibit, and must pay attention to for their possible referral to a psychologist.

The most relevant finding of the study is that a higher education and a higher knowledge about menopause predict a better quality of life in climacteric women. So, we want to highlight the importance of educational programs that improve women's knowledge of climacteric and menopause symptoms, and provide them with different ways to cope with their symptoms emphasizing the importance of a good sexual quality of life. Such preventive measures have relatively low economic cost for governments and health programs, and will result in better health and quality of life for climacteric women.

Compliance with ethical standards

Conflict of interest The study meets the requirements of Declaration of Helsinki. All participants were volunteers and were informed about the objective of the study, anonymity of the data and about the possibility of leaving the study. All women signed an informed consent. Approval was obtained from the Research Ethic Committee of the Vice-President Office for Health Sciences (Universidad de Monterrey; Ref.: 332016-CIE) and Faculty of Psychology (Universidad Complutense de Madrid).

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Research Ethic Committee of the Vice-President Office for Health Sciences (Universidad de Monterrey; Ref.: 332016-CIE) and Faculty of Psychology (Universidad Complutense de Madrid) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

Informed consent Informed consent was obtained from all individual participants included in the study.

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