

Associated Factors with Climacteric Syndrome in Women from Southern Sonora

Factores asociados al síndrome climatérico en mujeres del sur de Sonora

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Summary

Objective: To determine the factors associated with climacteric syndrome in women from southern Sonora, Mexico. **Methods:** Case-control study conducted between April 2019 and March 2020. The sample consisted of 30 women in the case group (symptomatic) and 60 in the control group (asymptomatic) who met the selection criteria; sociodemographic, clinical and family information was obtained through a structured interview. For the bivariate analysis, odds ratio and Pearson's χ^2 were used with 95% confidence intervals; a $p < 0.05$ value was considered statistically significant; in the multivariate analysis, logistic regression analysis was applied. **Results:** The main climacteric symptoms were muscular problems, vasomotor symptoms and sexual function alterations. The most frequent intensity was severe, followed by moderate and mild. The factors associated with climacteric symptoms in the bivariate and multivariate analysis were marital status (OR 10.4, $p = 0.03$) and lifestyle (OR 4.6, $p = 0.01$). **Conclusions:** Marital status with a partner and leading a dangerous-bad-regular lifestyle are risk factors associated with climacteric symptoms.

Keywords: Climacteric; Menopause; Life Style

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Resumen

Objetivo: determinar los factores asociados al síndrome climatérico en mujeres del sur de Sonora, México. **Métodos:** estudio de casos y controles, se realizó entre abril de 2019 y marzo de 2020. La muestra fue de 30 mujeres en el grupo de casos (sintomáticas) y 60 en el grupo control (asintomáticas) que cumplieron los criterios de selección; se obtuvo información sociodemográfica, clínica y familiar a través de una entrevista estructurada. Para el análisis bivariado se utilizó razón de momios y χ^2 de Pearson con intervalos de confianza de 95%, se consideró estadísticamente significativa una $p < 0.05$; en el análisis multivariado se aplicó análisis de regresión logística. **Resultados:** los principales síntomas climatéricos fueron problemas musculares, síntomas vasomotores y alteraciones de la función sexual. La intensidad más frecuente fue severa, seguida de moderada y leve. Los factores asociados a síntomas climatéricos en el análisis bivariado y multivariado fueron estado civil (RM 10.4, $p = 0.03$) y estilo de vida (RM 4.6, $p = 0.01$). **Conclusiones:** el estado civil con pareja y llevar un estilo de vida peligroso-malo-regular son factores de riesgo que se asocian a síntomas climatéricos.

Palabras clave: climaterio, menopausia, estilo de vida

Introduction

Climacteric is the transition from reproductive to non-reproductive life and is characterized by a decrease in hormone-producing ovarian functions.^{1,2} In Mexico, women aged 45 to 59 years (perimenopause and postmenopausal stage) represent almost 14% of the total female population. It is estimated that by 2035, one out of every three women

in Mexico will be in this stage and will have a life expectancy of 83 years. Considering that the average age of onset of menopause is 50 years, most women will spend at least one third of their lives in post-menopause and will live 30 years in this condition.³⁻⁵

During the climacteric period, estrogen deficiency alters the levels of catecholamine (dopamine and norepinephrine), acetylcholine and the enzyme monoamine oxidase in the central nervous system. This condition causes alterations in temper, mood, memory, decreased libido, vasomotor symptoms, alterations in the menstrual cycle and difficulty falling asleep.⁶ In addition to the above, there are non-hormonal aspects that intervene with the presence and intensity of climacteric symptoms, several studies propose that cultural, social, environmental and psychological factors, allow the manifestations of climacteric and menopause to become complex and varied, the detection of these factors allows a comprehensive assessment beyond intrinsic factors only.⁶⁻¹⁰

Climacteric symptoms have been associated with poor quality of life,¹¹ poor self-rated health, lower productivity at work, and greater use of health resources.¹² Due to the importance of women, both in the family and productive areas of the country, and the lack of studies in our region to help us understand the appearance, variability, and impact of symptoms at this stage, the objective of this study was to determine the factors associated with the presence of climacteric syndrome in a population of women in southern Sonora.

Methods

After authorization by the Local Committee for Research and Ethics in Health

number 2603, with registration number R-2018-2603-019, a case-control study was carried out, non-probabilistic sampling by consecutive cases was performed. The sample size was calculated with the formula for two proportions with a 95% confidence interval, the variable "intensity of climacteric symptoms" was considered as the most important within the equation. The result was 30 patients for the case group and 60 for the control group (1:2 ratio).

The study was conducted from April 2019 to March 2020 at the Family Medicine Unit No. 1 in Ciudad Obregon, Sonora. Patients were recruited in the waiting room of the family medicine outpatient clinic and were assigned to each group taking into account the following inclusion criteria: women aged 45 to 59 years, with two or more symptoms of climacteric syndrome for the case group and without symptoms for the control group, being attached to the Family Medicine Unit where the study was conducted and previously signing the informed consent. Women under treatment with psychotropic or hormonal drugs of any type or who presented any psychiatric disease were excluded; data with incomplete information were eliminated.

Data collection was performed using a standardized sheet. In the first section, sociodemographic variables such as age, marital status, schooling, occupation, type of population and family history of climacteric symptoms were collected. In the last section, several instruments and self-assessment scales were handed out and answered at that time; in this section, the Family Adaptability and Cohesion Evaluation Scale III (FACES III) was applied to learn about family functionality,¹³ this scale consists

of 20 items, each with a five-option Likert scale. The even numbers assess adaptability, this dimension examines the ability of the family system to change its power structure, roles and rules in response to a crisis, the levels of family adaptability are: rigid, structured, flexible and chaotic. The odd items assess cohesion, this dimension assesses the degree to which family members are separate or connected to each other and whether they are able to support each other; thus, the levels of family cohesion are: unlinked, semi-linked, related and bonded.

The Chávez-Velasco marital subsystem scale was measured to determine marital functionality,¹⁴ this questionnaire measures communication, affection, role allocation, sexual satisfaction and decision making in the couple. According to the above evaluation, a global score is obtained according to the degree of satisfaction of each question, a value of 0 to 40 points classifies as a severely dysfunctional couple, between 41 and 70 moderately dysfunctional couples, and more than 70 functional couples. Socioeconomic level was analyzed using the Graffar-Méndez Castellanos method,¹⁵ this scale consists of four dimensions: profession of the head of family, educational levels of the mother, sources of income and housing conditions, the response options range from one to five in each category; a score between 4-6 classifies the family as social stratum I (high), 7-9 social stratum II (medium-high), 10-12 social stratum III (medium-low), 13-16 social stratum IV (working class) and 17-20 social stratum V (marginal).

Lifestyle was measured with the FANTASTIC Questionnaire, an instrument for identifying and measuring lifestyles

of a particular population. The items include behaviors that may be related to health status, and are scored using a Likert scale, which measures the level of opinion or behavior with respect to each question posed, attributing a certain number of points to each response option. The score ranges from 0 to 4 for each item and has a maximum score of 100 points. Five rating levels were evaluated: up to 39 points, dangerous level; 40-59, low level; 60-69, regular level; 70-84, good level; 85-100 points, excellent level.¹⁶

Finally, the presence and intensity of climacteric symptoms was determined through the Menopause Rating Scale (MRS), which consists of a self-assessment questionnaire composed of eleven items that measure somatic, psychological and urogenital symptoms. It contains five response options representing five degrees of severity: asymptomatic (0 points), mild (1 point), moderate (2 points), severe (3 points) and intense (4 points); the total MRS score ranges from 0 (asymptomatic) to 44 (maximum degree of disturbance due to climacteric symptoms). The scale classifies symptomatology into: asymptomatic (0-4 points), mild (5-8 points), moderate (9-15 points) and severe (more than 16 points). The MRS scale is validated in Spanish¹⁷ and available in more than 25 languages.¹⁸

Quantitative variables were described as average and interquartile range (IQR); qualitative variables were expressed as frequency and percentage. The normality test was performed using the Kolmogorov-Smirnov test. Pearson's χ^2 analysis was performed to test for differences in dichotomous qualitative variables and the odds ratio (OR) was used to calculate risk with a 95%

confidence interval. In the multivariate analysis, logistic regression was used to identify variables that were associated with the presence of symptoms. Before performing this analysis, the assumptions of linearity, independence of errors, and multicollinearity were tested. At each step of the model, the highest *p* values were eliminated; this process was repeated successively until all variables were significant (*p* < 0.05). The v. 20 SPSS program was used for data analysis.

Results

A sample of 90 patients was analyzed, the average age was 53 years (IQR 7). In the case group, the most frequent intensity was severe (47%), followed by moderate (43%) and mild (10%). The baseline characteristics of the total population are shown in Table 1.

When analyzing family functionality with the FACES III questionnaire, 70% had a balanced family considered as functional and 30% were extreme (dysfunctional). The complete family characteristics and lifestyle are shown in Table 2.

The most frequent climacteric symptoms were muscular and joint problems, vasomotor symptoms, and problems related to sexual activity. The frequency of climacteric symptoms is shown in Table 3.

In the bivariate analysis it is observed that of the sociodemographic factors, only marital status (having a partner) was a risk factor for the presence of climacteric symptoms (OR 10.5, 95% IC 1.3-83.9, *p*=0.009) and in the rest of the variables, only the dangerous-bad-regular lifestyle was also a risk factor (OR 6.8, 95% IC 2.2-20.8, *p*=0.001). The complete analysis of the variables is shown in Tables 4 and 5.

In the multivariate analysis, the probability of risk was significant ($p < 0.05$) for marital status (having a partner) and lifestyle (danger-bad-regular). Regarding age and population type, no statistically significant association was determined ($p > 0.05$).

Table 1. Baseline Characteristics of the Total Population (n= 90)

Variable		n	%
Age	45-49 years	35	39
	50-54 years	22	24
	55-59 years	33	37
Marital status	Partner	73	81.19
	No partner	17	
Education	No formal education	6	7
	Elementary school	7	8
	Middle school	42	47
	High school	11	12
	Technique Bachelor's degree	14	15
Occupation	Housewife	42	47
	Employee	48	53
Population	Urban	78	87
	Rural	12	13
Socioeconomic status	High	2	2
	Medium-high	14	16
	Medium-low	53	59
	Low	21	23

Table 2. Family Characteristics and Lifestyle of the Total Population (n= 90)

Variable	Classification	n	%
FACES III Cohesion	No related	3	3
	Semi-related	18	20
	Related	36	40
	Agglutinated	33	37
FACES III Adaptability	Rigid	4	4
	Structured	17	19
	Flexible	20	22
	Chaotic	49	55
Conjugal subsystem	Severely dysfunctional	4	4
	Moderately dysfunctional	12	14
	Functional couple	74	82
Lifestyle	Bad	6	7
	Regular	13	14
	Good	60	67
	Excellent	11	12

Discussion

The most important findings of the research were: high frequency of intense climacteric symptoms in the case group, and the association between unhealthy lifestyle and having a partner with the presence of climacteric syndrome. Women's experiences of the climacteric period will depend on a number of factors, including previous knowledge, developed feelings and the society to which they belong; these are determining factors for improving or maintaining good health.¹⁹ Several studies show that age, sociodemographic characteristics (income, education, ethnicity), health conditions, absence of a partner and lifestyle are important determinants of the prevalence and severity of climacteric symptoms.²⁰⁻²¹ In this study, it was found only two factors related to the presence and intensity of climacteric symptoms, unhealthy lifestyle and the presence of a partner.

The main symptoms in our population were: muscular problems, vasomotor symptoms and alterations in sexual functionality; this result differs from Thapa et al.²² who report that the most frequent symptoms in their population were sleep problems, joint and muscle pain, physical exhaustion and irritability, with very high frequencies compared to our results. Only muscle and joint problems were consistent in both studies; however, it should be considered that due to the age of the sample, these conditions are very common despite the differences between the populations. Another study conducted by Makara-Studzińska, in Poland,²¹ shows also different results in symptoms, in that population there was a high frequency of anxiety, muscular problems and physical fatigue, in that

Table 3. Most Frequent Climacteric Symptoms (n= 30)

Symptom	n	%
Muscular and joint	54	60
Vasomotor	46	51
Sexual	40	45
Sleep	35	39
Vaginal dryness	35	39
Weakness	31	34
Irritability	30	33
Mood disturbances	28	31
Anxiety	24	27
Urinary	23	26

Table 4. Association Between Climacteric Symptoms and Sociodemographic Factors

Variable	Cases n (%)	Controls n (%)	OR	ci 95%	P	
Age	<50 years	15 (50)	20 (34)	2.0	0.8-4.8	0.12
	>50 years	15 (50)	40 (66)			
Marital status	Partner	29 (97)	44 (73)	10.5	1.3-83.9	0.009
	No Partner	1 (3)	16 (27)			
Education	Basic	17 (57)	38 (63)	0.7	0.3-1.8	0.54
	Higher	13 (43)	22 (37)			
Occupation	Housewife	12 (40)	30 (50)	0.6	0.2-1.6	0.37
	Employee	18 (60)	30 (50)			
Population	Urban	27 (90)	51 (85)	1.5	0.3-6.3	0.51
	Rural	3 (10)	9 (15)			
Socioeconomic status	Medium-high	23 (77)	46 (77)	1	0.3-2.8	1
	Low	7 (23)	14 (23)			

Table 5. Association Between Climacteric Symptoms and Family Factors

Variable	Cases n (%)	Controls n (%)	OR	CI 95%	P	
Climacteric family history	Yes	17 (57)	36 (60)	0.8	0.3-2.1	0.76
	No	13 (43)	24 (40)			
Familiar functionality (FACES)	Extreme	7 (23)	20 (33)	0.6	0.2-1.6	0.32
	Balanced	23 (77)	40 (67)			
Conjugal functionality	Dysfunctional	6 (20)	10 (16)	1.3	0.4-4.6	0.60
	Functional	24 (80)	50 (84)			
Lifestyle	Dangerous-Bad	13 (43)	6 (10)	6.8	2.2-20	0.001
	Regular	17(57)	54 (90)			
	Good-Excellent					

order. In India, Joseph et al.²³ found a higher frequency of muscle problems and physical exhaustion, which shows that in different populations, muscle and joint problems are common and intensify during menopause related to involuntional changes.²¹

Vasomotor symptoms are very common in the population of all America, with a frequency of up to 80%,²⁴ much higher than that found in this study (51%). Vega et al.¹⁰ found vasomotor symptoms to be second in frequency (64%) in women from central Mexico, a similar result to this study, but with a lower frequency. These symptoms can disappear spontaneously without treatment and it has been shown that up to 80% of sufferers have symptoms of this type for more than one year, 25-50% for five years and 25% for the rest of their lives;²⁴ in addition to the above, they significantly alter the quality of individual, couple and family life, mainly due to emotional and sleep disorders.¹

Family environment has a very important influence during the climacteric period; this stage coincides with crisis situations within the family and the couple, which puts the stability of the family nucleus at risk or can exacerbate unresolved crises in previous stages.²⁵ This study did not measure the presence of family crises in the population, which makes difficult to establish whether the symptoms are causally related to any crisis affecting the family. Regarding family functionality, García-Sánchez et al.⁹ found that a dysfunctional family environment is associated with a more severe climacteric syndrome; in this study, dysfunctional family was not associated with the presence of symptoms, although it should be noted that the instruments for its measurement were

different (FACES III vs FF-SIL), which may affect this comparison. In this regard, another study in Mexico showed, through the FACES III, that women with dysfunctional families had more climacteric symptoms, a result that differs from our analysis.¹⁰

Some studies, such as those conducted here, show that patients with a dysfunctional couple relationship present greater symptomatology, and the most common marital problems are dissatisfaction due to lack of support, poor communication and poor coexistence.^{10,26} In this sense, we found that having a partner represents a greater risk for the presence of symptoms and we were unable to establish an association between marital dysfunction and climacteric. The possible explanation for our results is based on the large number of functional couples and the low frequency of patients without a partner in the case group (n=1), a result that differs from other studies in Mexico.^{10,7} Another problem detected in the core couple during climacteric is sexual dysfunction. Sexual dissatisfaction (40%) and inability to reach orgasm (57%) have been reported in a large number of women;²⁷ in this study, sexual problems ranked third in frequency, with figures similar to those reported in the literature.

According to Martínez-Chang et al.,⁸ poor lifestyle negatively influences quality of life, thereby increasing symptomatology during climacteric; this result is similar to the data found in this study, an unhealthy lifestyle was associated with the presence of symptoms. Poor lifestyle habits are frequent

in this age range, some studies mention that almost 65% of women at this age have poor lifestyle and health habits,²⁸ which is different from our population, in which a high percentage of women with good lifestyle was documented. Many factors can affect the experience of climacteric symptoms and the study of these should be biopsychosocial. The symptoms are biological, but the perception is related to subjective experiences, or the manifestation of some physical, psychological or family dysfunction.²⁹

We recognize some limitations of this study. First, it was conducted with women recruited from a specific geographic area, and any generalization of its results should be limited to individuals with similar characteristics. Secondly, the cross-sectional design of this research does not allow us to establish causal relationships between the symptoms and the variables contrasted. Another limitation is the sample size in the case group, which was secondary to the few symptoms expressed by the patients at the time of the interview, and probably to the lack of awareness of them due to lack of knowledge.

Future studies should explore prospective designs for a larger and more diverse population, in addition to stratifying participants by age group and taking into account paraclinical variables such as gynecologic hormonal profile. Among the strengths, this study is the first of its kind in the region and represents a first approach to this important stage in the life of any woman; in addition, through the collection instruments, patients were helped to identify

characteristic symptoms and raise awareness of their possible treatment.

Conclusion

Marital status with a partner and leading a dangerous-bad-regular lifestyle are risk factors associated with climacteric symptoms. Climacteric is a stage in which women should theoretically live with less stress, childcare decreases and they can enjoy their family, social and work life even more. Menopause is not the end, but the beginning of a stage that requires special attention for its proper management, especially in the comprehensive approach of health professionals in primary care.

The climacteric period is a stage in the life of women that demands special concern for their health, either to maintain or improve their quality of life and not simply to be spectators of it, which is why in recent years there has been an increased interest in the study of climacteric syndrome. Knowing the factors that favor the presence of symptomatology, such as those found in this study, allows us to detect those women who are at greater risk of presenting symptoms, favoring preventive and timely care.

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