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## Climacteric syndrome: a population-based study in Brazil

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### ABSTRACT

#### Objective

To study the prevalence of climacteric, urogenital and sexual symptoms in a population of Brazilian women.

#### Methods

A cross-sectional descriptive population-based study was conducted. The selection of 456 women aged 45-60 years, living in Campinas, SP, in 1997, was done through area cluster sampling, according to data from the Brazilian Institute of Geography and Statistics. Data were collected via home interviews, using structured pretested questionnaires. Data were analyzed using the chi-squared test and the nonparametric Kruskal-Wallis test; a probability of <0.05 was considered statistically significant. The degree of climacteric symptoms was analyzed through circulatory and psychological indices. Analysis of the main components was used to determine symptom interrelationships.

## Results

The most prevalent symptoms were nervousness (82%), hot flushes (70%), headache (68%), irritability (67%) and sweating (59%). Hot flushes, sweating and insomnia were significantly more prevalent in the peri and postmenopausal phases. The frequency (severity) of vasomotor and psychological symptoms did not vary according to the menopause phase. The prevalence of urinary incontinence was 27.4%. Complaints of dyspareunia and vaginal dryness were infrequent. Decreased libido was the most frequent sexual complaint. It was observed that some climacteric complaints were interrelated. The first cluster included hot flushes and sweating (vasomotor cluster). The second cluster included nervousness, depression and irritability (psychological cluster). The third cluster included dizziness and palpitation (atypical cluster).

## Conclusions

Climacteric symptoms in this population were highly prevalent and similar to those described in developed Western countries.

## Keywords

Climacteric. Menopause. Cross-sectional studies.

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## INTRODUCTION

The menopause is defined as the last menstruation and the climacteric as the transition period between the reproductive and non-reproductive phases. The climacteric is characterized by endocrine changes due to the decline in ovarian activity; biological changes as a result of diminishing fertility; and clinical changes consequent to the alterations in the menstrual cycle and a variety of symptoms.<sup>25</sup>

The symptoms associated with the climacteric period have now been well documented in other countries. They affect around 60 to 80% of women and can occur even before the physiological cessation of the menstrual cycles.<sup>19</sup> The association of the menopause with such symptoms was first described more than 200 years ago.<sup>23</sup> The explanation associated the cessation of menstrual flow with physical mechanisms and related an association with vaginal atrophy and urinary symptoms. One of the first books about the menopause reported that, during the woman's "change in life", she is frequently affected by cancer, rheumatism and in some cases by a "very localized nervous affection".

However, there have only been references to the universality of climacteric symptoms over recent decades, even though such symptoms are influenced by sociodemographic characteristics like race, for example. The climacteric transition is an extremely variable cultural phenomenon and the complexity of the hormonal and psycho-sociocultural factors and the biological aging itself produce great variability of symptoms and also long-term consequences for health. Under these circumstances, the menopause represents an important chronological sign in the cycle of life and a physiological event to be considered from a medical perspective. This, the present study had the

objective of ascertaining the prevalence of climacteric, urogenital and sexual symptoms among women in Brazil.

## METHODS

A descriptive, exploratory cross-sectional study of population survey type was performed. The target population considered for the sample size calculation was the female native Brazilian population aged 45 to 60 years that was resident in Campinas, State of São Paulo, in the year 1997. The calculated minimum number of interviews was 367 women, which was increased by 20%, resulting in 456 interviewees, in order to allow for possible users of hormone replacement therapy. The selection of the subjects was done by means of conglomerates and the reference utilized as the smallest sampling unit was the census sector, as defined by the Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics). Census sectors generally consist of several blocks but in some cases consist of one shantytown (*favela*). Study was made of 82 census sectors drawn by lots from among all the 845 sectors in Campinas. In each of the sectors, a minimum of one and maximum of six women were chosen. Those that participated in the study were identified by means of an interview in their homes. To make a random selection of the women, a spacing of six addresses between the houses at which the interviewers were to obtain information on the women living there was adopted. For the selected women who agreed to participate in the study, the interviewer read the Statement of Free and Informed Consent, compiled in accordance with Resolution 196/96 of the National Health Council.

Data collection was begun on October 14, 1997, and concluded on January 15, 1998, thus totaling 73 days of fieldwork. In total, 12,238 addresses were listed, of which 2,805 were drawn by lots and approached. Of these addresses, 1,771 were residential and 1,034 non-residential. In 57% (1008/1771) of the residential addresses, it was ascertained that no women within the age group to be studied were living there. In 11% (192/1771) of the residential addresses drawn by lots, the interviewers were unable to find out whether there were any residents eligible for the study, either because the residents refused to give the information or because nobody was ever found who could give this information. Of the 571 eligible women contacted, the interview was not held in 51 cases (9%) because of difficulty in arranging a more appropriate occasion. In 64 cases (11.2%), the woman contacted refused to participate in the study. Generally, there was good receptivity among the women approached, and the majority expressed interest in responding to the questions. For each woman interviewed, 3.8 residential homes were visited (456/1771). In the majority of these homes, the woman living there was outside of the age group set for the study.

A structured pretested questionnaire was utilized for obtaining the information reported by the women, which was drawn up and adapted by the authors from two other questionnaires. One of these was supplied by the International Menopause Society and International Health Foundation after being applied in seven countries in Southeast Asia in 1993.<sup>3</sup> The other was supplied by the North American Menopause Society and was applied in the United States in 1993.<sup>22</sup>

The menopausal stages defined by Jazsmann in 1973<sup>10</sup> were utilized. Women in the premenopausal stage had regular menstrual cycles or a menstrual pattern similar to what they had during their reproductive life. Women in the perimenopausal stage had menstrual cycles over the last 12 months, but with a change in menstrual pattern in comparison with earlier patterns. Women in the postmenopausal stage had their last menstrual cycle at least 12 months before the interview.

The women were questioned regarding the existence and frequency of symptoms such as hot flushes, sweating, palpitation and dizziness (vasomotor symptoms), during the four -week period preceding the study. The precoded responses were "never"; "less than three times a day"; "three to ten times a day"; and "eleven or more times a day". The women were also questioned regarding the existence of

symptoms such as nervousness, irritability, headache, depression and insomnia (psychological symptoms) during the four-week period preceding the study. The precoded responses were "never"; "less than three days a month"; "four to ten days a month" and "eleven or more days a month". The scoring system proposed by the International Menopause Society was utilized.<sup>3</sup>

To evaluate the urological symptoms, questions about urinary incontinence were utilized. These asked about urine losses when coughing, laughing or carrying a weight, and whether such symptoms had appeared during the three-year period preceding the study. Cases of urinary incontinence that started more than three years before the study or after parturition or gynecological surgery were regarded as irrelevant to the objectives of the study and were disconsidered. With regard to genital complaints, questions were asked only in relation to dyspareunia and vaginal dryness, and these symptoms were only taken into consideration if they were present during the 12 months preceding the study. Other cases, such as early onset and prior existence were disconsidered. For the evaluation of sexual complaints, questions were asked regarding the diminution of libido, increased or decreased frequency of sex, the feeling of unattractiveness and other sexual complaints (open question) that had occurred less than one year before the interview.

The following activities and strategies were undertaken to ensure the quality of the data: training of the interviewers and supervisor; preparation and use of the instruction manual for the interviewers; supervision and monitoring of the data collection by the supervisor and head researcher; verification that the interview was completely and faithfully fulfilled; repetition of the application of sections of the questionnaire by the supervisor. The interviewers received specific training for the application of the "Statement of Consent" and the ethical concepts for research involving human beings.

For the data analysis, the package "Statistical Package For Social Sciences" for Personal Computer (SPSS-PC) was utilized. The chi-squared test in contingency tables was utilized in the data analysis. The level of statistical significance considered was 0.05. Since the objective of this study was to analyze the natural climacteric, women using hormonal contraceptives or hormone replacement therapy were excluded from the analysis of the vasomotor and psychological signs, because these medications could have masked the climacteric symptoms.

For analyzing the prevalence of the climacteric symptoms, they were first classified as present or absent. To focus more on the severity of the symptoms, the circulatory index was adopted. This expresses average values for the frequency of each of the vasomotor symptoms (hot flushes, sweating, palpitation, dizziness) suffered by the women in the sample. This index obtained by simple addition of the frequency scores indicated by the women, with the score for each symptom ranging from one, for "never", to four, for "eleven or more times a day". The psychological index was utilized similarly, on the basis of the psychological complaints (nervousness, irritability, headache, depression and insomnia), also with scoring ranging from one to four. These indices have been standardized and utilized by the International Menopause Society and International Health Foundation.<sup>3</sup> The differences between the averages of these indices for the three menopausal stage groups were evaluated using Kruskal-Wallis variance analysis.

The statistical analysis of the main components was utilized to evaluate the extent to which the climacteric symptoms experienced were interrelated. The set of variables was transformed into a new set of compound variables or main components that could not be correlated between each other, by using the information contained in the correlation matrix. This analysis of the correlations was done via graphical presentation. They were presented in such a way that the distance between the variables on the graph represented their interrelationship. That is, the greater the distance between the variables, the less the interrelationship between them was, and vice versa.

The protocol for the present study was assessed and approved by the Research Commission of the Department of Obstetrics and Gynecology and the Research Ethics Committee of the Faculty of Medical Sciences of Universidade Estadual de Campinas.

## RESULTS

The symptomatology associated with the climacteric syndrome was highly prevalent, with around 96.9% of the women experiencing at least one of the symptoms. For this prevalence analysis, 88 women (19.3%) who were at that time using hormone replacement therapy and one woman using oral hormonal contraceptives were excluded. The statistical comparison was done in accordance with the menopausal stage. Among the vasomotor symptoms, the most prevalent were hot flushes, dizziness and sweating. Hot flushes and sweating were significantly more frequent among women in the peri and postmenopausal stages (Table 1).

**Table 1 – Percentage distribution of the prevalence of vasomotor symptoms, according to the menopausal stage. (N=367)\***

Symptom	Menopausal stage			p**	Total
	Pre	Peri	Post		
Hot flushes	50.5	77.9	77.8	<0.01	70.3
Dizziness	54.5	61.8	61.1	0,49	59.4
Sweating	46.5	57.4	66.2	<0.01	59.1
Palpitation	42.6	52.9	53.5	0.18	50.4
Total (N)	101	68	198		367

\*Excluding 89 women, of whom 88 were using hormone replacement therapy and one was using oral hormonal contraceptives.

\*\*Chi-squared.

Among the psychological symptoms, the most frequent were nervousness, headache and irritability. The prevalence of these symptoms was high and similar in the three groups, independent of the menopausal stage, with the exception of insomnia, which was significantly more frequent among women in the peri and postmenopausal stages (Table 2).

**Table 2 – Percentage distribution of the prevalence of psychological symptoms, according to the menopausal stage. (N=367)\***

Symptom	Menopausal stage			p**	Total
	Pre	Peri	Post		
Nervousness	79.2	89.7	80.3	0.16	81.7
Headache	76.2	72.1	63.1	0.05	68.4
Irritability	67.3	70.6	66.2	0.79	67.3
Depression	55.4	67.6	57.6	0.24	58.9
Insomnia	40.6	55.9	61.1	<0.01	54.5
Total (N)	101	68	198		367

\*Excluding 89 women, of whom 88 were using hormone replacement therapy and one was using oral hormonal contraceptives.

\*\*Chi-squared.

The range possible for the circulatory index was 4 to 16. Table 3 shows that the severity of the vasomotor symptoms was low. The highest score observed was 6.85, among women in the perimenopausal stage. The severity of psychological complaints was equally low, considering that the range possible for the psychological index was 5 to 20. The highest psychological index observed was 10.99, among women in the perimenopausal stage. The severity of the vasomotor and psychological calculated by means of the circulatory and psychological indices did not give evidence of significant difference according to the menopausal stage. In other words, once the symptom was present, its severity did not alter with the menopausal stage (Table 3).

**Table 3 – Average values of the “circulatory index” and “psychological index”, according to the menopausal stage. (N=367)\***

Indices	Menopausal stage			p**
	Pre	Peri	Post	
Circulatory index	6.26 (±2.15)	6.85 (±2.09)	6.54 (±2.41)	0.22
Psychological index	10.35 (±3.75)	10.99 (±4.02)	10.36 (±4.06)	0.52
Total number (N)	101	68	198	

\*Excluding 89 women, of whom 88 were using hormone replacement therapy and one was using oral hormonal contraceptives.

\*\*Non-parametric Kruskal-Wallis test.

The aim was to evaluate only the urogenital symptoms associated with the climacteric. Thus, urinary incontinence that began more than three years previously and/or was the result of parturition or gynecological surgery was not considered. The frequency of urinary incontinence related to the climacteric period was approximately 27.4%, and was more prevalent among women in the pre and perimenopausal periods. Complaints of dyspareunia and vaginal dryness were infrequent, although more prevalent in the postmenopausal period (Table 4).

**Table 4 – Percentage distribution of the prevalence of urogenital symptoms, according to the menopausal stage. (N=456)**

Urogenital symptoms	Menopausal stage			Total (%)	p*
	Pre	Peri	Post		
Urinary incontinence	28.2	41.3	22.8	27.4	0.02
Dyspareunia	0.8	1.2	2.3	1.8	NA
Vaginal dryness	-	1.2	1.5	1.1	NA
Total number	117	80	259	456	

\*Chi-squared test.

NA – Statistical test not applicable.

With regard to sexual complaints, diminished libido was the most frequent, and this predominated in the peri and postmenopausal stages. An active sex life was reported by 66.4% of the women and, of those who were inactive, the main reason was the lack of a partner (63.4%) or illness of the partner (11.7%). Dyspareunia or the fear of getting pregnant did not constitute reasons for sexual abstinence, and the average frequency of sexual intercourse was six times a month. Among the women with an active sex life, around 86.2% reported orgasmic sexual intercourse.

From the analysis of the main components, considering nine variables indicative of the symptomatology of the climacteric and urinary incontinence, three factors were extracted. The correlation between the various symptoms of the climacteric syndrome are represented graphically in the Figure.

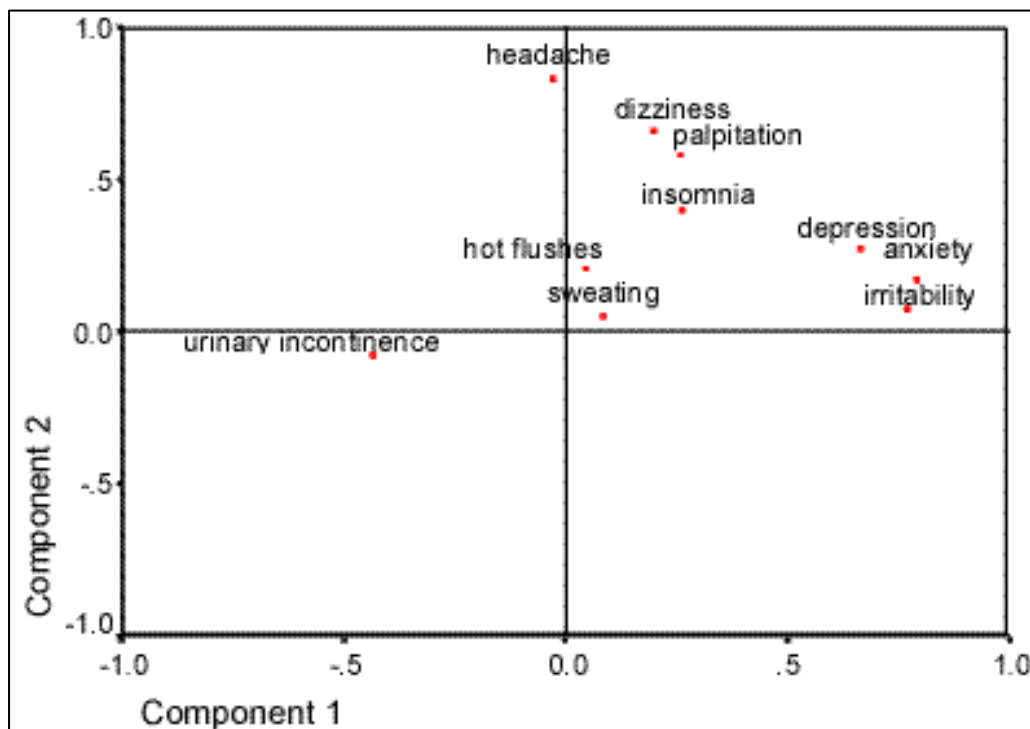


Figure – Analysis of the main components of the interrelationships between climacteric symptoms.

The three factors identified in the analysis of the main components explain a total of 54.5% of the variance observed. It was seen that some climacteric complaints are interrelated. The first factor included the hot flushes and sweating (vasomotor agglomeration); the second included depression, nervousness and irritability (psychological agglomeration); and the third included dizziness and palpitation (atypical agglomeration). The other symptoms are at a relatively large distance on the graph and appear to have little interrelationship with the other symptoms, as can be verified in relation to headache and urinary incontinence. Insomnia was more interrelated with the agglomeration of vasomotor symptoms than with that of the psychological symptoms.

## DISCUSSION

The prevalence of climacteric symptoms like hot flushes, sweating, palpitation, dizziness, anxiety, irritability, headache, depression and insomnia was very high in the population studied, thus confirming that the climacteric transition has a large impact on the lives of these women. This is similar to what has been reported among women in developed Western countries. For example, symptoms have been reported in 85% in Holland,<sup>17</sup> 55% in England,<sup>8</sup> 77% in Australia<sup>1</sup> and 74% in the United States.<sup>15</sup>

In southeast Asian countries, the prevalence of vasomotor symptoms has been found to range from 8.3 to 48.9%<sup>3</sup> and has been reported in 82% of Tanzanian women.<sup>14</sup> In Pakistan, such complaints have been found to range from 7 to 57%, depending on the economic class.<sup>24</sup> In the United Arab Emirates this prevalence was 45%.<sup>18</sup> In Japan, only 9.7% of women reported hot flushes during the climacteric.<sup>13</sup>

In the indexed medical literature, no population-based studies on the prevalence of climacteric symptoms in Latin American populations were identified. Only some studies on hospital populations were seen, in which the prevalence of these symptoms was high and in the range of 74.6 to 97%.<sup>6</sup> Leidy (1998)<sup>12</sup> made a comparison between two population groups, one hospitalized and the other within the general population, and found no difference in the prevalence of symptoms. The only differences observed in that study were in relation to the use of hormone replacement therapy (52% vs. 20%) and the number of hysterectomies, which, as would be expected, predominated in the hospitalized population. In the present study, hot flushes occurred in around 50.5% of the women in the premenopausal stage. It was seen that previous studies, both of cross-sectional and longitudinal types, also gave evidence of the presence of hot flushes in 15 to 25% of the women who were still menstruating regularly.<sup>8,9</sup> Oldenhave et al (1993)<sup>17</sup> found a prevalence of hot flushes among premenopausal women aged over 39 years of around 41.1%. The explanation for this is unclear. It is possible that a definition of the menopausal stage based only on the menstrual pattern may not adequately characterize women who are in the perimenopausal stage but are still menstruating regularly.

It may be that women who are menstruating regularly and report hot flushes have follicle-stimulating hormone levels that are higher than in women who do not experience hot flushes, while the estradiol level remains unaltered. The menstrual criterion adopted in the present study was the same as is commonly used, but there are some considerable problems with this definition of the menopausal stage. Another explanation for this phenomenon is that some women have temperature regulation systems that are less stable or more sensitive to such changes and therefore they are more susceptible to experiencing symptoms during the climacteric.<sup>20</sup> The women studied were in the age group of greater than or equal to 45 years old, but it is known that climacteric symptoms can already be felt from the age of 40 years, or in other words, some years before the cessation of menstruation.

Women who have premenstrual tension may develop some reactions and are more sensitive to the menstrual process, and therefore they anticipate some symptoms when there are changes in their menstrual pattern. There is some hormonal vulnerability in these women that can cause both premenstrual symptoms and vasomotor symptoms. It is also possible that vasomotor symptoms are more common among women who suffer from depression before the menopause.<sup>4</sup> In the present study, a prevalence of depression in the premenopausal stage of around 55.4% was found.

The interrelationship of the symptoms showed that vasomotor symptoms like hot flushes and sweating are closely linked, are also associated with insomnia and were significantly more prevalent in the peri and postmenopausal stages. The other climacteric symptoms were reported independently of the menopausal stage. These data coincide with previous studies that showed that the symptoms are closely related to hypoestrogenism and therefore the most common symptoms in the peri and postmenopausal stages are hot flushes, sweating and insomnia.<sup>8</sup>



According to the consensus on the "Climacteric Syndrome",<sup>2,1</sup> hot flushes, sweating and atrophic vaginitis are the only symptoms characterized as resultant from hypoestrogenism. A different explanation should be given to other symptoms that are usually attributed to estrogen deficiency or listed as part of the climacteric syndrome. If, on the one hand, vasomotor symptoms are associated with the development of the menopause, on the other hand psychological symptoms are unconnected with the menopausal stage. In the present population studied, a high prevalence of psychological symptoms was observed, but neither the prevalence nor its severity could be correlated with the menopausal stage.

The observation that psychological and vasomotor symptoms are agglomerated separately suggests that they have different etiological mechanisms. There is strong evidence that vasomotor symptoms are a reflection of hormonal changes, while some psychological symptoms can be attributed to hormonal alterations or social factors that coincide with the menopause. The results from this study coincide with results from previous studies, with the prevalence of psychological symptoms depending more on the psychosocial process or the aging that take place concomitantly with the endocrine process.<sup>7</sup> There are now studies giving evidence that depression, anxiety, irritability and headache are no more frequent in the peri and postmenopausal stages than in any other period of the woman's life. One of the factors that predict the occurrence of these psychological symptoms during the climacteric is the history of premenstrual tension. Novaes et al (1998)<sup>16</sup> highlighted that one of the factors that could predict the occurrence of psychological symptoms during the climacteric is previous premenstrual tension.

Insomnia is frequently attributed to hot flushes, but may also be associated with psychological symptoms, which would be a reflection of its association with depression. In the present study, insomnia was related to both the vasomotor and the psychological symptoms, although a closer association was observed with the vasomotor symptoms, probably resulting from the classic cascade of symptoms: hot flushes and sweating at night generating insomnia and, consequently, irritability and fatigue on the following day.

It was seen in this study that urinary incontinence is a frequent complaint among women during the climacteric period. This symptom has early occurrence, given that one-third of the women in the premenopausal stage and approximately half of the women in the perimenopausal stage mentioned it, in contrast to the women in the postmenopausal stage, among whom only one-quarter mentioned urinary incontinence. This finding is in agreement with a study performed in Southeast Asia, in which this type of complaint was most frequent among women in the perimenopausal stage.<sup>3</sup> In contrast, it has been observed in Western countries that it appears later, i.e. in the postmenopausal stage. On the other hand, it is possible that no differences will be observed in the urinary incontinence prevalence rates between pre and postmenopausal women. Overall, it was observed that 27.4% of the women in the age group studied presented urinary incontinence upon exertion.

Complaints of vaginal dryness and dyspareunia were infrequent in the present study. The explanation for this may lie in the way that the data collection was performed, which involved home interviews with non-medical personnel, which gives rise to the supposition that the women being interviewed may have felt embarrassed when asked about such complaints and therefore responded in the negative. If the data collection had been done by means of a self-applied questionnaire, such symptoms might have been found more frequently. A higher frequency of such symptoms would have been expected, since the average passage of time from of the menopause was seven years, which is sufficient time for developing genital atrophy. According to Larson et al (1997),<sup>11</sup> vaginal dryness occurs most frequently from four to seven years after the menopause and is directly related to the state of hypoestrogenism.

It is known that women living together with a partner present greater prevalence of genital complaints than those that do not have a partner. This might be explained by the greater perception of the lower genital tract among women who, because they have a partner, consequently would have greater sexual activity. However, with advancing age, there could also be a gradual loss of libido, thereby resulting in diminishing sexual activity, which would reduce the perception of atrophy of the vaginal epithelium.<sup>5</sup>

Approximately 30% of the women studied reported that there had been some change in their sex life over the preceding 12 months. Of these, around 22% reported diminished libido, independent of the menopausal stage. Despite the diminished libido, the frequency of sexual intercourse had not changed. Utian et al (1994)<sup>22</sup> also reported that 31% of climacteric women in the United States had a change in their sex life. The main complaints were diminished libido (62%), vaginal dryness (55%) and dyspareunia (32%). Despite this, only 30% of the women reported diminished frequency of sexual intercourse. Multiple factors affect sexual expression and the relative contributions of the interactions between hormonal and psychosocial determinants and the aging itself are not clearly delineated.<sup>2</sup>

It is believed that the information coming from the present study may serve as a motivation for healthcare providers to direct resources into the field of information for women and the setting up of climacteric attendance services focused on the realities of women in Brazil, in an attempt to correspond to their expectations and needs. It must be recorded that no similar study has been found in the national and international literature, which suggests a need for further research on this topic.

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## REFERENCES

1. Abraham S, Llewellyn-Jones D, Perz J. Changes in Australian women's perception of the menopause and menopausal symptoms before and after the climacteric. *Maturitas* 1995;20:121-8.
2. Bachmann GA, Leiblum SR. Sexuality in sexagenarian women. *Maturitas* 1991;13:43-50.
3. Boulet MJ, Oddens BJ, Lehert P, Vemer HM, Visser A. Climacteric and menopause in seven South-east Asian countries. *Maturitas* 1994;19:157-76.
4. Gath D, Osborne M, Bungay G et al. Psychiatric disorder and gynecological symptoms in middle aged women. *BMJ* 1987;294:213-8.
5. Guarisi T, Pinto-Neto AM, Costa-Paiva LHS, Pedro AO, Faundes A. Sintomas urinários e genitais em mulheres climatéricas. *J Bras Ginec* 1998;108:125-30.
6. Halbe HW, Fonseca AM, Assis JS, Vitória SM, Arie MHA, Elias DS et al. Aspectos epidemiológicos e clínicos em 1.319 pacientes climatéricas. *Rev Ginec Obstet* 1990;1:182-94.
7. Holte A, Mikkelsen A. Psychosocial determinants of climacteric complaints. *Maturitas* 1991;13:205-15.

8. Hunter M. The south-east England longitudinal study of the climacteric and postmenopausal. *Maturitas* 1992;14:117-26.
9. Hunter MS. Emotional well-being, sexual behavior and hormone replacement therapy. *Maturitas* 1990;12:299-314.
10. Jazsmann L. Epidemiology of climacteric and post-climacteric complaints. In: Van Keep PA, Lauritzen C, editors. *Aging and estrogens. Front Hormone Res.* 2<sup>nd</sup> ed. Basel: Karger; 1973. p. 22-34.
11. Larson B, Collins A, Landgren BM. Urogenital and vasomotor symptoms in relation to menopausal status and the use of hormone replacement therapy (HRT) in healthy women during transition to menopause. *Maturitas* 1997;28:99-105.
12. Leidy LE, Canali C, Callahan WE. Reconsidering the assumption that clinical populations are nonrepresentative for studies of menopause: initial inquiries. In: *Annals of the 9<sup>th</sup> Annual Meeting of the North American Menopause Society*; 1998. p. 59.
13. Lock M. Contested meanings of the menopause. *Lancet* 1991;337:1270-2.
14. Moore B, Kombe H. Climacteric symptoms in a Tanzanian community. *Maturitas* 1991;13:229-34.
15. Mühlen DG, Kritz-Silverstein D, Barret-Connor E. A community-based study of menopause symptoms and estrogen replacement in older women. *Maturitas* 1995;22:71-8.
16. Novaes C, Almeida OP, Melo NR. Mental health among perimenopausal women attending a menopause clinic: possible association with premenstrual syndrome? *Climacteric* 1998;1:264-70.
17. Oldenhave A, Jazsmann LJB, Haspels AA, Everaerd WThAM. Impact of climacteric on well-being. *Am J Obstet Gynecol* 1993;168:772-80.
18. Rizk DEE, Bener A, Ezimokhai M, Hassan MY, Micallef R. The age and symptomatology of natural menopause among United Arab Emirates women. *Maturitas* 1998;29:197-202.
19. Speroff L, Glass RH, Kase NG. *Clinical gynecologic endocrinology and infertility.* 4<sup>th</sup> ed. Baltimore: Williams & Wilkins; 1989. p. 134-55.
20. Sukwatana P, Meekhanguan J, Tamrongterakul T, Tanapat Y, Asavarait S, Boonjitrpimon P. Menopausal symptoms among Thai women in Bangkok. *Maturitas* 1991;13:217-28.
21. Utian W. Consensus Workshop: the climacteric syndrome. In: Van Keep, editor. Consensus on Menopause Research. *Lancaster: MTP*; 1976. p. 1-4.
22. Utian WH, Schiff I. North American Menopause Society - Gallup survey on women's knowledge, information sources, and attitudes to menopause and hormone replacement therapy. *Menopause* 1994;1:39-48.
23. Utian WH. Menopausal - a modern perspective from a controversial history, *Maturitas* 1997;26:73-82.

24. Wasti A, Robinson SC, Akhtar Y, Khan S, Badaruddin N. Characteristics of menopause in three socioeconomic urban groups in Karachi, Pakistan. *Maturitas* 1993;16:61-9.
25. World Health Organization. Research on the Menopause. Geneva: WHO; 1981. [Technical Report Series, 670p].
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