Comparative study of climacteric symptoms in perimenopausal and postmenopausal women in Tabriz, Islamic Republic of Iran

S. Hakimi,[1] M. Mirghafurvand[2] and S.A. Seiiedin[3]

دراسة مقارنة لأعراض الإياس في النسوة حول سن الإياس وبعدَه في تبريز، جمهورية إيران الإسلامية

سويل حكيمي، مزكان مير غفوروند، سيد علي سيدين

الخلاصة: استهدفت هذه الدراسة الـمُسْتَعْرِضَة وصف أعراض الإياس في السيدات الإيرانيات في تبريز، في شمال غرب جمهورية إيران الإسلامية. وقد استكملَتْ مِئتَا سيدة إيرانية تـتـراوح أعمارهن بين 45 و55 عاماً النسخة الفارسية من سُلَّم «غرين» لأحْراز الإياس. وتبيَّن أن متوسط مجموع الأحراز المخصصة لعشرين بنداً (باستثناء بند واحد) يبلغ 29.34 (بانحراف معياري 9.84) لدى النساء حول سن الإياس و28.14 (بانحراف معياري 10.15) لدى النساء بعد سن الإياس. ولم يكن هناك اختلاف يُعتدُّ به، في أيٍّ من الدرجات الفرعية أو البنود الفرديَّة بين مَنْ تَحُومُ أعمارُهنَّ حول سن الإياس وبين مَنْ تجاوَزْنَ سن الإياس، باستثناء بندين اثنَيْن هما «صعوبة النوم»، و«أجزاء الجسم التي تشعر بها المرأة بالنَّمَل أو الخدر». وعندما قُورنَتْ هذه النتائج مع نتائج دراسات أخرى أجريت في بلدان أخرى، اتَّضح أن النسوة في تبريز يعانين من أعراض إياسيَّةٍ أشدَّ مما تعاني منه النساء الأوروبيات.

ABSTRACT The aim of this cross-sectional study was to describe menopausal symptoms in Iranian women in Tabriz, north-west Islamic Republic of Iran. A total of 200 women aged 45–55 years completed a Farsi version of the Greene climacteric scale. The mean total Greene scores for 20 items (1 item was excluded) were 29.34 (SD 9.84) for perimenopausal and 28.14 (SD 10.15) for postmenopausal women. Perimenopausal and postmenopausal women did not differ significantly in any of the subscales or individual items, except on 2 items: "difficulty in sleeping" and "parts of the body feeling numb or tingling". Comparisons with studies in other countries show that women in Tabriz suffer more menopausal symptoms than European woman.

Étude comparative des symptômes climatériques chez les femmes en phases de périménopause et de ménopause à Tabriz (République islamique d'Iran)

RÉSUMÉ Le but de cette étude transversale était de décrire les symptômes de la ménopause chez des femmes iraniennes à Tabriz, dans le nord-ouest de la République islamique d'Iran. Au total, 200 femmes âgées de 45 à 55 ans ont complété une version farsi de l'échelle climatérique de Greene. Les scores totaux moyens de Greene pour 20 items (1 item a été exclu) étaient de 29,34 (écart-type 9,84) pour les femmes en périménopause et 28,14 (écart-type 10,15) pour les femmes ménopausées. Aucune différence significative entre les femmes en périménopause et en ménopause n'a été constatée dans les sous-échelles ou les items individuels, à l'exception de 2 items : « difficulté à dormir » et « parties du corps engourdies ou fourmillements ». Les comparaisons avec les études dans d'autres pays ont révélé que les femmes à Tabriz présentent davantage de symptômes de la ménopause que les femmes européennes.

[1]National Public Health Management Centre, Tabriz University of Medical Sciences, Tabriz, Islamic Republic of Iran (Correspondence to S. Hakimi: hakimisevil@gmail.com).
[2]Department of Midwifery, School of Nursing and Midwifery, Bonab Azad University, Bonab, Islamic Republic of Iran.
[3]Department of Paediatrics, School of Medicine, Zanjan University of Medical Sciences, Zanjan, Islamic Republic of Iran.

Received: 13/01/09; accepted: 07/05/09

Introduction

Menopause represents a landmark in the biological life of a woman, signifying the end of her reproductive life [1]. Even though menopause is a normal physiological state, the transition to menopause means a possible change in health and wellbeing. Women report physical discomfort, sleeplessness and embarrassment, and complain about many symptoms such as vasomotor symptoms (hot flashes and night sweating) and vaginal dryness which can lead to dyspareunia. These symptoms affect a very high proportion of women [2–4]. Since the average lifespan of women in the Islamic Republic of Iran is now estimated to be 73.2 years [5] the problems of menopause have attained greater significance.

To date several tools have been designed to measure and assess symptoms during the menopausal period [6]. One of the commonly used tools to assess climacteric symptoms was developed by Greene [7]. The scale independently measures psychological, somatic and vasomotor symptoms. While the Greene climacteric scale has been used in several studies of the climacteric period [8,9] it has not yet been used to assess menopausal symptoms in Iranian women. Therefore the aim of this cross-sectional study was to describe menopausal symptoms in Iranian women in Tabriz, East Azerbaijan as measured by a Farsi version of the Greene scale.

Methods

This was a 9-month cross-sectional study started in August 2007. It included 200 women resident in Tabriz, a city in the north-west of the Islamic Republic of Iran.

Sample

Participants were recruited based on residency lists from health centre family files. According to data provided by the Iranian Statistical Centre approximately 70 000 women older than 45 years old were living in Tabriz. Using an expected frequency of symptoms of minimum 50% with maximum acceptable error of 5%, we calculated a sample size of 208 cases with 95% confidence interval.

Women aged 45–55 years who attended urban health centres were invited to complete the questionnaire after giving written informed consent. A total of 100 perimenopausal and 100 postmenopausal women were recruited over a 10-month period. The perimenopausal period was defined as less than 12 menstrual cycles within the previous 12 months and postmenopausal was defined as no menstruation within the previous 12 months [9]. Women were excluded if they had received hormone replacement therapy (HRT) or antidepressant or anti-anxiety drugs within the previous 6 months. About 5% of the sampled women were excluded.

Data collection

The women were interviewed by a gynaecologist or assistant in health centres which the women attended. The Greene climacteric scale was used, which measures a total of 21 symptoms. Each symptom is rated by the woman herself according to its severity using a 4-point rating scale from not at all (0) to extremely (3). Symptoms 1–11 address psychological symptoms divided into a measure of anxiety (a sum of symptoms 1–6) and of depression (a sum of symptoms 7–11). Somatic aspects are addressed in symptoms 12–18 and vasomotor symptoms in symptoms 19 and 20. Symptom 21 is a probe for sexual dysfunction. The total Greene climacteric score is the sum of all 21 scores [9].

For the current study the Greene climacteric scale was translated into Farsi. This questionnaire was then backwards translated into English by 2 independent translators. In general there were no problems with the translated categories. As the test–retest score for the 4th item (excitable) by Spearman correlation was 0.40, the authors decided to omit this item in the Farsi version. So the Farsi version of the Greene scale consisted of only 20 items. The translated questionnaire was assessed by measuring test–retest reliability on approximately 10% (25 women) of the sample size and the average Spearman correlation was 0.78.

The questionnaire included demographic data (age, duration of menopause, parity, marital status, educational level and employment status), as well as body mass index (BMI) and amount of exercise taken.

Analysis

Statistical analysis of the collected data was performed using *SPSS*, version 12.0. Normally distributed variables were reported as mean and standard deviation (SD). Differences between means were assessed by an independent *t*-test.

Results

A total of 200 women ranging in age from 45 to 55 years completed the questionnaire. The mean age of perimenopausal women was 47.3 (SD 3.4) years and of postmenopausal women was 52.5 (SD 4.2) years. Around one-third of the women (38% of the perimenopausal and 32% of the postmenopausal group) had only primary education. Table 1 shows some of the demographic and other characteristics of the women. Only age and duration of menopause differed significantly between the 2 groups. There were no significant differences in parity, BMI, education, employment, marital status or exercise (Table 1).

The scores of the 20 items of the Greene climacteric scale are shown in Table 2. There were statistically significant differences in the mean symptom scores between perimenopausal and postmenopausal women on only 2 items: "difficulty in sleeping" [1.10 (SD 1.23) versus 1.70 (SD 1.16) respectively]

Table 1 Demographic and other characteristics of the participating women by menopause status

Characteristic	Perimenopausal women (*n* =100)	Postmenopausal women (*n* = 100)	*P*-value
	Mean (SD)	Mean (SD)	
Age (years)[a]	47.3 (3.4)	52.5 (4.2)	< 0.001
Duration of menopause (months)[a]	5.7 (2.8)	39.2 (21.8)	< 0.001
BMI (kg/m^2)[a]	27.9 (2.8)	27.8 (3.6)	0.914
Parity (no. of children)[a]	3.8 (1.9)	4.4 (2.4)	0.150
	%	%	
Marital status (married)[b]	92	82	0.137
Educational level (illiterate & primary school)[b]	82	80	1.00
Employment status (housewife)[c]	80	80	1.00
Exercise taken (30 min × 3 per week)[c]	38	50	0.227

[a]Independent t-test; [b]Fisher exact test; [c]χ^2 test.
SD = standard deviation; BMI = body mass index.

and "parts of the body feeling numb or tingling" [1.24 (SD 1.15) versus 0.84 (SD 1.05) respectively]. "Hot flashes" received the highest mean score in both the peri- and postmenopausal group [2.50 (SD 0.70) versus 2.42 (SD 0.78) respectively].

The mean total Greene scores for the 20 items were 29.34 (SD 9.84) for perimenopausal and 28.14 (SD 10.15) for postmenopausal women. The scores of the subscales and total Greene score are presented in Table 3. No statistically significant differences were found between the perimenopausal and

Table 2 Mean score on 20 items of the Farsi version of the Greene climacteric scale comparing peri- and postmenopausal women in Tabriz

Item no.[a]	Symptom	Perimenopausal women (*n* =100)	Postmenopausal women (*n* = 100)	*P*-value[b]
		Mean (SD) score	Mean (SD) score	
1.	Heart beating quickly or strongly	1.20 (0.98)	1.02 (1.09)	0.729
2.	Feeling tense or nervous	1.70 (1.09)	1.50 (1.16)	0.662
3.	Difficulty in sleeping	1.10 (1.23)	1.70 (1.16)	0.045*
5.	Panic attacks	0.86 (1.03)	0.90 (1.01)	0.221
6.	Difficulty in concentrating	1.48 (1.09)	1.22 (1.09)	0.288
7.	Feeling tired or lacking in energy	2.00 (0.08)	1.88 (1.15)	0.565
8.	Loss of interest in most things	1.18 (1.15)	1.38 (1.22)	0.432
9.	Feeling unhappy or distressed	1.60 (1.17)	1.82 (1.18)	0.766
10.	Crying spells	1.70 (3.14)	1.62 (1.27)	0.677
11.	Irritability	1.90 (1.01)	1.78 (1.16)	0.121
12.	Feeling dizzy or faint	0.88 (1.11)	0.78 (1.03)	0.432
13.	Pressure or tightness in head or body	0.82 (1.13)	0.98 (1.13)	0.331
14.	Parts of body feeling numb or tingling	1.24 (1.15)	0.84 (1.05)	0.0321*
15.	Headaches	1.14 (0.98)	0.90 (0.97)	0.488
16.	Muscle and joint pains	1.96 (1.14)	1.86 (1.60)	0.332
17.	Loss of feeling in hands or feet	1.32 (1.16)	1.16 (1.16)	0.551
18.	Breathing difficulties	0.78 (1.03)	0.50 (0.88)	0.212
19.	Hot flashes	2.50 (0.70)	2.42 (0.78)	0.667
20.	Sweating at night	2.14 (1.10)	2.00 (1.17)	0.556
21.	Loss of interest in sex	1.86 (1.12)	2.00 (1.17)	0.778

[a]Item 4 of the original scale was omitted in the Farsi version; [b]t-test.
**Significant difference between peri- and postmenopausal women at P < 0.05.*
SD = standard deviation.

Table 3 Mean score of the symptom clusters on the Farsi version of the Greene climacteric scale comparing peri- and postmenopausal women in Tabriz

Cluster	Perimenopausal women (*n* =100)	Postmenopausal women (*n* = 100)
	Mean (SD)	Mean (SD)
Psychological cluster (10 items)	14.72 (7.01)	14.82 (6.52)
Anxiety subcluster (5 items)	6.34 (3.12)	6.34 (3.32)
Depression subcluster (5 items)	8.38 (4.83)	8.48 (4.40)
Somatic cluster (7 items)	8.14 (4.05)	7.02 (4.47)
Vasomotor cluster (2 items)	4.64 (1.57)	4.42 (1.69)
Sexual interest (1 items)	1.86 (1.12)	2.00 (1.17)
Total score (20 items)	29.34 (9.84)	28.14 (10.15)

SD = standard deviation.

postmenopausal women in any of the clusters or in total score.

Discussion

The climacteric is a period characterized by progressive decline in estrogen levels, signalling the decline of a women's reproductive capacity and extending years after the menopause [10]. This study was carried out in a representative sample of women aged 45–55 years living in Tabriz. Perimenopausal women did not differ significantly compared with postmenopausal women in any of the items, except "difficulty in sleeping" for which postmenopausal women had a significantly higher mean score and "parts of the body feeling numb or tingling" for which perimenopausal women had a significant higher mean score. This study demonstrates that symptoms do not decrease after the transition to menopause. So-called climacteric complaints, even vasomotor symptoms, will remain for many years after menopause. This is consistent with other studies of symptom frequency [7]. The symptom of "hot flashes" was the highest scored symptom in both the peri- and postmenopausal group (mean scores 2.50 and 2.42). A possible explanation is that this symptom is sensitive to early decline in estrogen levels [11].

To the best of our knowledge this is the first and only report of the use of the Greene climacteric scale in women in the Islamic Republic of Iran. The guide to the Greene scale quotes normative data for a general population sample of 200 Scottish women aged 40–55 years [9]: mean scores were 7.42 (SD 6.41) on the psychological scale, 3.25 (SD 3.64) on the somatic scale and 1.79 (SD 1.79) on the vasomotor scale. The Greene climacteric scale has also been studied in several menopause clinic samples where means scores are higher. In a population study using the Greene scale conducted in the Netherlands, women were divided into peri- and postmenopausal groups [9]. For the psychological cluster mean scores were 7.67 (SD 5.27) for perimenopausal and 7.44 (SD 5.48) for postmenopausal women; for the somatic cluster 4.53 (SD 3.76) and 4.23 (SD 3.43) respectively; and for the vasomotor cluster 2.82 (SD 1.75) and 2.67 (SD 1.92) respectively. The results of our study show that our sample of Iranian women suffered more severe menopausal symptoms than European women: mean scores for the psychological cluster were 14.72 (SD 7.01) in perimenopausal and 14.82 (SD 6.52) in postmenopausal women; for the somatic cluster scores were 8.14 (SD 4.05) and 7.02 (SD 4.47) respectively; and for the vasomotor cluster were 4.64 (SD 1.57) and 4.42 (SD 1.69) respectively.

Due to improvements in health status, nutrition and treatment in the Islamic Republic of Iran, life expectancy among women had increased to 73.2 years by the year 2003 [5]. Therefore an increasing number of women survive for a considerable time past menopause. On the other hand, the average age of menopause in the Islamic Republic of Iran is lower than in the United States and Europe [12]. Experience of menopause differs greatly among different ethnic groups but it remains to be elucidated whether such differences are accounted for by underlying genetic factors or by lifestyle factors, such as diet or physical activity [1,13].

There are some limitations to the study. The data collection tool was a symptom-based self-report questionnaire and it may show different results from a questionnaire based on signs. The symptoms described could also have been experienced by younger women, so to ascribe them definitely to the menopause would have required a different study design comparing younger premenopausal women and menopausal women.

Conclusions

Menopausal women in Tabriz scored higher on menopausal symptoms than European woman. Menopause care programmes need to be developed to promote better health and quality of life in such women.

Acknowledgements

The authors acknowledge all those who contributed significantly to this work, especially the women who participated in this study. The project was funded by the Research Deputy of Tabriz University of Medical Science.

References

1. Bermejo JB et al. Validation of menopause quality of life scale: the MENCAV scale. *Maturitas*, 2008, 59:28–37.
2. Wool C et al. Psychometric validation of two Italian quality of life questionnaires in menopausal women. *Maturitas*, 2000, 35:129–142.
3. Chiechi L et al. Efficacy of soy rich diet in preventing postmenopausal osteoporosis: the Menfis randomized trial. *Maturitas*, 2002, 42:295–300.
4. Brzyski RG et al. Quality of life in low-income menopausal women attending primary care clinics. *Fertility and sterility*, 2001, 76(1):44–50.
5. *Country profiles. Islamic Republic of Iran.* World Health Organization website] (http://www.emro.who.int/emrinfo/index.asp?Ctry=ira, accessed 2 August 2010).
6. Monterrosa A, Blumel J, Chedruai P. Increased menopausal symptoms among Afro-Colombian women as assessed with the Menopause Rating Scale. *Maturitas*, 59, 2008:182–190.
7. Greene JG. Constructing a standard climacteric scale. *Maturitas*, 1998, 29(1):25–31.
8. Sierra B, Hidalgo L, Chedruai P. Measuring climacteric symptoms in an Ecuadorian population with the Greene climacteric scale. *Maturitas*, 51, 2005:236–245.
9. Barentsen R et al. Climacteric symptoms in a representative Dutch population samples as measured with the Greene climacteric scale. *Maturitas*, 2001, 38:123–128.
10. Chen Y et al. Impact of menopause on quality of life in community-based women in China. *Menopause*, 2008, 15(1):144–149.
11. Smith-DiJulio K et al. Hot flash severity in hormone therapy users/nonusers across the menopausal transition. *Maturitas*, 2007, 58:191–200.
12. Mohammad K et al. Age at natural menopause in Iran. *Maturitas*, 2004, 49:321–326.
13. Parsons MA, Obermeyer CM. Women's midlife health across cultures: DAMES comparative analysis. *Menopause*, 2007, 14(4):760–768.

Reproductive Health Research Network

In recognition of importance of Reproductive Health Research (RHR) as an area of strategic priority for policy formulation and programme development, implementation, monitoring and evaluation, the WHO Regional Office of the Eastern Mediterranean (EMRO) has developed a directory for reproductive health research (RHRD). The project is a joint collaboration between the Women's and Reproductive Health Unit at the Regional Office (WRH/EMRO) and the Department of Reproductive Health and Research at WHO headquarters. It aims to facilitate exchange of RHR related experiences and build up on the findings of these research activities between and within countries in the Region. In addition, it is expected to support utilization of research evidence in development of reproductive health policy, strategy and programmes.

For this project, the scope of Reproductive Health Research has been identified to entail 14 priority areas including peri and menopausal health, and hormone replacement therapy.

Further information about the Reproductive Health Research Network can be found at: http://www.emro.who.int/rhrn/index.htm