Women's perception and experience of menopause: a community-based study in Alexandria, Egypt

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تصوُّر النساء عن الإياس وتجربتهم معه: دراسة مجتمعية أُجريت في الإسكندرية، مصر

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الخلاصـة: أجرى الباحثون دراسة مستعرضة شملت نحو 450 سيدة مـن الإسـكندرية، بُغْيَـةَ تحديـد الأعـراض الـتي تحدث للنساء اللائي تتـراوح أعمارهن بين سن 50 و59 عاماً، عقب بلوغ مرحلـة الإيـاس الطبيعيـة. وكـان أكثـر الأعراض شـيوعاً: الإجهـاد (96.0٪) والـصداع (95.1٪) والفـورات الحـارة (90.7٪) وتغضُّن الجلـد (90.7٪) وتناقص الرغبة الجنسية (89.1٪). وتبيِّن أن 91٪ من النساء لم يكن لديهن فكرة عن المعالجة بالمعاوضة الهرمونيـة؛ كما تقوم نحو 42.7٪ بتعريض أجسادهن لأشعة الشمس؛ كما كانت 12.4٪ من النسـاء يمارسـن أنـشطة معتدلـة في العام السابق للإياس. وقد أظهر تحليل التحوُّف المتعدد أن معارف النساء حول الإياس ترتبط بالوضع الزواجي، والتعليم، والحالة الوظيفية، في حين ترتبط الممارسات بنمط الإياس، وطول مدته، وبدخل المرأة.

ABSTRACT To determine symptoms, perceptions and practices after natural menopause by women aged 50–59 years, we conducted a cross-sectional study of 450 women from Alexandria. The most frequently recalled symptoms were tiredness (96.0%), headache (95.1%), hot flushes (90.7%), skin wrinkles (90.7%) and decreased sexual desire (89.1%). About 91% of women had never heard about hormone replacement therapy; 42.7% would expose their body to the sun; 12.4% were moderately active the year before menopause. Multiple regression analysis indicated that women's knowledge about menopause was related to marital status, education and employment status; practices were related to pattern of menopause, age of menopause and income.

Perception et expérience des femmes concernant la ménopause : étude communautaire à Alexandrie (Égypte)

RÉSUMÉ Afin d'identifier les symptômes, les perceptions et les pratiques après la ménopause naturelle chez les femmes âgées de 50 à 59 ans, nous avons réalisé une étude transversale auprès de 450 femmes originaires d'Alexandrie. Les symptômes les plus fréquemment évoqués étaient la fatigue (96,0 %), les céphalées (95,1 %), les bouffées de chaleur (90,7 %), les rides (90,7 %) et la diminution de la libido (89,1 %). Environ 91 % des femmes n'avaient jamais entendu parler du traitement hormonal de substitution ; 42,7 % déclaraient penser à s'exposer au soleil ; 12,4 % avaient une activité modérée l'année précédant la ménopause. L'analyse de régression multiple a indiqué que les connaissances des femmes concernant la ménopause étaient liées à la situation matrimoniale, à l'instruction et à la situation par rapport à l'emploi ; les pratiques étaient liées à la physionomie de la ménopause, à l'âge au moment de la ménopause et au revenu.

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Introduction

In 1990 there were an estimated 467 million women aged $\geq$ 50 years in the world. This number is expected to increase to 1200 million by the year 2030 [1]. Not only is the population growing, but life expectancy is slowly and progressively increasing. The life expectancy for females in the Eastern Mediterranean Region was 68.2 years for 2000–2005; it is estimated that this will rise to 78.7 years for 2045–2050. In the year 2000 women aged $\geq$ 50 years constituted 14.03% of the female population. This figure is estimated to rise to 20.9% of the female population by the year 2025 [2]. These figures suggest increases in the proportion of postmenopausal women in the future.

Menopause is an inevitable milestone in the reproductive life of every woman. Technically, it refers to a woman's last menstrual period: a woman can be said to have reached menopause when she has had 1 year without menstruating. The climacteric, or climacterium, is used to refer to the wide variety of physiological changes occurring in the years immediately surrounding menopause [3].

Throughout history, menopausal women faced various challenges, from coping with hot flushes and night sweats to dealing with the discomfort of vaginal dryness. Over-the-counter remedies and hormonal treatments focus on stabilizing unsteady nerves and eliminating vasomotor symptoms [3].

Every woman's experience of the menopausal is unique: she may experience all of the symptoms or none of them. Some women find the transition barely noticeable while others find it life altering [4–7]. Menopausal women who experience no symptoms at all may be less inclined to consider hormone use if they believe hormone replacement therapy (HRT) is only for the relief of symptoms and are not aware of its preventive health care benefits [8].

The objective of our investigation was to study knowledge and practices related to menopause of women in Alexandria, and to explore their experience of menopausal symptoms in terms of prevalence, pattern and clustering.

Methods

The target population was menopausal women aged 50 to < 60 years living in Alexandria governorate who had had a natural menopause, defined as cessation of menstruation for $\geq$ 1 year at the end of their reproductive years [3]. The study included a qualitative and a community-based, quantitative, cross-sectional survey. The study period was June 2002–August 2002.

Qualitative analysis

From the study population, 70 menopausal women from the 3 strata in Alexandria governorate (urban, rural and informal/unplanned areas) were recruited to share in focus group discussions (FGDs). The recruitment process was voluntary, there was no predetermined selection. Participant groups were urban working, urban non-working, rural working, rural non-working, squatter working and squatter non-working. These women did not participate in the quantitative analysis. Two FGDs were conducted for each group, a series of 12 FGDs in all. Each FGD included 4–8 women. Women were encouraged to talk informally in a relaxed, friendly manner following prearranged guidelines about their expectations, concerns and beliefs about menopausal issues. An isolated quiet place (a room in one of the mother and child health centres in each area) was chosen for the FGDs. Data were collected by the moderators and the observers of the FGD using structured, prepared guidelines. Consent for recording was taken; about 40 women refused to give their

consent, so recruitment continued till the required number was reached. Discussions were recorded on audiotapes. Respondents were assured that their personal views would be dealt with confidentially and only members of the research team would listen to the tapes.

Quantitative analysis

Using an arbitrary estimate of 50% of those women complaining of symptoms related to menopause, an accepted error of 5% and 95% confidence level, the minimum sample size was 384 women. Taking non-responders into consideration, a sample of 450 menopausal women was chosen for the present study [9]. This number was divided equally over 30 clusters (15 women in each).

Sampling

A 2-stage cluster sample of 30 clusters was selected from Alexandria. In the first stage, 30 clusters were selected from the whole population with probability of selection proportional to size of cluster from a frame containing all districts, villages and informal/unplanned areas in Alexandria. The second stage included the selection of households. The interviewers started at the centre of the target cluster area and randomly selected a direction. The team would start at the nearest dwelling then through house-to-house survey, they visited the houses consecutively until they reached the target sample size.

The objectives of the study were explained to respondents and their consent to participate was taken. All women fulfilling the inclusion criteria were interviewed. We excluded those who had artificial menopause. There were around 40 refusals.

Data collection

All participants were interviewed using pretested data forms written in Arabic. The field staff comprised 8 interviewers and 3 field supervisors. Interviewers were university graduates and had previous experience in similar field research. They participated in a 5-day training course which included theoretical, role-playing and practical sessions in performing interviews and completing the questionnaire properly. The questionnaire included sociodemographic data, age of menopause, pattern of menopause and self-reporting of menopausal symptoms. Physical activity was assessed using a single question about daily and weekly activities during the year preceding menopause. Activity was then classified into 3 categories, sedentary, moderate and active, as described by Mattiasson-Nilo et al. [10].

Statistical analysis

Data were analysed using *SPSS* software, version 10.0. *P*-value < 0.05 was taken as a cutoff for statistical significance and all tests were 2-sided. Proportion, arithmetic mean, standard deviation and median were used as summary statistics. Cramer's V was used to test the association between qualitative variables. Multiple regression analysis was used to explore factors affecting women's knowledge and practices related to menopause. Principal components factor analysis was used to explore the pattern of clustering of menopausal symptoms among the study sample. Varimax rotation with Kaiser normalization was used [11,12].

Results

Qualitative analysis

Participants of the different FGDs were aware of the normal changes around menopause. Irregularity, oligomenorrhoea and excessive bleeding were the most common changes mentioned by the women.

The FGDs revealed a common view that menopause is a personal issue that should not be discussed with anybody else. Few participants believed that the advice of older women who had been through the same experience could help. Although some participants believed that during the peri-menopausal period, a woman should seek medical advice, very few had actually gone for an examination. Some denied decreased sexual desire, while others declared that this was a problem for themselves and their partners. Participants agreed that the over-all health status of a woman was generally better before menopause, compared to the postmenopausal period. The effect of age was clear to most of them, while the hormonal effect was mentioned by quite a few.

During the discussions, it was clear that most participants had never heard about HRT. Among those who had heard of it, some believed that HRT postponed menopause for a couple of months. Concerns about risks and side-effects of HRT were mentioned by some participants while others were concerned about its cost.

Generally, there was proper nutritional awareness among women with access to mass media, TV and radio being the main sources of their information. All the non-working women we studied were illiterate whereas the working women were of varying education. In spite of the awareness about the nutritional importance of some food items (e.g. milk products, vegetables), there were some who could not afford such items.

Quantitative analysis

The present study included 450 menopausal women (after excluding the 5 who had had surgical menopause); 66.4% from urban areas, 20.0% from squatter areas and 13.6% from rural areas (Table 1). Mean age was 54.42 (standard deviation 3.15) years. The

Table 1 **Characteristics of the study sample**

Variable	No.	%
Time since last menstruation (years)[a]		
< 4	118	26.2
4–5	112	24.9
≥ 6	220	48.9
Parity[b]		
0	17	3.8
1–2	78	17.3
3–4	150	33.3
≥ 5	205	45.6
Age at menopause (years)		
< 48	129	28.7
48–49	142	31.6
≥ 50	179	39.8
Residence		
Urban	299	66.4
Squatter	90	20.0
Rural	61	13.6
Education[c]		
Uneducated	355	78.9
Educated	95	21.1
Work status		
Non working	425	94.4
Working	25	5.6
Married before menopause		
Married	360	80.0
Unmarried	90	20.0
Income sufficiency		
Sufficient	175	38.9
Insufficient	275	61.1
Pattern of menopause		
Sudden	88	19.6
Recurrent amenorrhoea	276	61.3
Recurrent bleeding	86	19.1

[a]*Mean 6.20; standard deviation 4.03; median 5.*
[b]*Mean 5.54; standard deviation 3.08; median 5.*
[c]*Uneducated = illiterate; educated = can read and write.*

majority (78.9%) were uneducated (could not read or write) and not employed outside the home (94.4%). The menopause occurred suddenly in 19.6% of the women

and the rest had a gradual menopause, either with recurrent amenorrhea (61.3%) or recurrent bleeding (19.1%). About half of the women were menopausal ≥ 6 years prior to the interview. Mean age at menopause was 48.22 (standard deviation 3.30). Median age of menopause among the participants was 49 years: only 28.7% became menopausal before 48 years of age. Other sociodemographic data are shown in Table 1.

Almost 40% of the women in the study had prior knowledge of menopausal symptoms (Table 2). The great majority, 90.7%, had never heard about HRT. When asked about beneficial practices after menopause, 60.7% of the women mentioned taking vitamins and 55.3% reported exposure to sunlight. Fruits and vegetables were mentioned by 62.2% of women as being suitable food for menopausal women.

Regarding practices related to menopause, 88.9% had not consulted a physician (Table 2). Activity was reported as mild or moderate for 86.0%.

The strongest predictors (indicated by the value of the standardized regression coefficient) of women's knowledge about menopause were marital status before menopause ($\beta = -0.189$), employment status ($\beta = 0.119$) and education ($\beta = 0.105$). Better knowledge was found among women who were married before menopause, women who were working and educated women (Table 3). The strongest predictors of good practices in relation to menopause were pattern of menopause ($\beta = 0.358$), income sufficiency ($\beta = 0.185$) and age at menopause ($\beta = -0.130$). Good practices were observed among women with sudden menopause, sufficient income and younger age at menopause.

The most frequently reported menopausal symptoms (Table 4) were tiredness (96.0%), headache (95.1%), hot flushes (90.7%) and skin wrinkles (90.7%).

Prevalence of symptoms was significantly associated with pattern of menopause for most of the recalled symptoms. The strongest associations as indicated by the value of Cramer's V was that of night sweats, decreased sexual desire and increased facial hair (all were characteristic of gradual menopause). Other strong associations were between sudden onset of menopause and vaginal discharge, feelings of loss of attractiveness, irritability, numbness, anxiety and flatulence. Prevalence of depressed mood % was correlated with sudden menopausal onset

Principal components analysis (Table 5 for married women and Table 6 for unmarried women) indicated that menopausal symptoms aggregated into 7 clusters. There were some differences between the 2 models. There was a sexual component and a clear vasomotor component among the married group. For the unmarried women, vasomotor symptoms were dispersed among the somatic symptoms. Urinary symptoms were clustered with psychological symptoms for the married women but stood almost alone for the unmarried women. Somatic symptoms were clustered with inconsistent patterns in the 2 groups. The gastrointestinal component was clear in unmarried women, and headache, blurred vision and drowsiness were clustered together in married women.

Discussion

The purpose of this study was to address questions concerning women's perception of menopause, and women's experience of menopausal symptoms.

It was clear that many of the women in this study, in both the qualitative and the quantitative part, perceived menopause as a normal event in their lives that does not

Table 2 **Distribution of women according to knowledge and practices related to menopause**

Variable/Scoring	No.	%
Knowledge[a]		
Previous knowledge of menopausal symptoms		
Yes (1)	173	38.4
No (0)	277	61.6
Awareness about HRT		
Yes (1)	42	9.3
No (0)	408	90.7
Woman must consult a physician		
Yes (1)	55	12.2
No (0)	334	74.2
Don't know (0)	61	13.6
What practices are beneficial after menopause?		
Taking vitamins (1)	273	60.7
Exposure to sun (1)	249	55.3
Good food (1)	151	33.6
Nothing (0)	40	8.9
What foods are suitable for a menopausal woman?		
Fruits and vegetables (1)	280	62.2
Roasted meats (1)	228	50.7
Dairy products (1)	172	38.2
Proteins (1)	126	28.0
No specific food (0)	125	27.8
Low starch, low fat diet (1)	63	14.0
Practices[b]		
Did you consult a physician?		
Yes (1)	50	11.1
No (0)	400	88.9
Are you interested in exposing your body to sun?		
Yes (1)	192	42.7
No (0)	258	57.3
Are you a smoker?		
Yes (0)	7	1.6
No (1)	443	98.4
Physical activity during the year preceding menopause		
Sedentary (0)	63	14.0
Mild (1)	331	73.6
Moderate (2)	56	12.4
Did you discuss menopausal symptoms with others?		
Yes (1)	314	69.8
No (0)	136	30.2

HRT = hormone replacement therapy.
[a]Median (range) knowledge score = 4 (1–11).
[b]Median (range) practice score = 3 (0–6)

Table 3 **Knowledge and practices of menopausal women according to sociodemographic factors**

Independent variable	Knowledge		Practice	
	β	*P*	β	*P*
Marital status before menopause (married = 0; unmarried = 1)	−0.189	< 0.001	0.102	0.022
Education (uneducated = 0, educated = 1)	0.105	0.031	–	–
Employment status (not working outside the home = 0; working outside the home = 1)	0.119	0.013	0.086	0.043
Age at menopause	0.098	0.030	0.130	0.002
Income (sufficient = 1; insufficient = 0)	0.101	0.032	0.185	< 0.001
Pattern of menopause (gradual onset = 0; sudden onset = 1)	–	–	0.358	< 0.001

	R^2	F	P	R^2	F	P
	0.109	10.82	< 0.001	0.208	23.38	< 0.001

β= Standardized regression coefficient.
Values in parentheses are codes of dummy variables.
Excluded variables of both models are residence, duration since last menses and parity.

necessitate medical consultation; it is a personal issue that should not be discussed with others. In contrast, a study in Mauritius in 2001 revealed that one fourth of the participants said that they had not heard of the term menopause, and the majority believed in herbal remedies to treat menopausal symptoms [13].

The level of awareness about HRT was not surprising as in a study of 40–60 year old Chinese women only 23.5% realized that HRT could relieve menopausal symptoms and only 3.4% were aware that HRT was protective against osteoporosis [8]. In the same study, it was found that those with a higher education level and higher family income had better knowledge about HRT, which is consistent with the findings of our study. In a study in Mauritius, 85.5% of women had never heard about HRT and of the 14.5% who said that they had heard about it, over 30% said that they had "no idea" what it was [13]. Lack of awareness of HRT could be partly attributed to the considerable variation in attitudes towards HRT among physicians. One extreme is the view that HRT is the universal remedy for almost all postmenopausal women [14]. The other being that HRT is unnecessary for the majority of women, and may even be harmful [15].

Our findings are in agreement with many other studies on women's perception of menopause. In a population-based survey of women in Scotland aged 45–54 years, only 22% had found menopausal symptoms a problem [4]. In another study, Thai women, perceived menstruation to be an indicator of health [16], a perception which was also reported by women in the FGDs of the present study. At the other extreme, a cross-sectional community-based study of 589 Caucasian women revealed that at the time of menopause, 55% of the women reported that they felt life was getting better and 57% were more cheerful [17].

More than two thirds of menopausal women in a Danish study had discussed

Table 4 **Prevalence of menopausal symptoms according to pattern of menopause (*n* = 450)**

Menopausal symptom	Slow onset		Rapid onset	Overall	Cramer's V
	Recurrent amenorrhoea %	Recurrent bleeding %	%	%	
Tiredness	95.7	96.5	96.6	96.0	0.022
Headache	96.0	91.9	95.5	95.1	0.074
Hot flushes	91.7	95.3	83.0	90.7	0.139*
Skin wrinkles	87.3	97.7	94.3	90.7	0.149**
Decreased sexual desire[a]	93.3	74.6	89.7	89.1	0.237***
Dry/sore vagina[a]	91.9	76.2	79.5	87.2	0.205**
Night sweats	90.9	91.9	70.5	87.1	0.245***
Decreased breast size	87.3	86.0	86.4	86.9	0.016
Disturbed concentration	83.0	70.9	92.0	82.4	0.173**
Blurred vision	82.2	72.1	87.5	81.3	0.126*
Hair loss	82.2	79.1	79.5	81.1	0.037
Anxiety	75.7	84.9	93.2	80.9	0.178**
Feelings of loss of attractiveness[a]	79.5	61.9	94.9	77.9	0.228***
Drowsiness	76.1	75.6	83.0	77.3	0.066
Loss of skin elasticity	73.9	76.7	79.5	75.6	0.052
Sleep problems	68.1	84.9	77.3	73.1	0.152**
Propensity to gain weight	75.4	64.0	73.9	72.9	0.099
Muscle or joint pain	69.2	69.8	84.1	72.2	0.131*
Numbness	61.6	77.9	81.8	68.7	0.194***
Loss of appetite	61.2	75.6	70.5	65.8	0.125*
Difficult breathing	69.2	59.3	52.3	64.0	0.144**
Depressed mood	59.4	48.8	76.1	60.7	0.177**
Irritability	53.6	53.5	87.5	60.2	0.275***
Tinnitus	55.4	46.5	71.6	56.9	0.162**
Nausea	49.6	66.3	67.0	56.2	0.167**
Increased facial hair	59.1	52.3	14.8	49.1	0.343***
Flatulence	32.2	43.0	64.8	40.7	0.256***
Incontinence	36.2	54.7	37.5	40.0	0.146**
Burning micturition	35.9	46.5	21.6	35.1	0.164**
Palpitations	29.7	37.2	21.6	29.6	0.107
Vaginal discharge[a]	19.5	36.5	56.4	27.6	0.286***

[a]Only currently (i.e. at the time of the survey) married women (n = 312).
*P < 0.05; ***P < 0.01; ****P < 0.001.

Table 5 **Principal components analysis of menopausal symptoms for married (at the time of the interview) women** (*n* = 312)

Variable	Factors and loadings						
	1	2	3	4	5	6	7
Menopausal symptom							
Incontinence	0.69	–	–	–	–	–	–
Burning micturition	0.64	–	–	–	–	–	–
Depressed mood	0.75	–	–	–	–	–	–
Anxiety	0.47	–	–	–	–	–	–
Irritability	0.69	–	–	–	–	–	–
Disturbed concentration	0.43	–	–	–	–	–	–
Palpitations	–0.53	–	–	–	–	–	–
Tinnitus	0.61	–	–	–	–	–	–
Sleep problems	–	0.57	–	–	–	–	–
Nausea	–	0.67	–	–	–	–	–
Loss of appetite	–	0.73	–	–	–	–	–
Flatulence	–	0.36	–	–	–	–	–
Numbness	–	0.32	–	–	–	–	–
Difficult breathing	–	0.52	–	–	–	–	–
Decreased breast size	–	–0.32	–	–	–	–	–
Muscle or joint pain	–	0.38	–	–	–	–	–
Decreased sexual desire	–	–	0.80	–	–	–	–
Dry/sore vagina	–	–	0.84	–	–	–	–
Vaginal discharge	–	–	–0.58	–	–	–	–
Feelings of loss of attractiveness	–	–	0.43	–	–	–	–
Headache	–	–	–	0.53	–	–	–
Blurred vision	–	–	–	0.75	–	–	–
Drowsiness	–	–	–	0.59	–	–	–
Loss of skin elasticity	–	–	–	–	0.89	–	–
Propensity to gain weight	–	–	–	–	0.82	–	–
Skin wrinkles	–	–	–	–	–	0.74	–
Hair loss	–	–	–	–	–	0.62	–
Increased facial hair	–	–	–	–	–	0.60	–
Tiredness	–	–	–	–	–	0.49	–
Hot flushes	–	–	–	–	–	–	0.67
Night sweats	–	–	–	–	–	–	0.65
Statistical analysis							
Eigenvalue	3.3	2.7	2.5	2.1	2.0	1.9	1.8
Cumulative % of explained variance in symptoms	10.8	19.4	27.5	34.2	40.6	46.7	52.4

Table 6 **Analysis of principal components of menopausal symptoms for unmarried (at the time of the interview) women (*n* = 138)**

Variable	Factors and loadings						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Menopausal symptom							
Depressed mood	0.69	–	–	–	–	–	–
Irritability	0.76	–	–	–	–	–	–
Disturbed concentration	0.66	–	–	–	–	–	–
Anxiety	0.57	–	–	–	–	–	–
Tinnitus	0.64	–	–	–	–	–	–
Loss of skin elasticity	–	0.71	–	–	–	–	–
Hot flushes	–	0.46	–	–	–	–	–
Headache	–	0.47	–	–	–	–	–
Skin wrinkles	–	0.64	–	–	–	–	–
Tiredness	–	0.65	–	–	–	–	–
Blurring of vision	–	–	0.51	–	–	–	–
Numbness	–	–	0.78	–	–	–	–
Decreased breast size	–	–	0.47	–	–	–	–
Sleep problems	–	–	0.44	–	–	–	–
Drowsiness	–	–	0.63	–	–	–	–
Flatulence	–	–	–	0.62	–	–	–
Nausea	–	–	–	0.83	–	–	–
Loss of appetite	–	–	–	0.82	–	–	–
Muscle or joint pain	–	–	–	–	–0.42	–	–
Incontinence	–	–	–	–	0.76	–	–
Burning micturition	–	–	–	–	0.79	–	–
Sweating	–	–	–	–	–	–0.61	–
Propensity to gain weight	–	–	–	–	–	0.55	–
Hair loss	–	–	–	–	–	0.68	–
Palpitations	–	–	–	–	–	0.33	–
Increased facial hair	–	–	–	–	–	–	0.56
Difficult breathing	–	–	–	–	–	–	0.63
Statistical analysis							
Eigenvalue	2.9	2.6	2.4	2.2	1.9	1.6	1.6
Cumulative % of explained variance in symptoms	10.6	20.3	29.0	37.1	44.2	50.2	56.0

the menopause with a doctor: the more problematic the symptom, the greater the likelihood that the woman had done so [*18*].

In contrast, only 11.1% of the women in our study had consulted a physician.

The prevalence of hot flushes associated with the menopause varies widely between different cultures and countries. It has been reported as 0% in Mayan women [14], 10% in China [19], 23.3% in Hong Kong [8], 45% in the United Arab Emirates [20], 74% in the United States of America [17], 80% in Dutch women [14] and up to 87.2% in Denmark [18]. In our study, prevalence of hot flushes (90.7%) was higher than all of these. The higher prevalence of vasomotor symptoms may be attributed to the hot environment in our country [21] or it may be methodology dependent. We chose to use self-reporting of symptoms as it is known that using a checklist of symptoms can introduce bias since many will respond positively to symptoms on a checklist, but the reporting rate decreases if frequency or troublesomeness of symptoms are included [22].

It is now generally agreed that the incidence of depression does not increase during menopause [23,24]. The prevalence of depressed mood in the present study is relatively high (60.7%). It was, however, correlated with sudden menopausal onset, indicating that the women may not have been prepared for the occurrence of menopause and not that depression was a menopausal entity.

Cross-sectional reports have shown that menopause transition is related to modest increases in body mass index, although not all studies found significant effects [25]. Some researchers believe that weight gain is not associated with menopause and the associated hormonal changes but rather with the natural decrease in metabolic rate that occurs with age and a more sedentary life style [26]. Menopause does, however, appear to be associated with redistribution of weight from the hip and upper thigh area to the abdominal area [26]. Reported prevalence of propensity to weight gain was high in our study.

The present study revealed association between menopause and urinary incontinence and burning micturition. Some studies reported an association between menopause and increased prevalence of urinary incontinence [27,28], whereas others did not [29,30,31].

The prevalence of sexual activity in a sample of 875 American women was decreased at menopause (70% among those aged 45–54 years and 60% among those aged 55–64 years) [27] which agreed with our findings that sexual desire decreased (89.1%) in the majority of the study women. Whether the reduction in sexual behaviour is related to menopause per se is uncertain, but there is a reason to believe that some menopause-related symptoms interfere with sexuality. For example, vaginal atrophy can lead to vaginal dryness and fragility, which causes dyspareunia, and in some women reduced arousal during sex [27]. The high proportion of women reporting dry/sore vagina in the present study strengthens this view.

A large number of other somatic and psychological symptoms were reported (Table 4). These symptoms were considered to be non-specific to the menopause and they are presumed to be psychological and sociocultural in origin. In several studies, the occurrence of these symptoms is not highly correlated with menopausal status, but they are strongly correlated with each other [14,32].

In recent years, research on menopausal symptomatology has focused on identifying symptom groupings experienced by women as they progress from premenopausal to postmenopausal status [33]. In an analysis based on a large cross-sectional survey of women aged 40–55 years among various racial/ethnic groups in the United States of America (Caucasian, African-American, Chinese, Japanese, and Hispanic) using

factor analysis it has been shown that 2 consistent factors emerged among the 5 racial/ethnic groups: first, hot flushes and night sweats and, secondly, consisting of psychological and psychosomatic symptoms. The pattern of results argues against a universal menopausal syndrome [*33*]. In another study of 2000 Australian menopausal women aged 45–55 years, factor analysis revealed 7 common factors from 22 symptoms [*6*]. In a third study, *The Women's Health Questionnaire*, which was based on factor analysis of 36 symptoms reported by a general population sample from south east England, each rated on a binary scale 0/1, there were 8 subscales. The results of our study are consistent with factor analysis in other studies: the vasomotor component and the somatic components emerged as separate factors. However, in the married women model, the urinary symptoms emerged together with psychological symptoms as one factor, which suggest a mediating effect of urinary symptoms to psychological symptoms among married women. The headache factor comprised headache, blurred vision and drowsiness, which may be confused by the participants. For the unmarried women model, the gastrointestinal symptoms were separate from the other somatic symptoms, and the vasomotor symptoms were dispersed among somatic symptoms. This diversity of components strengthens the view that there is not a universal menopausal syndrome for all women [*33*].

Conclusions and recommendations

Generally, menopausal women in Alexandria were aware of peri-menopausal changes. Most women believed that menopause is a personal issue and this influences their health-seeking behaviour during that period. The most commonly experienced symptoms were hot flushes, tiredness, headache and skin wrinkles. The majority of women were lacking in knowledge about healthy lifestyles and approaches of self-care during the menopausal transition. There is a definite need for dissemination of information about menopausal symptoms and healthy practices related to menopause, especially through radio, television and general practitiones.

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EMRO Reproductive Health Research Network

In view of the importance of reproductive health research as an area of strategic priority for programme and policy development, the World Health Organization Regional Office of the Eastern Mediterranean (EMRO) has created a network for reproductive health research. This network aims to facilitate exchange of information and research related experiences in the field of reproductive health between and within countries.

The reproductive health research network has 2 components: a comprehensive *directory* of governmental, private, nongovernmental institutes, scientific bodies, research agencies, advocacy groups, and organizations concerned with and involved in reproductive health research in countries of the Region; and a searchable *database* about research activities conducted over a specified period of time (1995 to present).

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