

# Prevalence of menopausal related symptoms and their impact on quality of life among Egyptian women

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## Summary

**Objective:** To assess the prevalence of menopausal-related symptoms and to evaluate their impact on quality of life (QoL) among a sample of menopausal women from Egypt. **Materials and Methods:** A cross-sectional hospital-based study conducted at the Gynecology department, Suez Canal University, Ismailia – Egypt. A total 1,214 women aged 40 – 70 years were recruited and studied using an interview questionnaire. The questionnaire contains four main items: socio-demographic data, menstruation status assessment, modified Menopausal Rating Scale (MRS), and World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. **Results:** Mean age was  $48.1 \pm 10.3$  years, with 26.6% of the studied participants were illiterates. According to menstruation status, 40.9% of the studied women were postmenopausal, 41.4% were premenopausal, while 17.7% were perimenopausal. Most of the studied participants have mild/moderate somatic symptoms. Mild/moderate depressive mode, irritability, and anxiety have been reported in 63%, 58.4%, and 58.2% of women, respectively. Postmenopausal women have significantly higher scores on MRS except for urogenital score that was higher in perimenopausal women. They also had significantly lower QoL score in all subscales of WHOQOL-BREF except for psychological domain that was lowest among perimenopausal women. MRS total score has significant negative correlation to all domains of WHOQOL questionnaire. **Conclusion:** Postmenopausal women have higher prevalence of menopausal symptoms that significantly affect their quality of life more than pre- and perimenopausal women. Those in the transition period (perimenopausal) have higher prevalence of psychological symptoms with higher impact on their psychological welfare.

**Key words:** Menopause; Menopause Rating Scale; WHOQOL-BREF; Quality of life.

## Introduction

Menopause is a normal physiological process that is directly caused by depletion of estrogen level and is defined as complete cessation of menstruation for more than twelve months [1 - 4]. It causes a host of symptoms that can be classified into vasomotor, physical, psychological, and sexual complaints. These symptoms can be severe enough to affect the normal daily life activities of menopausal women. It has been well documented that menopausal symptoms affect women's quality of life [5 - 8]. The age of menopause is usually after the age of 45 years; however, menopause-related symptoms often start to occur several years earlier [9].

Menopause-related health issues and overall health and well-being of middle aged women have now become a major health matter [10]. There is increasing interest in menopausal women health as with the general increase in life expectancy, more women are expected to spend about one quarter to one third of their lives in a menopausal state [11-13].

Among Egyptian women, the mean age of menopause was estimated to be 46.7 years [14] which is relatively low compared to other countries. Due to many cultural and ed-

ucational differences, the response and attitude of Egyptian women toward menopause is greatly different from that of women from western societies [15].

For research and epidemiological purposes, a lot of tools have been designed to estimate the menopausal symptoms. Among these tools, the Menopause Rating Scale (MRS) has been designed to measure the severity of age/menopause-related complaints by rating a profile of symptoms and is recommended for use in clinical practice [16]. It has been originally developed in German language [17] and translated into number of other languages [16].

Quality of life (QoL) has been defined by World Health Organization (WHO) QoL group as an individual's perception of their position in life in the context of culture and values system in which they live and in relation to their goal expectations, standards, and concerns [18]. The study of QoL in post-menopause has become an essential component in clinical practice [19-21]. Unlike developed countries, little is available about menopausal symptoms and their effect on QoL of postmenopausal women in developing countries. The aim of the current study is to evaluate the menopausal symptoms and estimate their effect on QoL among Egyptian women in Ismailia city.

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## Materials and Methods

After approval of ethics committee of Faculty of Medicine, Suez Canal University, this cross-sectional descriptive study was conducted among a total of 1,214 women aged (40-70 years) living in Ismailia governorate. The study population was recruited among women attending gynecology outpatient clinic or their relatives visiting inpatients of Obstetrics and Gynecology department at Suez Canal University Hospital. The study was conducted through the period from January 2009 to January 2013. Women with induced menopause, premature menopause, receiving hormonal treatment, having medical problems like thyroid disorders, diabetes mellitus and hypertension, heart disease, or who were undergoing treatment for cancer, or were in remission, pregnant and breast feeding women, and those who refused to participate were excluded from the study. The required sample size was estimated based on power of study of 80% and  $\alpha$ -error of 0.05 [22].

An informed written consent was obtained from all participants. Data were collected via structured interview questionnaire conducted by well-trained health personnel. The questionnaire included four main parts:

- 1) Socio-demographic data including age, marital status, educational level, current or previous job, and co-morbidities.
- 2) Menstruation status: The menopausal status was classified according to Stages of Reproductive Aging Workshop (STRAW) [23]. Women who reported the normal menstrual cycle for the last three months were classified as premenopausal. Women who reported change in the length of menstrual cycle for at least seven days from baseline or change in the menstrual flow i.e. lighter or heavier from their normal for the last three months were classified perimenopausal. Finally, those last menstrual periods occurred 12 months or more ago were categorized as postmenopausal. Surgical menopause was defined as cessation of menstruation following removal of ovaries (with or without hysterectomy) [24]. According to this classification, the current study included 1,214 women grouped as premenopausal (503), perimenopausal (245), and postmenopausal (496) women.
- 3) Menopausal Rating Scale (MRS): Arabic translation was used. The translation was based on the original MRS questionnaire and was validated before the study population was recruited. Validation was tested to ensure that the questions were consistently delivered to women and that they carry the intended meaning they were designed for. In addition, our questionnaire matched the Arabic validated version that was described by Sweed *et al.* [25]. MRS is a self-administered instrument which has been widely used and validated and has been used in many clinical and epidemiological studies, and in research to assess the severity of menopausal symptoms [17]. The MRS is composed of 11 items and is divided into three subscales: (a) somatic - hot flushes, heart discomfort/palpitation, sleeping problems, and muscle and joint problems; (b) psychological - depressive mood, irritability, anxiety, physical and mental exhaustion, and (c) urogenital - sexual problems, bladder problems, and dryness of the vagina. Each of the 11 symptoms contained a scoring scale from "0" (no complaints) to "4" (very severe symptoms). The composite scores for each of the three dimensions (sub-scales) are based on adding up the scores of the items of the respective dimensions. The total score is the sum of the sum-scores of the three subscales. Women were asked whether or not they had experienced the 11 menopausal symptoms shown in the MRS in the previous one month (30 days).

- 4) The World Health Organization – Quality of life (WHOQOL-BREF) questionnaire comprises four domains containing 24 aspects in addition to one facet on overall quality of life and general health [26] evaluated in the previous four weeks. It is an abbreviated version of the WHOQOL-100 quality of life assessment [26]. There are a total of seven items in the physical domain (pain and discomfort, energy and fatigue, sleep and rest, mobility, daily living activities, dependence on medication, and working capacity), six in the psychological domain (positive feelings, thinking and concentration, self-esteem, physical image and appearance, negative feelings, and spiritual/religious/personal beliefs), three in the social domain (personal relationships, social support, and sexual activity), and eight in the environmental domain (physical safety and security home environment, financial resources, availability of health and social care, opportunities for acquiring new information and skills participation in recreation and leisure, physical environment, and transport). Each item was scored on a Likert scale ranging from 1 to 5, with a higher score indicating a favorable condition after reversing the direction of several items that were originally posed in a negative way, negatively-worded items need to be reverse-scored (Q3, Q4, and Q26), as shown in the formulae below. Higher scores denoting higher quality of life. In order to standardize the domain scores for comparison, the average score of each domain was calculated and then multiplied by four, as recommended by the WHOQOL-100 [27].

Physical domain =  $((6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18) \times 4$

Psychological domain =  $(Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26)) \times 4$

Social Relationships domain =  $(Q20 + Q21 + Q22) \times 4$

Environment domain =  $(Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25) \times 4$

### TRANSFORMATION OF SCORES TO A 0-100 SCALE

Domain and facet scores can be transformed to a 0-100 scale using the following formula:-TRANSFORMED SCORE =  $(\text{SCORE}-4) \times (100/16)$  [27].

Due to the lengthy nature of the study, a registry at the Gynecology outpatient clinic was established to gather the data collected. Several members of the medical and nursing staff were involved in data collection after ensuring their full understanding of the questionnaires to ensure consistent delivery and filling of the different questions. The authors were available to provide assistance if needed. Data entry was the responsibility of an assigned clinic nurse and frequent verification was carried out by the authors.

### Statistical analysis

Microsoft Excel 2003 and SPSS (Statistical Package for the Social Science) version 15 were used to analyze data. Data were statistically described in terms of mean, standard deviation, frequencies (number of cases), and percentages. For quantitative variables Student t test and analysis of variance were used to test significance of difference and for categorical data Chi square test was performed. A probability value ( $p$  value) less than 0.05 was considered statistically significant.

## Results

Table 1 presents the socio-demographic characteristics of the studied participants. More than one quarter of the studied women were aged 40 – 45 years (27.6%) while

Table 1. — *Socio-demographic characteristics of the studied participants.*

		Number	Percentage
Age	40 –	335	27.6%
	45 –	259	21.3%
	50 –	189	15.7%
	55 –	182	14.9%
	60 –	128	10.6%
	65 – 70	121	9.9%
BMI	< 30 Kg/m <sup>2</sup>	517	42.6%
	≥ 30 Kg/m <sup>2</sup>	697	57.4%
Residence	Urban	546	44.9%
	Rural	668	55.1%
Marital status	Married	815	67.1%
	Widow/divorced	346	28.5%
	Single	53	4.4%
Parity	Nulliparous	110	9.1%
	Para 1-2	651	53.6%
	≥ Para 3	453	37.3%
Religion	Muslim	1161	95.6%
	Christian	53	4.4%
Educational level	Illiterate	323	26.6%
	< 12 years	286	23.6%
	≥ 12 years	605	49.8%
Job (current/previous)	Housewife	450	37.1%
	General worker	123	10.1%
	Semi-professional	398	32.7%
	Professional	243	20.1%
Socio-economic status	Low	379	31.2%
	Moderate	706	58.2%
	High	129	10.6%
Menopausal status	Premenopausal	503	41.4%
	Perimenopausal	215	17.7%
	Postmenopausal	496	40.9%

20.5% were in age group 60 – 70 years. Most of the participants were married (67.1%). As regard religion, 95.6% were Muslims and 4.4% were Christians. Most of the studied women were housewives (37.1%). More than half of the studied women had moderate socioeconomic status. Ac-

cording to menstruation status assessment, 40.9% of women were postmenopausal, 41.4% were premenopausal, while 17.7% were perimenopausal.

The results obtained by MRS are presented in Table 2. Among somatic subscale items, the most common was joint and muscular discomfort (84.8%). Depressive mode, irritability, and anxiety have been reported among 76.4%, 74.9%, and 71.8% respectively. The most common psychological problem was physical and mental exhaustion (85%). More than half of the participants report having sexual problems (64.4%), while bladder problems were reported among 37.6% and vaginal dryness among 34.1% of participants.

The most common reported symptom among all subscales was joint and muscular discomfort (84.8%) and it showed no significant difference among women classified according to their menopausal status. Perimenopausal women have significantly higher prevalence of all Urogenital subscale items, all psychological subscales except physical and mental exhaustion and all somatic subscale items except joint and muscular discomfort (Table 3).

When comparing the total score and subscale scores among different groups of patients classified according to their menopausal status, it was found that premenopausal women had significantly lower somatic and psychological scores, while perimenopausal women had higher urogenital scores (Table 4).

Regarding the assessment of QoL, it was estimated that among all studied participants, psychological and environmental domains showed the lowest scores (55.8 and 54.9), while social relationships domain showed the highest score (56.9). Comparing the three groups according to menopausal status, it was found that postmenopausal women had the lowest scores in overall mean scores and all domains with statistically significant difference (Table 5).

Total score of menopausal rating scale was found to be significantly correlated with age ( $r = 0.3, p = 0.001$ ). There was significant negative correlation between MRS total

Table 2. — *Menopausal symptoms according to MRS among studied participants.*

	None		Mild		Moderate		Severe		Very severe	
Somatic subscale										
Hot flushes	334	27.5%	266	21.9%	434	35.7%	151	12.5%	29	2.4%
Heart discomfort	377	31.1%	300	24.7%	401	33.0%	111	9.1%	25	2.1%
Sleep problems	229	18.9%	283	23.3%	477	39.2%	161	13.3%	64	5.3%
Joint and muscular discomfort	184	15.2%	73	6.0%	475	39.1%	283	23.3%	199	16.4%
Psychological subscale										
Depressive mode	287	23.6%	409	33.7%	355	29.3%	120	9.9%	43	3.5%
Irritability	305	25.1%	385	31.7%	324	26.7%	159	13.1%	41	3.4%
Anxiety	342	28.2%	369	30.4%	338	27.8%	128	10.5%	37	3.1%
Physical and mental exhaustion	182	15%	321	26.4%	529	43.6%	129	10.6%	53	4.4%
Urogenital subscale										
Sexual problems	432	35.6%	282	23.2%	379	31.2%	87	7.2%	34	2.8%
Bladder problems	758	62.4%	132	10.9%	213	17.5%	74	6.1%	37	3.1%
Vaginal dryness	801	65.9%	101	8.3%	218	17.9%	69	5.7%	25	2.2%

Table 3. — Incidence of menopausal symptoms according to MRS among studied participants classified by menopausal status.

	Premenopausal (n=503)		Perimenopausal (n=215)		Postmenopausal (n=496)		Total (n=1214)		p-value
Somatic subscale									
Hot flushes	367	72.9%	166	77.2%#	347	69.9%	880	72.5%	0.001*
Heart discomfort	332	66%	168	78.1%#	337	67.7%	837	68.9%	0.001*
Sleep problems	402	79.9%	186	86.5%#	397	80.1%	985	81.1%	0.001*
Joint and muscular discomfort	423	84.1%	185	86.1%	422	85.1%	1030	84.8%	0.8 (NS)
Psychological subscale									
Depressive mode	369	73.4%	176	81.9%#	382	77.1%	927	76.4%	0.001*
Irritability	377	74.9%	181	84.2%#	351	70.8%	909	74.9%	0.001*
Anxiety	337	66.9%	178	82.8%#	357	71.9%	872	71.8%	0.001*
Physical and mental exhaustion	420	83.5%	187	86.9%	425	85.7%	1032	85%	0.6 (NS)
Urogenital subscale									
Sexual problems	317	63.1%	157	73.1%#	308	62.1%	782	64.4%	0.001*
Bladder problems	176	35%	101	46.9%#	179	36.1%	456	37.6%	0.001*
Vaginal dryness	161	32%	103	47.9%#	149	30.1%	413	34.1%	0.001*

\*Statistically significant difference among three. #Statistically significant difference versus other two groups.

Table 4. — Menopausal symptoms according to MRS classified by menopausal status.

	All	Premenopausal (n=503)	Perimenopausal (n=215)	Postmenopausal (n=496)	p-value
Somatic score	6.1 ± 2.9	5.3 ± 1.4‡	6.3 ± 3.1#	6.4 ± 2.3	0.001*
Psychological score	5.6 ± 3.1	4.8 ± 2.9‡	6.7 ± 2.3#	6.8 ± 3.3	0.001*
Urogenital score	2.1 ± 1.9	1.7 ± 1.8	2.9 ± 2.5‡#	1.8 ± 2.1	0.001*
Total score	14.6 ± 6.1	11.8 ± 5.9‡	15.8 ± 6.9‡#	13.9 ± 7.5	0.001*

\*Statistically significant difference (ANOVA test); ‡Statistically significant difference versus postmenopausal women (Bonferroni test);

#Statistically significant difference between premenopausal and perimenopausal women.

Table 5. — QoL assessment among studied participants.

	All	Premenopausal (n=503)	Perimenopausal (n=215)	Postmenopausal (n=496)	p-value
Physical domain	56.8 ± 18.9	59.2 ± 10.4‡	54.3 ± 13.5#	53.5 ± 13.2	0.001*
Psychological domain	55.8 ± 16.5	56.8 ± 13.5‡	55.5 ± 15.3‡	53.2 ± 17.2	0.001*
Social relationships	56.9 ± 13.7	56.7 ± 18.7‡	57.2 ± 19.2‡#	55.1 ± 15.1	0.2 (NS)
Environmental domain	54.9 ± 18.2	51.9 ± 13.6‡	56.4 ± 15.9‡#	53.2 ± 16.9	0.002*
GH (Q1)	3.32 ± 0.92	3.5 ± 0.79‡	3.3 ± 0.89‡#	3.28 ± 0.79	0.001*
GH (Q2)	3.28 ± 0.93	3.4 ± 0.81‡	3.29 ± 1.06‡#	3.19 ± 1.1	0.003*
Overall mean score	53.1 ± 13.5	54.9 ± 15.4‡	53.1 ± 11.4‡#	52.9 ± 12.5	0.001*

GH = general health; \*Statistically significant difference (ANOVA test); ‡Statistically significant difference versus postmenopausal women (Bonferroni test);

#Statistically significant difference between premenopausal and perimenopausal women.

Table 6. — Correlation between MRS and QoL and other parameters.

	Menopausal Rating scale (Total score)							
	Total patients		Premenopausal		Perimenopausal		Postmenopausal	
	r	p-value	r	p-value	r	p-value	r	p-value
Age	0.3	0.001*	0.5	0.001*	0.3	0.001*	0.4	0.001*
BMI	0.5	0.001*	0.6	0.001*	0.3	0.001*	0.6	0.001*
Parity	0.3	0.02*	0.4	0.02*	0.3	0.02*	0.5	0.02*
WHO QoL BREF								
Physical domain	-0.4	0.02*	-0.5	0.02*	-0.3	0.02*	-0.5	0.02*
Psychological domain	-0.5	0.01*	-0.4	0.01*	-0.4	0.01*	-0.4	0.01*
Social relationships	0.4	0.03*	0.3	0.03*	0.5	0.03*	0.3	0.03*
Environmental domain	0.6	0.001*	0.7	0.001*	0.4	0.001*	0.5	0.001*
Overall mean score	0.5	0.01*	0.5	0.01*	0.6	0.01*	0.4	0.01*

\*Statistically significant



score and all domains of WHOQOL questionnaire. Body mass index (BMI) and parity were significantly correlated with total score of menopausal rating scale (Table 6).

## Discussion

Menopause is an important phase in women's life. As mentioned earlier, with increasing life expectancy, more women are expected to spend up to one third of their lives in a menopausal state [11 - 13]. Little data are available about this important phase and its effects on women from Egypt which prompted the authors to carry out this study.

The present study revealed that the mean age at menopause was 48.1 years. Other studies from Egypt reported 46.7 years [15] and 49.2 years [25] as a mean age of menopause among Egyptian women. This slight variation in the mean age of menopause may be due to the different population studied or the sample size of the studies. There is a need for a nation-wide study assessing this issue all over the country. Other studies across the world have revealed slightly different mean age but all of these studies are still within the normal range of menopausal age [1, 8, 28, 29].

In the present study the authors have used the translated MRS for assessment of prevalence and severity of menopausal symptoms. Menopausal symptoms assessment tools are few and MRS is one of the most commonly used ones and has been widely used in many epidemiological and clinical studies. Other surveys have used the same tool as the present [8, 14, 26] while other tools have been used by other studies as Nisar and Sohoo, [13] who have used Menopause-specific QoL questionnaire (MEN-QoL) to assess the frequency and severity of symptoms.

The present authors have translated and validated the MRS and found that in accordance to the recently published validated Arabic version published by Sweed et al in 2012 [25].

The most prevalent somatic symptoms in our study were joint and muscular pain (84.8%), sleep problems (81.1%) and hot flushes (72.5%). Lack of exercise and inadequate supplementation of calcium will invariably increase the incidence of joint and muscular pains. In addition, a significant proportion of women in our study were overweight/obese which adds further burden on the joints. It should be noted that menopause alone cannot explain all the somatic and psychological changes occurring among menopausal women; age-related changes play a significant role. For example, it is well known that the prevalence of joint pain increases progressively with age in women [30]. Nisar and Sohoo [13] findings were in agreement with the above results.

In agreement with our findings, Sweed *et al.* [25] have reported that the most prevalent somatic symptoms were joint pain (90.3%), sleep problems (84), and hot flushes (76.8%).

Other studies have reported the menopausal classical symptoms - including hot flushes - to be less prevalent (66.3%) [31]. This variation in the reported prevalence can be attributed to different factors. Hot flushes resolve within few years of menopause in most of women, but some women report symptoms for many years after they cease to menstruate [32, 33]. Menopausal status and symptoms vary across racial/ethnic groups [34, 35]. In Germany, for example, hot flushes was the most commonly reported symptom by 96.4% [36], whereas among Arab and Greek women living in Australia it was 63% and 43%, respectively [30] and the incidence was as low as 3.9% among Singaporean women [31]. In the United States, the prevalence of hot flushes was highest among African Americans (46%), followed by Hispanics (34%), whites (31%), Chinese (21%), and Japanese (18%) [35].

Perimenopausal women were found to have high scores among all subscales of MRS. Consistent with the current study, Nisar and Sohoo [13] have shown that psychological domain scores were significantly higher in the menopause transition group. The association of psychological symptoms with perimenopausal period has been reported also by Rahman *et al.* [8]. Studies from Thailand and south-east Asian countries showed that many menopausal symptoms such as hot flushes, upset stomach, insomnia, and urinary symptoms are significantly related to menopausal transition period [37, 38].

Unlike the present study, several previous papers have reported higher scores of urogenital subscale among postmenopausal women compared to pre- and perimenopausal women [1, 29, 31]. The urogenital symptoms including sexual problems, bladder problems, and dryness of vagina were less frequent; the individual and overall scores of MRS were also low for urogenital domain and this was consistent with Nisar *et al.* study [39].

QoL of postmenopausal women were found to be the most affected compared to premenopausal and perimenopausal women. The present findings in terms of QoL is consistent with Elsabagh *et al.*, [14] however, unlike the present findings they did not report significant difference as regard social domain of WHOQOL-REF questionnaire. These results support the results by Nisar and Sohoo [13] who highlighted that there was a negative correlation between MRS scores and WHOQOL-BREF scores in all domains for postmenopausal women. Moreover, Yakout *et al.* [40] emphasized that a negative significant relation was demonstrated between QoL and postmenopausal symptoms, where quality of life was adversely affected by postmenopausal symptoms among the postmenopausal Saudi women in the study subjects.

Other previous researches have reported different results inconsistent with the present study. Ozkan *et al.* [41] and Satoh and Ohashi [42] reported that there was no significant difference in the mean scores in the all domains and the total score of the quality of life.

The present authors have found significant negative correlation between total MRS score and all subscales of WHOQOL-BREF questionnaire. The present findings are supported by results reported by multiple previous studies who found that the severity of menopausal symptoms is negatively correlated with QoL of studied women [13, 14, 40, 43].

With regards to relation between QoL and socio-demographic characteristics, the present study have shown that QoL is significantly related to age, educational level, and socioeconomic status of women as older women with lower educational level and low socioeconomic status are more liable to have poor quality of life and viceversa. This is consistent with results reported by Elsabagh *et al.* [14], who reported significant correlation of QoL with age, educational level, and also family income. Other factors as family size and gravidity have been evaluated by other authors and were found to have significant relation with QoL [21, 40].

The main limitation of the present study is the cross-sectional nature of the study that might not reflect the situation of the whole community. Also, the authors did not exclude other confounding factors that influence women's physical and psychological health in this age group.

MRS was established to be a self-reporting questionnaire but the authors used face-to-face interview to collect data due to relatively high percentages of illiteracy. Women were asked to provide some retrospective information such as climacteric symptoms experienced in the preceding weeks, regularity of menstruation, and last menstrual period, hence recall bias is unavoidable especially in some elderly women.

## Conclusion

Postmenopausal women have higher prevalence of menopausal symptoms that significantly affect their QoL more than pre- and perimenopausal women. Those in the transition period (perimenopausal) have higher prevalence of psychological symptoms with higher impact on their psychological welfare.

## Recommendations

Further wider scale community-based surveys are required for more detailed addressing of women's health and impact of menopausal symptoms on QoL of women. It is recommended that health education programs should be directed toward premenopausal women for adequate understanding of the physiological changes accompanying the menopausal period and how to adapt with the new physiological status and avoid adverse effects on their psychological health. Improving sleep and joint problems will have good impact on QoL.

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