Quality of Life (QoL) and Menopausal Rating Scale (MRS) among Peri- and Post-Menopause in Thai Women: A Prospective Cross-Sectional Study

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Objective: To investigate the quality of life (QoL) and Menopausal Rating Scale (MRS) between peri- and post-menopause among Thai women.

Materials and Methods: The prospective cross-sectional study was carried out between October 2020 and February 2021 at Bhumibol Adulyadej Hospital (BAH), Royal Thai Air Force, Bangkok, Thailand. Participants were healthy women visiting gynecologic outpatient clinic aged 45 to 55 years old. Participants who still menstruated, both regular and irregular, were categorized into the control group. Women who presented natural amenorrhea within two years, as absence of menstruation for 12 to 24 months, were enrolled as the study group. The questionnaires were used to study the QoL and MRS among the two groups, then analyzed the data as chi-square and t-test.

Results: Three hundred fifty subjects participated in the present study. There were 178 and 172 cases in the control and the study groups, respectively. Mean age and standard deviation of the participants in the control and the study groups were 48.0±2.8 and 52.3±2.8 years, respectively, (p<0.001). The overall QoL among the control group was higher than that of the study group with statistical significance (95.4±14.7, 90.6±14.6, p=0.003). The overall MRS of the control group was lower than the study group with statistical difference (60.2±12.0, 62.8±12.6, p=0.046). The urogenital and psychological symptoms of both groups were comparable.

Conclusion: Menopausal women had significant higher MRS and significant lower QoL than perimenopausal women. Based on the study, it is helpful to health care providers and family to give this group appropriate information and will allow them to be healthy and happy member of society. It is also used to advise and monitor the symptoms of menopause in the menopause clinic.

Keywords: QoL; MRS; Menopause

Menopause is a natural process of feminine aging, caused by the age-related gradual decline of primordial ovarian follicles. Diagnosis of menopause is a retrospective history of cessation of menstruation for one year. However, the change of the menopausal transition, or perimenopause, typically begins several years before the natural menopause and is not affected by ethnicity nor age at menarche[1]. Transition from the reproductive age to menopause was classified by the Stages of Reproductive Aging Workshop (STRAW)[2].

Climacteric or menopausal symptoms are nuisance signatures of menopause, including menstrual irregularity, hot flushes, sweating, palpitation, sleep disturbance, irritability, lethargy, depressed mood, forgetfulness, decreased libido, vulvovaginal dryness, dyspareunia, and many urinary-related symptoms. Menopausal symptoms and their severity vary significantly between individuals because of confounding factors, such as lifestyle, social status, body composition, and psychological health[1].

Climacteric symptoms are disruptive factors to quality of life (QoL) among women during the menopausal transition period. In Thailand, there are few published studies[3-5] to compare between QoL and Menopausal Rating Scale (MRS) among women during their menopausal transition or during

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the peri- and post-menopause. The understanding of menopause impact on QoL in women is critically important to the contemporary health care system. Awareness, education, and counseling for these women should be made available in gynecologic clinics and public education in the future.

In the present study, QoL and MRS between peri- and post-menopause among women aged 45 to 55 years were explored. The result of the investigation could yield a self-care guideline for patients of both groups.

Materials and Methods
Study design and setting
The present study was a prospective cross-sectional study, carried out between October 2020 and February 2021 at Bhumibol Adulyadej Hospital (BAH), Royal Thai Air Force, Bangkok, Thailand. Ethic approval by the BAH Institutional Review Board (IRB No.45/63) was approved in March 2020. Funding support in the present study came from BAH Research Fund.

Study population
Participants were healthy women that were between 45 and 55 years old and visited the gynecologic outpatient clinic who were willing to participate in the study. Exclusion criteria were women with surgical menopause, psychiatric disorders, received hormonal therapy, and those who could not communicate in the Thai language. Participants who still menstruated as either regular or irregular were categorized into the control group. Women who had natural amenorrhea of less than two years or absence of menstruation for 12 to 24 months were included as the study group. Participants with amenorrhea more than two years prior to the study were excluded because over time, the symptoms subside, and the participants are able to adapt.

The sample size calculation for the present study was based on body mass index (BMI) for testing the association between pre-menopause (22.9±3.0) and post-menopause (23.9±3.3) based on the study by Lin et al[6]. The authors used a two-sided significance level of 0.05 and power of 80% with equal allocation to two arms would require 155 patients in each arm of the trial. Ten percent statistical error in the study was applied. Therefore, 350 subjects were needed for the study.

Study method and questionnaire
The primary investigator (NK) recruited two nurse assistants for the study. They were trained in the research protocol. Research team members then took turns at the Gynecologic Outpatient Department to introduce themselves to participants. Permission to participate in the study were requested. Written informed consents were completed by participants after the investigation scope was comprehensively explained. Self-interview questionnaires were then given to participants who agreed to participate.

Three types of questionnaires were used, demographic characteristics, the World Health Organization Quality of Life (WHO QoL), and MRS questionnaires translated into Thai were used[7,8]. Questionnaires were read and filled by participants. Demographic characteristics in the questionnaire included demographic, socioeconomic, gynecologic, and obstetric data.

The WHO QoL-bref-Thai was translated by Dr. Suwat Mahatnirunkul. These are indicators developed from the World Health Organization's 100 QoL indicators. It has a Cronbach's alpha coefficient of 0.841 and an accuracy rate of 0.652[7].

The WHO QoL-bref-Thai version used had four domains, namely physical, psychological, social relationship, and environmental domains. It contained 26 questions with total scores ranging between 26 and 130 points. Scoring was considered excellent, good, and poor when 96 to 130, 61 to 95, and 26 to 60 points were obtained, respectively.

The MRS questionnaire was authorized by Professor Dr. Warinee Iemsawasdikul, a nurse from Sukhothai Thammathirat University. It passed an expert review of eight people and test for reliability in a sample of 32 nurses. It has a Cronbach's alpha coefficient of 0.911[8].

The MRS questionnaire had three domains, namely somatic, urogenital, and psychological symptoms. The results were divided into three categories, namely no symptom, mild-moderate symptoms, and severe symptoms.

Statistical analysis
Statistical analyses were performed using the PASW Statistics for Windows, version 18.0 (SPSS Inc., Chicago, IL, USA). The chi-square test and independent t-test were used to compare categorical data. Mean and standard deviation (SD) were appraised with continuous data. A p-value of less than 0.05 was considered statistically significant.

Results
Demographic characteristics of the control

Table 1. Demographic character between the control (n=178) and the study group (n=172)

	Control	Study	p-value
Age (year); mean±SD	48.0±2.8	52.3±2.8	<0.001*
BMI (kg/m^2); mean±SD	24.3±4.6	24.4±4.5	0.878
Buddhism; n (%)	175 (98.3)	171 (99.4)	0.378
Married; n (%)	117 (65.7)	99 (57.6)	0.116
Bachelor degree or higher; n (%)	71 (39.9)	63 (36.6)	0.531
Occupation; n (%)			0.381
Government officer	37 (20.8)	28 (16.3)	
Employee	110 (61.8)	118 (68.6)	
Private business	31 (17.4)	26 (15.1)	
Monthly incomes (Baht); n (%)			0.658
<10,000	26 (14.6)	29 (16.9)	
10,001 to 30,000	113 (63.5)	106 (61.6)	
30,001 to 50,000	27 (15.2)	21 (12.2)	
>50,000	12 (6.7)	16 (9.3)	
Multiparity; n (%)	116 (65.2)	126 (73.3)	0.102
Vaginal delivery; n (%)	68 (38.2)	93 (54.1)	0.200
No contraception; n (%)	91 (51.1)	102 (59.3)	0.124
Smoking; n (%)	3 (1.7)	1 (0.6)	0.331
Alcohol consumption; n (%)	23 (12.9)	25 (14.5)	0.661

SD=standard deviation; BMI=body mass index; Control group=perimenopausal women; Study group=postmenopausal women (amenorrhea 12 to 24 months)

* Statistical significance (p<0.05)

Table 2. Comparison of QoL and MRS between the control (n=178) and the study group (n=172)

	Control; mean±SD	Study; mean±SD	p-value
Overall QoL	95.4±14.7	90.6±14.9	0.003*
Physical domain	25.3±4.0	24.4±4.0	0.022*
Psychological domain	22.6±3.9	21.5±4.0	0.015*
Social relationship	11.1±2.1	10.5±2.1	0.004*
Environment	29.2±5.2	27.4±5.3	0.002*
Overall MRS	60.2±12.0	62.8±12.6	0.046*
Somatic symptoms	25.9±5.6	28.0±6.3	0.001*
Urogenital symptoms	15.3±3.4	15.2±3.3	0.706
Psychological symptoms	19.0±4.6	19.7±4.8	0.173

SD=standard deviation; QoL=quality of life; MRS=menopause rating scale; Control group=perimenopausal women; Study group=postmenopausal women (amenorrhea 12 to 24 months)

* Statistical significance (p<0.05)
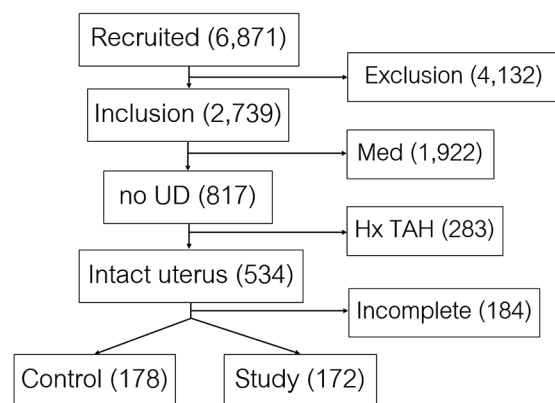
Figure 1. Flow chart of participants.

Inclusion=the women aged 45 to 55 years; UD=underlying disease; Med=current medication; Hx TAH=history of hysterectomy; Control=perimenopausal women; Study=postmenopausal women (amenorrhea 12 to 24 months)

and the study groups are presented in Table 1. All participants included in the present study sub-analysis were in peri- and post-menopausal stages with a mean age at 48.0±2.8 and 52.3±2.8 years, respectively, (p<0.001) as presented in Figure 1. Other demographic characteristics of both groups were comparable.

The comparison of QoL and MRS among the control and the study groups are shown in Table 2. The overall QoL aspects namely physical, psychological, social relationship, and environment factors among perimenopause subjects were higher than the post-menopause group, with statistical significance at 95.4±14.7 and 90.6±14.9 (p=0.003), respectively.

Higher score of MRS indicated the severity of menopausal symptoms. Overall MRS score of the study group was higher than that of the control group with statistical difference at 62.8±12.6 and 60.2±12.0 (p=0.046), respectively. However, urogenital and psychological symptoms of both groups were not statistically different. The study group only scored higher than the control group in somatic symptoms at 28.0±6.3 versus 25.9±5.6 (p=0.001). Vaginal dryness at 52.3% versus 39.9% (p=0.020), hot flushes at 61.6% versus 45.0% (p=0.002), and sleep problems at 54.7% versus 43.3% (p=0.033) were reported statistically significant more often and with higher frequency in the study group when compared with the control group. The other menopausal symptoms, namely bladder problems, sexual problems, heart discomfort, muscle and joint complaints, depressive, anxiety, and mood instability were not significantly different between both groups as shown in Table 3.

The prevalence of MRS symptoms in both groups is shown as Table 4. Muscle and joint pain were classified as mild-moderate severity in both groups. Other symptoms, such as hot flushes, heart discomfort, sleep problems, urogenital symptoms, psychological symptoms were mostly asymptomatic

Table 3. Frequency of MRS between the control (n=178) and the study group (n=172)

	Control; n (%)	Study; n (%)	p-value
Somatic symptoms			
Hot flushes	80 (45.0)	106 (61.6)	0.002*
Heart discomfort	47 (26.4)	59 (34.3)	0.108
Sleep problems	77 (43.3)	94 (54.7)	0.033*
Muscle and joint pain	139 (78.1)	148 (86.0)	0.053
Urogenital symptoms			
Bladder problems#	94 (52.8)	105 (61.0)	0.120
Sexual problems	46 (25.8)	44 (25.6)	0.955
Vaginal dryness	71 (39.9)	90 (52.3)	0.020*
Psychological symptoms			
Depressive	63 (35.4)	65 (37.8)	0.642
Anxiety	80 (44.9)	89 (51.7)	0.203
Instability	94 (52.8)	107 (62.2)	0.075

Control group=perimenopausal women; Study group=postmenopausal women (amenorrhea 12 to 24 months)

* Statistical significance (p<0.05); # Urinary incontinence, urinary frequent, and dysuria

in both groups. Few people had severe degree of MRS among both groups.

Discussion

The present study was a prospective cross-sectional study that investigated if there was any correlation between MRS and QoL in peri- and post-menopause populations of gynecologic patients and their female relatives who visited BAH, Bangkok, Thailand.

Demographic characters

The mean age of menopausal population in the present study was 52.3±2.8 years. The present study finding was similar to the previous studies in Thailand, China, Sri Lanka, and Korea. These studies reported the mean age of menopausal women between 51.8 to 57.9 years[4-5,9-12]. Interestingly, study by Yisma et al from Ethiopia reported average age of their menopausal subjects at 43.5 years[13]. It was stated that menopause onset in Africa's population was about ten years earlier than that of their Asian's counterpart. The average life expectancy of the Ethiopian people was 67.5 years old. Life expectancy of Ethiopian women was more than Ethiopian men at 69.7 and 65.5 years old, respectively[14]. This may be a result of differences in socioeconomic status, lifestyles, food, topography, occupation, and genetics[9-12].

Twenty-nine percent of this work's menopause subjects had higher BMI than 25 kg/m². However, Bener's work reported 75% of their menopause participant's BMI was higher than 25 kg/m²[15]. It appeared that the present study menopausal population would reveal less obesity related traits and consequence than similar report from Asian's population[6,10]. The present study showed that the average BMI of peri- and post-menopausal subjects was 24 kg/m². This was in lieu of the average BMI of menopause subjects from Sun's and Lan's Chinese works at of 25.1 and 23.6 kg/m², respectively[9,10].

Table 4. MRS severity between the control (n=178) and the study group (n=172)

	Control; n (%)			Study; n (%)		
	N	M-M	S	N	M-M	S
Somatic symptoms						
Hot flushes	123 (69.10)	51 (28.65)	4 (2.25)	89 (51.74)	75 (43.60)	8 (4.66)
Heart discomfort	161 (90.45)	17 (9.55)	0 (0.00)	145 (84.30)	25 (14.53)	2 (1.17)
Sleep problems	113 (63.48)	57 (32.02)	8 (4.50)	92 (53.49)	69 (40.12)	11 (6.39)
Muscle/joint pain	59 (33.15)	107 (60.11)	12 (6.74)	44 (25.58)	105 (61.05)	23 (13.37)
Urogenital symptoms						
Bladder problems#	116 (65.17)	53 (29.78)	9 (5.05)	104 (60.47)	63 (36.63)	5 (2.90)
Sexual problems	140 (78.65)	36 (20.22)	2 (1.13)	136 (79.07)	35 (20.35)	1 (0.58)
Vaginal dryness	131 (73.60)	41 (23.03)	6 (3.37)	101 (58.72)	66 (38.37)	5 (2.91)
Psychological symptoms						
Depressive	147 (82.58)	24 (13.48)	7 (3.94)	139 (80.81)	28 (16.28)	5 (2.91)
Anxiety	133 (74.72)	44 (24.72)	1 (0.56)	118 (68.61)	52 (30.23)	2 (1.16)
Instability	106 (59.56)	61 (34.27)	11 (6.17)	88 (51.16)	71 (41.30)	13 (7.54)

N=no symptom; M-M=mild-moderate symptoms; S=severe symptoms; Control group=perimenopausal women; Study group=postmenopausal women (amenorrhea 12 to 24 months)

Urinary incontinence, urinary frequent, and dysuria

Menopausal symptoms

MRS and QoL between the study and the control groups were significantly different. Overall MRS scores and somatic symptoms, namely peripheral numbness, hot flushes, sleeplessness, muscle and joint complaints, and pelvic pain were more problematic in the present study menopause subjects. Rathnayake et al reported higher MRS scores and more frequent somatic symptoms in the menopausal group compared to their perimenopause subjects[11]. Sun's, Lan's, and Bener's work also reported heavily on somatic symptoms with statistically significant effects experienced by their menopause subjects[9,10,15].

Vasomotor symptoms are consequences of estrogen withdrawal. It is also postulated that vasomotor symptoms are also caused by a central event, which drives an increased core body temperature, metabolic rate, and skin temperature, resulting in peripheral vasodilation and profuse sweating[1]. These symptoms could be modulated by a lifestyle intervention. Since the present study subjects in Thailand prominently displayed high incidence of vasomotor symptoms, an education program in lifestyle intervention could be useful for this group of women.

Genitourinary Syndrome of Menopause (GSM) consists of anatomical changes and symptom secondary to estrogen deficiency affecting labia, vagina, urethra, and bladder[1]. Lan's and Rathnayake's studies revealed that their menopause groups showed statistically higher GSM severity than their perimenopause counterparts[10,11]. The present study finding revealed statistically significant increases in vaginal dryness as a contributing GSM in the menopausal group. China's studies reported urogenital symptoms and muscles or joints pain that were top three of menopausal symptoms, which were urogenital, muscles or joints pain, and hot flashes, in perimenopause. These phenomena were initiated by estrogen deprivation and aggravated by natural aging and various social stresses[9,10]. The finding of the current study supported Sun's and Lan's studies.

Overall psychological problems were not significantly different between menopausal and perimenopausal groups in the present investigation. This finding supported Sun's, Lee's, and Smail's findings from China, South Korea, and Dubai, respectively[9,12,16]. Estrogen deprivation in menopause might be associated with depression, anxiety, mood instability, loss of interest, and fatigue[1]. These above countries had vast social support available to aging women in term of family structure and their matriarch roles in society. The multigenerational family structures of these cultures might buffer psychological decline in menopausal women in these places. Menopausal women who lived in Asian countries had complex families. Social cultural aspects, educational level, and monthly incomes were similar[9,12,16]. Menopausal women's position in their complex families were persistently respected by their family members. They held senior mentor roles and status in their families, even with the loss of their spouses.

QoL

In the current study, QoL of the control group had higher scores than that of the study group in all aspects, namely physical, psychological, social, and environmental. However, QoL among both groups were at the same level and as good. Rathnayake's study from Sri Lanka also revealed that QoL among perimenopause subjects received higher scoring than that of postmenopausal group[11]. Other studies such as Yisma's and Smail's works did not mention QoL in their statistical treatment[13,16].

QoL results of the present investigation showed a statistically better physical domain quality among the perimenopause compared to the menopause participants. Physical domain contained questions concerning muscle sprain, physical stamina, good sleep, access to health care, and self-ambulatory. The perimenopause group had a lower mean age. This might be one of the factors allowing them unassisted travel and mobility. The older participants would have more need to be assisted and thus assigned a lower QoL score similar to the results found in Rathnayake's Sri Lanka study[11].

The present study menopause population scored lower than their perimenopause peers in the psychological aspect of QoL questionnaire. Happiness, hope, work concentration, and self-satisfaction scores were rated lower in the menopause group compared to their perimenopause counterparts. On the contrary, they scored significantly higher in depression, discouragement, and desperation aspects compared to their perimenopause counterpart as to the result from Sri Lanka[11]. The similar social structure, such as education level, cultural aspect, and income levels in Thailand, China, and Sri Lanka might contribute to this comparable psychological aspect revealed by the QoL survey[9-11].

Social domains of QoL included the ability to make friends and social acceptance. The control group had a significantly higher average score than the study

group. However, postmenopausal women had a lower score in social domain involving sexuality because of the issues of vaginal dryness, vaginal discharge, pelvic pain, and dyspareunia than perimenopause.

Environment domain scores were statistically better in the control group, including the ability to meet daily expenses, access to health care and daily news, and acceptance of the current dwelling. A slightly older population of this menopause group might have grown children and have more cashflow and more time to oneself.

The menopausal status significantly affected the QoL of the participants. Health care providers and family members should pay more attention to menopausal women in their care. The understanding of the scientific and psychosocial information allows appropriate information and advice to be given to this group of women and will allow them to be healthy and happy members of society.

Limitation of the current study was cross-sectional patterns. Causal inferences and some variables were not included in the study that might be confounding factors in the result.

Strengths of the current study were design approaches to minimize the confounding effects of aging and comorbidities towards the QoL and MRS. Further generalizability of the findings was limited to other areas of the country due to the geographical variations.

Conclusion

Menopausal women had significant more MRS and significant lower QoL in terms of physical, psychological, social, and environmental aspects than perimenopausal women. Based on the study, it is helpful to health care providers and family to give this group appropriate information that will allow them to be healthy and happy member of society. It is also used to advise and monitor the symptoms of menopause in the menopause clinic.

What is already known on this topic?

Menopause is a natural process of feminine aging. The menopausal transition, or perimenopause, typically begins several years before the natural menopause. Climacteric or menopausal symptoms are nuisance signatures of menopause, including menstrual irregularity, hot flushes, sweating, palpitation, sleep disturbance, irritability, lethargy, depressed mood, forgetfulness, decreased libido, vulvovaginal dryness, dyspareunia, and many urinary-related symptoms. Menopausal symptoms and their severity vary significantly between individuals. Climacteric symptoms are disruptive factors to QoL. Awareness, education, and counseling for these women should be made available in gynecologic clinics and public education in the future.

What this study adds?

The menopausal status significantly affected the QoL of the participants. Menopausal women had more menopausal-related symptoms and lower QoL in terms of physical, psychological, social, and environmental aspects than perimenopausal women.

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Conflicts of interest

The authors declare no conflict of interest.

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