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## Menopause and menopausal transition in different age groups of women

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### Abstract:

Menopause is defined as the point in time when menstrual cycles permanently cease due to the natural depletion of ovarian oocytes from aging. The diagnosis is typically made retrospectively after the woman has missed menses for 12 consecutive months. It marks the permanent end of fertility and the average age of menopause is 51 years.

Menopause is associated with somatic, vasomotor, psychological, and sexual complaints that may affect quality of life. We determined the prevalence and severity of menopausal symptoms and their impact on the quality of life among women visiting primary care centers in Republic of North Macedonia.

A cross-sectional study was conducted from October to November 2010. In total, 119 women aged 45–60 years were randomly interviewed using a questionnaire. Participants were divided into three categories: premenopausal (n=31), perimenopausal (n=49), and post-menopausal (n=39). The Menopause Rating Scale (MRS) assessed the prevalence and severity of eleven menopausal symptoms. Mean scores of menopausal categories were compared for different symptoms.

The mean age at menopause was 48.3 ± 3 years (median, 49 years). The symptoms reported to be most prevalent were joint and muscle pain (80.7%), physical and mental exhaustion (64.7%), and hot flushes and sweating (47.1%). Somatic and psychological symptoms were highly prevalent in perimenopausal women compared to other groups. The mean overall quality-of-life score was higher in perimenopausal women, while the total MRS score indicated that the symptoms were mild in severity.

**Keywords:** menopause, menopausal transition, menopause rating scale, quality of life

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### Introduction

Menopause is a normal physiologic process, defined as the permanent cessation of menses for 12 months or more due to cessation of ovarian hormone production. According to the World Health Organization (WHO) classification, 1 premenopausal women are those who have experienced regular menstrual bleeding within the last 12 months, perimenopausal women are defined as those women who have experienced irregular menses within the last 12 months or the absence of menstrual bleeding for more than 3 months but less than 12 months, and postmenopausal women are those who have not experienced menstrual bleeding for 12 months or more.[1] Women with iatrogenic menopause are those for whom periods have stopped as a result of medical or surgical intervention, for example, due to chemotherapy or radiation of ovaries, hysterectomy or oophorectomy, or both. The age at natural menopause is between 45 years and 50 years. Early menopause is defined as menopause occurring before the age of 45 years, while premature menopause occurs before the age of 40 years. [2]

Menopause is a critical period in a woman's life that not only marks the end of reproductive ability but is also associated with multiple physical, vasomotor, psychological and sexual complaints. There is considerable variation in reporting of menopausal symptoms by women all over the world in different studies. In Latin America, the most reported symptoms included hot flushes (68.9%), followed by sleeping disturbances (68.4%).[3] In Australia, menopause was associated mostly with hot flushes, followed by night sweats.[4] In Nigeria, joint and muscular discomfort was the most commonly reported symptom (59%).[5] In Egypt, the most common symptoms were fatigue, followed by headache.[6] In contrast, women from most countries in East and Southeast Asia reported joint and muscle pain as the most frequent complaint.

Age of onset of natural menopause also varies worldwide, with the international range being 44.6–52 years. In the US, the median age at menopause is 51 years, 14 while across Europe, age of onset of

natural menopause is higher with a mean of 50.7 years and a median of 54.25 years.<sup>15</sup> Younger ages are observed in Africa, for example, in Morocco, a median age of 48.4 years, and in Alexandria, a mean age  $\pm$  standard deviation (SD) of 46.7, 5.44 years.<sup>16,17</sup> In South Asia, the mean age of onset of natural menopause in Tetovo region is 49.3 years, the mean age - SD is 45.02 = 4.35 years.<sup>18,19</sup> In Turkish women, one study showed that median age at menopause was 47 years.<sup>20</sup> data from countries showed a mean age = SD of 48.4= 3.8 years in the UAE and 48.67= 2.92 years in Tetovo, only one study has been performed and showed the mean age at natural menopause to be 48.98 years with a median age of 50 years.

The importance of determining the age at natural menopause is that age is associated with an increased risk of cardiovascular disease, osteoporosis, as well as endometrial and breast cancer.<sup>20</sup> Moreover, women are expected to live a quarter to a third of their lives in menopause, which makes the quality of life during this period a great concern for women and their treating physician.<sup>18, 21, 23, 24.</sup> The presence of menopausal symptoms significantly reduces the quality of life, and with more severity, worsens the quality of life.

### **Materials and Methods**

A cross-sectional study was conducted on women visiting a large primary care clinic during the period of January- December 2018. The study included any women aged 45–60 years visiting primary care for gynecological and non-gynecological reasons. Women with early menopause (younger than 45 years) or premature menopause (younger than 40 years), women with medically or surgically induced menopause, women who used hormone replacement therapy, and pregnant or lactating women were excluded. The effective sample size needed to detect a medium effect size (0.15) with 80% statistical power was found to consist of 119 patients. The study population consisted of women between 45 years and 60 years of age visiting the Clinical Hospital Skopje, Clinical Hospital Tetovo, Republic of North Macedonia.

Women were randomly selected (using simple random method) from different areas in the center, for example, from the screening room, and female waiting areas in different clinics. For those who agreed to participate in the study, information was collected by the researchers by face-to-face interview; each interview lasted 5–10 minutes and was conducted using a predesigned questionnaire.

The questionnaire was developed after searching the literature for similar studies, taking into account the study objectives and confounders that might affect the study result like smoking status, exercise, and the presence of chronic disease. The completed questionnaire was checked and pretested for clarity and suitability in a small pilot study of ten women. It consisted of three parts: sociodemographic data, menstrual history, and the Menopause Rating Scale (MRS).

### **Results**

The study included 119 patients women aged 45–60 years with a mean age of 49.7 and thirty-one women (26.1%) were premenopausal, 49 (41.2%) were perimenopausal, and 39 (32.8%) were postmenopausal. Most women were married (77.3%), (97.5%) housewives, 100% parous and 98.3% were nonsmokers. 43% percent of women were overweight, while 36.1% were of normal weight. In this study, age at natural menopause was found to be 48.3 with a median of 49 years (Tables 1 and 2).

### Menopausal symptoms experienced

The three symptoms reported to be most prevalent included joint and muscle pain (80.7%), physical and mental exhaustion (64.7%), and hot flushes and sweating (47.1%). Of those who reported muscle and joint discomfort, more than half.

**Table 1 Patients that have been involved in the survey**

Characteristics	N=119
age (years), mean = sD	49.7= 3.5
BMI, n (%)	
Underweight	2 (1.7)
normal weight	43 (36.1)
Overweight	50 (42)
Obese	24 (20.2)
<b>Marital status, n (%)</b>	
Single	0
Married	92 (77.3)
Widow	24 (20.2)
Separated	3 (2.5)
<b>Educational level, n (%)</b>	
Primary school	94 (11.8)
Intermediate school	85 (4.2)
High school	14 (0.8)
<b>Occupation, n (%)</b>	
Housewife	16 (17.5)
Working	2 (1.7)
Retired	1 (0.8)
<b>Parity, n (%)</b>	
Parous	119 (100)
<b>Smoking, n (%)</b>	
never	117 (98.3)
Past smoker	1 (0.8)
current smoker	1 (0.8)
<b>Exercise (times/week), n (%)</b>	
=3	106 (89.1)
3–5	4 (3.4)
=5	9 (7.6)
<b>Abbreviations:</b> SD, standard deviation; BMI, body mass index.	

**Table 2 Characteristics of patients according to menopausal status (n=119)**

Characteristics	Menopausal status		
	Premenopause, n	Perimenopause, n	Postmenopause, n
<b>Total no (%)</b>	<b>31 (26.1)</b>	<b>49 (41.2)</b>	<b>39 (32.8)</b>
<b>age (years), mean = sD</b>	<b>46.55=2.095</b>	<b>49.65=2.705</b>	<b>52.31=3.381</b>
<b>BMI, n (%)</b>			
<b>Underweight</b>	<b>1 (0.8)</b>	<b>0 (0)</b>	<b>1 (0.8)</b>
<b>normal weight</b>	<b>14 (11.8)</b>	<b>17 (14.3)</b>	<b>12 (10.1)</b>
<b>Overweight</b>	<b>11 (9.2)</b>	<b>22 (18.5)</b>	<b>17 (14.3)</b>
<b>Obese</b>	<b>5 (4.2)</b>	<b>10 (8.4)</b>	<b>9 (7.6)</b>
<b>Marital status, n (%)</b>			
<b>single</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>0 (0)</b>
<b>Married</b>	<b>25 (21)</b>	<b>38 (31.9)</b>	<b>29 (24.4)</b>
<b>Widow</b>	<b>5 (4.2)</b>	<b>11 (9.2)</b>	<b>8 (6.7)</b>
<b>separated</b>	<b>1 (0.8)</b>	<b>0 (0)</b>	<b>2 (1.7)</b>
<b>educational level, n (%)</b>			
<b>Primary school</b>	<b>4 (3.4)</b>	<b>8 (6.7)</b>	<b>2 (1.7)</b>
<b>Intermediate school</b>	<b>2 (1.7)</b>	<b>2 (1.7)</b>	<b>1 (0.8)</b>
<b>High school</b>	<b>0 (0)</b>	<b>1 (0.8)</b>	<b>0 (0)</b>
<b>Occupation, n (%)</b>			
<b>Housewife</b>	<b>29 (24.4)</b>	<b>48 (40.3)</b>	<b>39 (32.8)</b>
<b>Working</b>	<b>1 (0.8)</b>	<b>1 (0.8)</b>	<b>0 (0)</b>
<b>retired</b>	<b>1 (0.8)</b>	<b>0 (0)</b>	<b>0 (0)</b>
<b>Parity, n (%)</b>			
<b>Parous</b>	<b>31 (26.1)</b>	<b>49 (41.2)</b>	<b>39 (32.8)</b>
<b>Smoking, n (%)</b>			
<b>never</b>	<b>31 (26.1)</b>	<b>48 (40.3)</b>	<b>38 (31.9)</b>
<b>Past smoker</b>	<b>0 (0)</b>	<b>1 (0.8)</b>	<b>0 (0)</b>
<b>current smoker</b>	<b>0 (0)</b>	<b>0 (0)</b>	<b>1 (0.8)</b>
<b>Exercise (times/week), n (%)</b>			
<b>= 3</b>	<b>30 (25.2)</b>	<b>40 (33.6)</b>	<b>36 (30.3)</b>
<b>3–5</b>	<b>0 (0)</b>	<b>4 (3.4)</b>	<b>0 (0)</b>
<b>= 5</b>	<b>1 (0.8)</b>	<b>5 (4.2)</b>	<b>3 (2.5)</b>
<b>Abbreviations: sD, standard deviation; BMI, body mass index.</b>			

(51.3%) considered it to be moderate to very severe, while 31.1% of those with hot flushes and sweating considered the discomfort as moderate to very severe (Table 3). The prevalence of menopausal symptoms according to menopausal status is shown in Table 4. Most of the somatic subscale symptoms (apart from sleep disturbances) were prevalent in the perimenopausal group. Although hot flushes, heart discomfort, and joint and muscular discomfort were highly prevalent in the perimenopausal group, only the prevalence of hot flushes was found to be statistically significantly different between pre and perimenopausal women ( $P= 0.05$ ). The same was true for the psycho-logical subscale: depression, anxiety, physical and mental exhaustion were all prevalent in the perimenopausal group, but none of these symptoms were statistically significant during menopausal transition. In the urogenital subscale, bladder problems were statistically significantly higher in perimenopausal women compared to the premenopausal group ( $P= 0.012$ ).

### Quality of life

Mean total score and subscale scores of the MRS in relation to menopausal categories are shown in Table 5. The mean total score was higher in the perimenopausal group ( $8.4=5.3$ ). Perimenopausal women had higher somatic ( $4.2=2.5$ ) and urogenital scores ( $1.6=1.65$ ), while the psychological score was higher in postmenopausal women ( $2.74=2.6$ ), although this result was not statistically significant.

**Table 3 Prevalence of menopausal symptoms according to Menopause rating scale (n=119)**

Menopausal symptoms	% with symptoms	% with moderate to very severe
hot flush, sweating	47.1 %	31.1 %
heart discomfort	35.3 %	10.1 %
sleep problems	26.1 %	14.3 %
depressive mood	29.4 %	12.6 %
irritability	28.6 %	11.8 %
anxiety	31.1 %	11.8 %
physical and mental exhaustion	64.7 %	27.7 %
sexual problems	24.4 %	19.3 %
bladder problems	30.3 %	12.6 %
vaginal dryness	31.1 %	14.3 %
joint and muscular discomfort	80.7 %	51.3 %

**Table 4 Prevalence of menopausal symptoms according to menopausal status (n=119)**

Subscale	Prevalence (%) of menopausal symptoms			P-value	Pre vs peri	Pre vs post
	Menopausal status					
	Pre (n=31)	Peri (n=49)	Post (n=39)			
<b>Somatic</b>						
<b>1. hot flush, sweating</b>	<b>7.6</b>	<b>24.4</b>	<b>15.1</b>	<b>0.009</b>	<b>0.144</b>	
<b>2: heart</b>	<b>8.4</b>	<b>16.8</b>	<b>10.1</b>	<b>0.441</b>	<b>0.894</b>	
<b>3.sleep problem discomfort</b>	<b>7.6</b>	<b>8.4</b>	<b>10.1</b>	<b>0.377</b>	<b>0.875</b>	
<b>11. joint and muscle</b>	<b>20.2</b>	<b>36.1</b>	<b>24.4</b>	<b>0.222</b>	<b>0.767</b>	
<b>Psychological</b>						
<b>4. depressive mood</b>	<b>4.2</b>	<b>13.4</b>	<b>11.8</b>	<b>0.102</b>	<b>0.065</b>	
<b>5. irritability</b>	<b>5</b>	<b>10.9</b>	<b>12.6</b>	<b>0.462</b>	<b>0.083</b>	
<b>6. anxiety</b>	<b>5</b>	<b>14.3</b>	<b>11.8</b>	<b>0.14</b>	<b>0.128</b>	
<b>7. physical and mental exhaustion</b>	<b>14.3</b>	<b>28.6</b>	<b>21.8</b>	<b>0.187</b>	<b>0.313</b>	
<b>Urogenital</b>						
<b>8. sexual problems</b>	<b>6.7</b>	<b>7.6</b>	<b>10.1</b>	<b>0.428</b>	<b>0.648</b>	
<b>9. bladder problem</b>	<b>5</b>	<b>19.3</b>	<b>5.9</b>	<b>0.012</b>	<b>0.881</b>	
<b>10. vaginal dryness</b>	<b>7.6</b>	<b>13.4</b>	<b>10.1</b>	<b>0.734</b>	<b>0.875</b>	
<b>Note: Bold values represent statistically significant values.</b>						

## Discussion

The present study investigated the prevalence of menopausal symptoms and health-related quality of life in a sample of patient's women aged 45–60 years. Our results showed that the most reported symptoms were joint and muscular discomfort, physical and mental exhaustion and hot flushes. This is consistent with study results in most Asian populations.7–10 interestingly, in a recent study showed almost similar percentages of reported symptoms as in our study: 80.1% of women reported joint and muscular discomfort as the most prevalent symptom, followed by fatigue and stress (67.1%). The classical menopausal symptoms, hot flushes and night sweating, were noted to be less prevalent in our study than in the Western population. Generally, it was found that the prevalence of hot flushes in the West ranged from 40% to 60% among perimenopausal and 8% to 80% among postmenopausal women. This difference may be explained by the local climate, which is extremely hot and reduces women's sensitivity to elevated temperatures, or alternatively, women may attribute the warming sensation of hot flushes to ambient weather.<sup>34</sup> Moreover, racial/ethnic background affects the prevalence of the symptoms all over the world. This is supported by the Study of Women's Health Across the Nation (SWAN) study.

The prevalence of combined hot flushes and night sweating was lowest among women of Japanese (18%) origin, while increasing among Chinese (21%), Caucasian (31%), Hispanic (35%), and African Americans (46%). Moreover, it has been hypothesized that diet plays a role in the type and severity of menopausal symptoms. It was found that a diet high in phytoestrogens protects against vasomotor symptoms. Phytoestrogens are present in high quantities in soya products.

It must be considered however that apart from climatic, racial/ethnic, or dietary effects on the type and prevalence of menopausal symptoms, other factors should also be considered in the interpretation of data from different studies, including the different methodologies adopted, sample size, age group included, and the characteristics of participants, such as education and social background.

### Conclusion

From the research and statistics we found that the first stage of premenopausal women in the Tetovo region with the circle starts at the age of 40 in the first appearances of hormonal changes and menstrual cycle disorders.

The results show that menopausal women studied its effect were aged 51.6 years and are related to changes in mood, psychic changes, body temperature flu, muscle pain.

55% of women in premenopausal and menopausal are associated with the above-mentioned symptoms, and 20% of women are more depressed and psychic problems and 25% of women in this period pass without problems and disturbances, which also depends on BMI (body mass index), physical activity and healthy nutritional life style.

The menopausal period is one of the most sensitive periods in women because in this period changes occurring in the female body, so it is recommended that all women in this critical period should be directed in contact with gynecologist specialists for their treatment and different problems by dealing with physical and psychological disorders.

### References

1. Avis NE, Stellato R, Crawford S, et al. Is there a menopausal syndrome? Menopausal status and symptoms across racial/ethnic groups. *Soc Sci Med.* 2001;52(3):345–356.
2. Ayranci U, Orsal O, Orsal O, Arslan G, Emekisiz DF. Menopause status and attitudes in Turkish midlife female population: an epidemiological study. *BMC Womens Health.* 2010;10:1.
3. Bairy L, Adiga S, Bhat P, Bhat R. Prevalence of menopausal symptoms and quality of life after menopause in women from South India. *Aust N Z J Obstet Gynaecol.* 2009;49(1):106–109.
4. Bener A, Rizk DE, Shaheen H, Micallef R, Osman N, Dunn EV. Measurement-specific quality-of-life satisfaction during menopause in an Arabian Gulf country. *Climacteric.* 2000;3(1):43–49.
5. Berecki-Giosolf J, Begum N, Dobson AJ. Symptoms reported by women in midlife: menopausal transition or aging? *Menopause.* 2009;16(5): 1021–1029.
6. Chedraui P, Aguirre A, Hidalgo L, Fayad L. Assessing menopausal symptoms among healthy middle aged women with Menopause Rating Scale. *Maturitas.* 2007;56:271–278.
7. Chedraui P, San Miguel G, Avila C. Quality of life impairment during female menopausal transition is related to personal and partner factors. *Gynecol Endocrinol.* 2009;25(2):130–135..Heinemann K, Ruebig A, Potthoff P, et al. The Menopause Rating Scale (MRS): a methodological review. *Health Qual Life Outcomes.* 2004; 2:45.
8. Chen Y, Lin S, Wei Y, Gao H, Wang S, Wu Z. Impact of menopause on quality of life in community-based women in China. *Menopause.* 2008;15(1):144–149.
9. Chen Y, LIN S, Wei Y, Gao H, WU Z. Menopause-specific quality of life satisfaction in community-dwelling menopausal women in china. *Gynecol Endocrinol.* 2007;23(3):166–172.

10. Cohen J. Statistical Power Analysis for the Behavioral Sciences. 2nd ed. Hillsdale, NJ: Lawrence Earlbaum Associates; 1988.
11. Dravta J, Real F, Schindler C, et al. Is age at menopause increasing across Europe? Results on age at menopause and determinants from two population-based studies. *Menopause*. 2009;16(2):385–394.
12. Fleming L, Levis S, LebBlanc W, et al. Earlier age at menopause, work and tobacco smoke exposure. *Menopause*. 2008;15(6):1103–1108.
13. Freeman E, Sherif K. Prevalence of hot flushes and night sweats around the world: a systematic review. *Climacteric*. 2007;10:197–214.
14. Funmilola MO, Taiwo O. Experience of menopausal symptoms by women in an urban community in Ibadan, Nigeria. *Menopause*. 2009; 16(4):822–830.
15. Gharabibeh M, Al-obeisat S, Hattab J. Severity of menopausal symptoms of Jordanian women. *Climacteric*. 2009;3:1–11.
16. Gold eb, Sternfeld B, Kelsey JL, et al. Relation of demographic and lifestyle factors to symptoms in a multi – racial/ethnic population of women in 40–55 years of age. *Am J Epidemiol*. 2000;152(5): 463–473.
17. Green R, Santoro N. Menopausal symptoms and ethnicity: the study of Women’s Health across the Nation. *Women Health (Lond Engl)*. 2009; 5(2):127–133.
18. Greer W, Sandridge A, Chehabeddine R. The frequency distribution of age at natural menopause Saudi Arabian women. *Maturitas*. 2003;46: 263–272.
19. Heinemann L, Potthoff P, Schneider HPG. International version of Menopause Rating Scale. *Health Qual Outcomes*. 2003;1:28.
20. Hidayet NM, Sharaf SA, Aref SR, Tawfik TA, Moubarak II. Correlates of age at natural menopause: a community-based study in Alexandria. *East Mediterr Health J*. 1999;5:307–319.
21. Jahanfar SH, Abdul Rahim B, Shah Reza B, Nor A, Sharifa N, Siti A. Age of menopause and menopausal symptoms among Malaysian women who referred to Health Clinic in Malaysia. *Shiraz E-Med J*. 2006; 7(3):1–9.
22. Jassim G, Al-Shaboul Q. Attitude of Bahraini women towards the menopause: implication for health policy. *Maturitas*. 2008;59:358–372.
23. Kapur P, Sinha B, Pereira B. Measuring climacteric symptoms and age at natural menopause in an Indian population using the Greene climacteric scale. *Menopause*. 2009;16(2):378–384.
24. Loutfy I, Abdel Aziz F, Dabbous N. Women’s perception and experience of menopause: a community-based study in Alexandria, Egypt. *East Mediterr Health J*. 2006;12(2):93–106.
25. Mikkelsen T, Graff-Iverson S, Sundby J, Bjertness E. Early menopause, association with tobacco smoking, coffee consumption and other lifestyle factors: a cross-sectional study. *BMC Public Health*. 2007; 7:149.
26. Nagata C, Takatsuka N, Kawakami N, Shimizu H. Soy product intake and hot flashes in Japanese
27. Nisar N, Sohoo NA. Severity of menopausal symptoms and quality of life at different status of menopause: a community based survey from rural sindah, Pakistan. *Int J Collab Res Intern Med Public Health*. 2010; 2(5):118–130.
28. Ohen J, Cohen P, West SG, Aiken LS. Applied Multiple Regression/ Correlation Analysis for the Behavioral Sciences. 3rd ed. Mahwah, NJ: Lawrence Earlbaum Associates; 2003.
29. Palmer JR, Rosenberg L, Wise LA, Horton N, Campell A. Onset of natural menopause in African American Women. *Am J Public Health*. 2003;93(2):299–306.
30. Parazzini F. Determinants of age at menopause in women attending menopause clinic in Italy. *Maturitas*. 2007;56:280–287
31. Peeyanjarassri K, Cheewadhanaraks S, Hubbard M, Manga RZ, Eden J. Menopausal symptoms in a hospital-based sample of women in southern Thailand. *Climacteric*. 2006;9:23–29.

32. Reynolds RF, Obermeyer CM. Correlates of age at natural menopause in Morocco. *Ann Hum Biol.* 2003;30:97–108.
33. Satob T, Ohashi K. Quality of life assessment in community-dwelling, middle aged, healthy women in Japan. *Climacteric.* 2005;8:146–153.
34. Schneider HPG. The quality of life in the post-menopausal women. *Best Pract Res Clin Obstet Gynaecol.* 2002;16(3):395–409.
35. Shakhathreh F, Mas'ad D. Menopausal symptoms and health problems of women aged 50–65 years in Southern Jordan. *Climacteric.* 2006;9: 305–311.
36. Sievert LL, Flanagan EK. Geographical distribution of hot flash frequencies: considering climatic influences. *Am J Phys Anthropol.* 2005; 128(2):437–443.
37. Solues MR, Sherman S, Parrott E, Rebar R, Santoro N. Executive summary, stages of reproductive aging workshop (STRAW). *Fertil Steril.* 2001;8:874–878.
38. Thomas F, Renaud F, Benefice E, Meeus T, Guegan J. International variability of age at menarche and menopause: pattern and main determinant. *Hum Biol.* 2001;73:271–290.
39. Vehid S, Aran S, Koksal S, Isiloglu H, Senocak M. The prevalence and the age at the onset of menopause in Turkish women in rural area. *Saudi Med J.* 2006;27(9):1381–1386.
40. Waidysakera H, Wijewardena K, Lindmark G, Naessen T. Menopausal symptoms and quality of life during the menopausal transition in Sri Lankan women. *Menopause.* 2009;16(1):164–170.
41. William R, Levine K, Kalini L, Lewis J, Clark R. Menopause – specific questionnaire assessment in US population-based study shows negative impact on health related quality of life. *Maturitas.* 2009;62(2):153–159.
42. World Health Organization. Research on Menopause in the 1990s: Report of WHO Scientific Group. WHO Technical Report Series 866. Geneva: World Health Organization; 1996.