

Intensification of menopausal symptoms among female inhabitants of East European countries

Iwona Bojar¹, Oleh Lyubinetz², Jozef Novotny³, Yaroslav Stanchak⁴, **Evgenii Tiszchenko**⁵, Alfred Owoc⁶, Dorota Raczkiwicz⁷

¹ Department for Woman Health, Institute of Rural Health, Lublin, Poland

² Department Public Health Management, Lviv National Medical University named after Danylo Halytskyi, Ukraine

³ College of Polytechnics, Department of Health Care Studies, JIHLAVA, Czech Republic

⁴ University of Ss. Cyril and Methodius, Trnava, Slovak Republic

⁵ State Medical University, Grodno, Belarus

⁶ Centre for Public Health and Health Promotion, Institute of Rural Health, Lublin, Poland

⁷ Institute of Statistics and Demography, Warsaw School of Economics, Warsaw, Poland

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Abstract

The objective of the study was analysis of the occurrence and intensity of menopausal symptoms in postmenopausal women from Poland, Belarus, Ukraine, Czech Republic, Slovakia and Poland.

The study was conducted during the period 2014–2015 among postmenopausal women living in the areas of Poland, Belarus, Ukraine, Czech Republic and Slovakia. The degree of menopausal complaints was assessed using the Kupperman Menopausal Index and Greene Climacteric Scale. The respondents were additionally asked about age, educational level, place of residence, marital status and age at last menstrual period. Into the study were enrolled women aged 50–65, minimum 2 years after the last menstrual period, who had a generally good state of health and did not use hormone replacement therapy. The results were subjected to statistical analysis.

The intensity of all menopausal symptoms measured by the Kupperman Menopausal Index and Greene Climacteric Scale was similar in Poland, Czech Republic and Slovakia. In these countries, severe, moderate and mild menopausal symptoms measured by Kupperman Menopausal Index occurred with a similar frequency. Similar results were also obtained in the subscales of psychological, somatic and vasomotor symptoms according to the Greene Climacteric Scale.

Nearly a half of the women from Belarus did not report symptoms measured by Kupperman Menopausal Index. They obtained significantly lower menopausal complaints in the subscales of psychological and somatic symptoms according to the Greene Climacteric Scale, compared to the inhabitants of the remaining countries.

The majority of women from the Ukraine had mild menopausal symptoms as measured by the Kupperman Menopausal Index. They had significantly more severe complaints in the subscales of psychological, somatic and vasomotor symptoms according to the Greene Climacteric Scale, compared to the inhabitants of the remaining countries in the study.

The intensity of menopausal symptoms in women from Ukraine and Belarus was related with educational level, place of residence, and marital status, whereas in women from Poland, Czech Republic and Slovakia, only with marital status.

Key words

menopause, menopausal symptoms, Eastern Europe

INTRODUCTION

Menopause means the last menstrual period in the life of a woman, after which bleeding does not longer occur for the 12 consecutive months, and no pathological causes of this state are diagnosed. Natural menopause takes place between the ages of 45–55, according to the population; in the developed countries the mean age at menopause is 51.5 [1, 2].

Demographic data show that every year 25 million women worldwide experience menopause [3]. The World Bank in the document 'World Development Report 1993: Investing in Health', while referring to the past, as well as demographic prognoses for menopausal women until the year 2030, pays

attention to the clear tendency towards an increase in the number of women aged 50 and over in all regions [4]. An annual increase in the number of women aged over 50 is expected to be 2.65%. Also, the WHO European Health Report 2012 raises alarm concerning the ageing of the European population. According to the prognoses, in 2030 there will be 1.2 billion postmenopausal women worldwide [5], and by 2050 more than 25% of the European population will be aged over 65, with an average life span of 81 years [6].

During the menopausal period there occurs the cessation of the ovarian hormonal function, especially the deficit of estrogens, leading to the development of vasomotor, psychological, somatic and atrophic changes in the estrogen-dependent tissues, which contribute to the so-called menopausal (climacteric) syndrome. Physiological changes of the climacteric period, and additionally overlapping systemic complaints related with middle age, in combination with changes of socio-economic position, affect the general

Address for correspondence: Iwona Bojar, Department for Woman Health, Institute of Rural Health in Lublin, Jaczewskiego 2, 20-090 Lublin, Poland
E-mail: iwonabojar75@gmail.com

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physical, psychological and social condition of women, and may exert a negative effect on their quality of life. The intensity of complaints of the menopausal syndrome is usually assessed using the Kupperman Index and Greene Scale [7, 8, 9].

Cultural diversity has a positive or negative effect on the perception of menopause. The factors related with the perception of menopause are associated with the character of experiences and symptoms related with menopause, sources and scope of knowledge concerning menopause, and methods of coping with menopause. The social and cultural platform of the shaping of experiences related with menopause is extremely important, because upon this platform depends whether this is a positive or a negative – unacceptable phenomenon. The individual platform is associated with personality, coping in difficult situations, co-occurring life events and social support. Apart from personality, the quality of life of women after menopause may depend on education and occupational activity [10, 11, 12]. Studies conducted among Turkish women provide evidence that neurotic and introvert women obtain lower evaluations of the quality of life after menopause. On the other hand, agreeability allows the obtaining of higher evaluations of the quality of life in all domains, except for the general assessment of health [13]. Wieder-Huszla et al. also pay attention to the fact that extrovert persons have higher evaluations in all domains of the assessment of the quality of life [11].

The available sources indicate variations in the occurrence of typical menopausal symptoms in various countries. According to the report by the World Health Organization [14], vasomotor symptoms occur in 10–22% of women from Hong Kong, 17% of women in Japan, 23% of women in Thailand, 45% of women in North America, and 80% of women in Denmark. In Poland [15], approximately 31% of women experience vasomotor symptoms, whereas 76% in Norway – [16], 56% in Denmark – [17], and 75% in Finland – [18]. Studies concerning the prevalence of the menopausal symptoms also indicate that vasomotor symptoms are not always the symptoms of which women complain. Other frequently mentioned symptoms are, e.g. the feeling of fatigue and lack of energy [19], stiffness and joints pain [20], sleeplessness [21], nervousness [22], weakness and weariness [23], headaches [24], depression [25], and cognitive disorders [26].

OBJECTIVE

The objective of the study was analysis of the occurrence and intensity of menopausal symptoms in postmenopausal women from Poland, Belarus, Ukraine, Czech Republic and Slovakia.

METHODS

Study group

The study was conducted during the period 2014–2015 among postmenopausal women living in Poland, Belarus, Ukraine, Czech Republic and Slovakia. For the purpose of the study a website was created containing a questionnaire in all language versions, which was voluntarily completed by the women. In each country there were persons coordinating the study.

The criteria for inclusion into the study were: age 50–65; minimum 2 years after the last menstrual period, generally good state of health, and educational level at least completed primary. The criteria for exclusion from the study were: chronic diseases, an active cancerous disease within the period of 5 years before recruitment; mental diseases in medical history, including depression before menopause; addiction to medicines and alcohol; diagnosed disease with the symptoms of dementia, and use of hormone replacement therapy.

Research instrument

In all women, the degree of intensity of menopausal symptoms was assessed using the Kupperman Menopausal Index and Greene Climacteric Scale [7]. In addition, the respondents were asked about age, educational level, place of residence, marital status and age at the last menstrual period.

Kupperman Menopausal Index was calculated based on the respondents' replies concerning the intensity of such complaints as: 1) hot flushes, 2) excessive sweating, 3) sleep disorders, 4) irritability, 5) depression, 6) dizziness, 7) lack of energy, 8) osteoarticular pain, 9) headaches, and 10) cardiac arrhythmia. The evaluation scale was as follows: not present – 0, mild – 1, moderate – 2, severely expressed – 3. After the calculation of the scores obtained from answers the respondents were qualified into four groups: lack of symptoms of the menopausal syndrome – below 16 scores, a set of symptoms of mild intensity 17–25 scores, a set of symptoms of moderate intensity 26–30 scores, and a set of symptoms of severe intensity – more than 30 scores.

With respect to the Greene Climacteric Scale, the respondents provided answers according to the scale from 0–3 (the same as in Kupperman Menopausal Index) to 20 questions concerning the occurrence of the following: 1) heart palpitations 2) feeling of tension or nervousness, 3) sleep disorders, 4) irritation, 5) episodes of panic, 6) difficulties with concentration, 7) feeling of fatigue or lack of energy, 8) loss of interests, 9) feeling of sadness, depression, 10) episodes of spasms, 11) irritability, 12. dizziness and syncopes, 13) feeling of tension, pressure in the head, 14) numbness and tingling, 15) headaches, 16) sensory loss in the palms and feet, 17) osteoarticular pain, 18) breathing difficulties, 19) hot flushes, and 20) night sweats. Subsequently, the scores were calculated for the three subscales:

- for the scale of psychological symptoms the results were summed up from the questions 1–11;
- for the scale of somatic symptoms the results were summed up from the questions 12–18;
- for the scale of vasomotor symptoms the results were summed up from the questions 19–20.

Statistical analysis

Statistical analysis was performed using statistical software package STATISTICA, with the level of significance of $p < 0.05$. In the Tables and Figures, absolute numbers were presented (n) and relative numbers (ratio between the number of units of a given characteristic to the number of the sample expressed in %) for qualitative variables, while for quantitative variables: arithmetic mean values (M) and standard deviation (SD).

The F test for one-way analysis of variance was applied to compare the intensity of menopausal symptoms measured by the Greene Climacteric Scale between the countries, and

between individual levels of education, place of residence, and marital status.

The χ^2 test for stochastic independence was used to compare the intensity of menopausal symptoms measured by the Kupperman Menopausal Index, between countries, and between individual levels of education, place of residence, and marital status.

Consent for the study was obtained from the Ethical Commission at the Institute of Rural Health in Lublin, Poland.

RESULTS

The study included 244 women from Poland, 196 from Belarus, 316 from Ukraine, 298 from the Czech Republic, and 306 from Slovakia; mean age from 55.3 to 57.5, and mean age at the last menstrual period from 50.2 to 51.6 for individual countries examined (Tab. 1). Approximately 2/3 of the examined women from each country were married, several percent were never married, more than a dozen percent – divorced or widowed, and the least – separated.

The largest number of women from each country had a secondary school education level, except from Poland where the same number of women had secondary or tertiary education (43% each). The majority of the examined women from Belarus had secondary school education (71%), considerably less (33%) – tertiary education, and 4% – primary education. The largest number of the examined women from the Ukraine had secondary school education (54%), considerably less (26.5%) – tertiary education, and 13% – primary education. Nearly a half of women from the Czech Republic and Slovakia had a secondary education level (46%), followed by tertiary education – approximately 43%, and 11% – primary education.

The majority of the examined women from Belarus lived in cities (75.5%), considerably less – in towns and rural areas (12% each). In each country in the study more than a dozen percent of women lived in rural areas. Nearly a half of women

Table 2. Intensity of menopausal symptoms among the examined women – total

Variable (symptoms)	Parameter	Poland	Belarus	Ukraine	Czech Republic	Slovakia
Greene Climacteric Scale						
psychological	M±SD	9.1±5.5	6.1±6.3	9.4±5.9	9.1±5.7	9.1±5.7
somatic		6.3±3.8	4.0±3.5	5.6±3.6	6.3±3.9	6.3±3.9
vasomotor		2.7±2.1	2.9±1.5	3.1±1.5	2.5±2.1	2.5±2.1
Kupperman Menopausal Index						
none	n (%)	30 (12.30)	96 (48.98)	88 (27.85)	34 (11.41)	36 (11.76)
mild		77 (31.56)	80 (40.82)	182 (57.59)	102 (34.23)	104 (33.99)
moderate		66 (27.05)	12 (6.12)	38 (12.03)	78 (26.17)	82 (26.80)
severe		71 (29.10)	8 (4.08)	8 (2.53)	84 (28.19)	84 (27.45)

from the Ukraine lived in towns (47.5%), slightly less – in cities (36.7%). Approximately 60% of the respondents from Poland, Czech Republic and Slovakia lived in cities, and less than 30% in towns.

The examined women from individual countries differed with respect to the intensity of menopausal symptoms as assessed by the Greene Climacteric Scale: psychological ($F=11.948$, $p<0.001$), somatic ($F=15.066$, $p<0.001$) and vasomotor ($F=5.768$, $p<0.001$); and by Kupperman Menopausal Index ($\chi^2 = 303.319$, $p<0.001$) (Tab. 2).

The examined women from Belarus had significantly lower intensity of psychological symptoms of menopause (6.1, on average), compared to the examined women from the remaining countries, including the highest intensity observed among Ukrainian women (9.4 on average), and slightly lower among women from Poland, Czech Republic and Slovakia (9.1, on average) (Fig.1).

The examined women from Belarus had the lowest intensity of somatic menopausal symptoms (4.0 on average), followed

Table 1. Characteristics of women in the study

Variable	Parameter	Poland (N=244)	Belarus (N=196)	Ukraine (N=316)	Czech Republic (N=298)	Slovakia (N=306)
Age (years)	M±SD	56.4±3.5	55.3±2.8	57.5±4.3	56.6±3.6	56.5±3.6
Age at last menstruation (years)	M±SD	50.2±2.1	51.2±1.7	51.6±2.3	50.2±2.8	50.3±2.1
Marital status						
	n (%)					
married		160 (65.57)	136 (69.39)	214 (67.72)	198 (66.44)	202 (66.01)
never married		15 (6.15)	8 (4.08)	12 (3.80)	18 (6.04)	18 (5.88)
divorced		31 (12.70)	24 (12.24)	40 (12.66)	40 (13.42)	44 (14.38)
widowed		28 (11.48)	28 (14.29)	50 (15.82)	32 (10.74)	32 (10.46)
separated		10 (4.10)	0 (0.00)	0 (0.00)	10 (3.36)	10 (3.27)
Level of education						
	n (%)					
primary or basic vocational		32 (13.11)	4 (2.04)	40 (12.66)	34 (11.41)	34 (11.11)
secondary		106 (43.44)	140 (71.43)	172 (54.43)	138 (46.31)	140 (45.75)
tertiary		106 (43.44)	52 (26.53)	104 (32.91)	126 (42.28)	132 (43.14)
Place of residence						
	n (%)					
city		140 (57.38)	148 (75.51)	116 (36.71)	178 (59.73)	186 (60.78)
town		69 (28.28)	24 (12.24)	150 (47.47)	82 (27.52)	82 (26.80)
rural area		35 (14.34)	24 (12.24)	50 (15.82)	38 (12.75)	38 (12.42)

by women from Ukraine (5.6 on average), and the highest – women from the remaining countries, i.e. Poland, Czech Republic and Slovakia (6.3 on average), (Fig. 1).

The examined women from Belarus and Ukraine has a significantly lower intensity of vasomotor menopausal symptoms (2.9 and 3.1, on average, respectively), compared to the remaining countries, i.e. Poland, Czech Republic and Slovakia (2.7, 2.5 and 2.5, on average, respectively) (Fig. 1).

The results obtained by the respondents in the three Greene's subscales placed these women between the results for the general population of women (mean values: in the subscale of psychological symptoms 7.42 ± 6.41 , in the subscale of somatic symptoms 3.25 ± 3.64 , and in the subscale of vasomotor symptoms 1.79 ± 1.12), and the standard for menopausal women (mean values: in the subscale of psychological symptoms 12.33 ± 6.15 , in the subscale of somatic symptoms 6.16 ± 4.25 , and in the subscale of vasomotor symptoms 4.41 ± 1.79). Only the results obtained by women from Belarus in the subscale of psychological symptoms placed them below the results for the general population.

The structures of the examined women from Poland, Czech Republic and Slovakia, according to the intensity of menopausal symptoms measured by the Kupperman Menopausal Index were similar (Fig. 2). Approximately 12% of these women did not report any menopausal symptoms, 31.5–34.2% had mild, and about 27% moderate, and 27–29% severe. The highest percentage of the examined women from Belarus and Ukraine had no menopausal symptoms (49% and 28%, respectively), also a higher percentage had symptoms of mild intensity (41% and 58%, respectively), and a lower percentage had moderate (6% and 12%, respectively), and severe (4% and 2.5%, respectively).

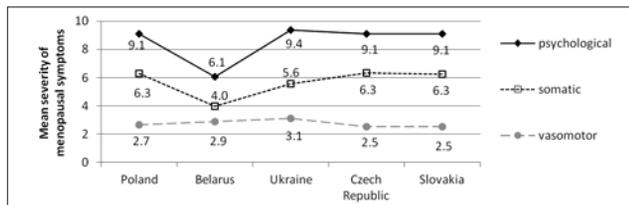


Figure 1. Greene Climacteric Scale – total

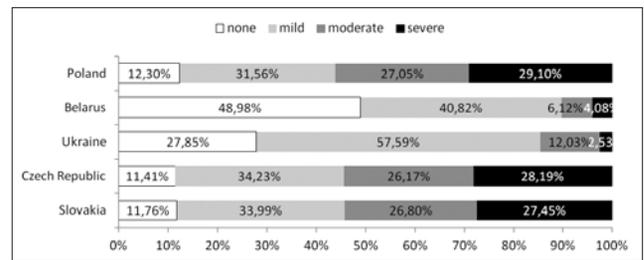


Figure 2. Kupperman Menopausal Index – total

It was investigated whether any relationships occur between the level of education, place of residence and marital status, and the intensity of menopausal symptoms measured by the Greene Climacteric Scale and Kupperman Menopausal Index in the examined women from five countries in the study (Tab. 3).

Relationships were confirmed between the educational level and the intensity of menopausal symptoms measured by the Greene Climacteric Scale (Figs. 3, 4 and 5):

- in three subscales among the respondents from Ukraine;
- in vasomotor subscale among the respondents from Belarus.

Among the examined women from Ukraine the intensity of psychological, somatic and vasomotor menopausal symptoms was higher the lower the level of education; mean values were equal:

- psychological: primary or basic vocational 11.5, secondary 9.3, tertiary 8.6;
- somatic: primary or basic vocational 6.6, secondary 5.7, tertiary 5.0;
- vasomotor: primary or basic vocational 3.5, secondary 3.3, tertiary 2.7.

Among the respondents from Belarus the intensity of vasomotor menopausal symptoms was higher, the higher their level of education (mean values: primary or basic vocational 1.0, secondary 2.8, tertiary 3.2).

Relationships were found between the educational level and intensity of menopausal symptoms measured by Kupperman Menopausal Index among the examined women from

Table 3. Comparison of Greene Climacteric Scale and Kupperman Menopausal Index according to the level of education, place of residence and marital status

Cross section	Menopausal symptoms	Poland		Belarus		Ukraine		Czech Republic		Slovakia	
		test*	p	test*	p	test*	p	test*	p	test*	p
Level of education	Greene Climacteric Scale – psychological symptoms	1.017	0.363	0.228	0.796	3.617	0.028	2.381	0.094	2.172	0.116
	Greene Climacteric Scale – somatic symptoms	0.019	0.981	0.666	0.515	2.799	0.050	0.040	0.961	0.040	0.961
	Greene Climacteric Scale – vasomotor symptoms	0.591	0.554	4.086	0.018	5.646	0.004	1.636	0.197	1.466	0.232
	Kupperman Menopausal Index	6.486	0.371	14.878	0.021	9.189	0.163	7.854	0.249	5.875	0.437
Place of residence	Greene Climacteric Scale – psychological symptoms	0.244	0.783	4.755	0.010	3.868	0.022	0.349	0.706	0.266	0.767
	Greene Climacteric Scale – somatic symptoms	1.325	0.268	1.815	0.166	0.762	0.468	1.305	0.273	1.236	0.292
	Greene Climacteric Scale – vasomotor symptoms	0.200	0.819	2.940	0.048	8.379	0.000	0.187	0.830	0.236	0.790
	Kupperman Menopausal Index	8.811	0.185	12.343	0.050	7.563	0.272	12.014	0.049	11.998	0.050
Marital status	Greene Climacteric Scale – psychological symptoms	1.600	0.175	2.425	0.047	5.701	0.001	1.310	0.266	1.839	0.121
	Greene Climacteric Scale – somatic symptoms	1.896	0.112	0.883	0.451	7.703	0.000	4.046	0.003	3.788	0.005
	Greene Climacteric Scale – vasomotor symptoms	5.750	<0.001	5.273	0.002	4.786	0.003	6.945	0.000	6.222	<0.001
	Kupperman Menopausal Index	25.965	0.011	34.245	<0.001	32.165	<0.001	36.011	<0.001	34.690	<0.001

* F test for analysis of variance provided for the Greene Climacteric Scale and chi-square tests for Kupperman Menopausal Index

Belarus (Fig. 6). The higher the education level, the higher the percentages of more intensive menopausal symptoms among the examined women from Belarus.

Relationships were observed between the place of residence and intensity of psychological and vasomotor menopausal symptoms measured by the Greene Climacteric Scale in the women from Ukraine and Belarus in the study (Figs. 3 and 5). The examined women from towns and rural areas in the Ukraine had a higher intensity of psychological menopausal symptoms (mean values: 10.0 and 10.2, respectively), compared to those living in cities (8.2). The examined women from cities in the Ukraine had the lowest intensity of vasomotor menopausal symptoms (mean 2.8), followed by those from towns (3.1), while this intensity was the highest among women living in rural areas (3.9). Women from towns in Belarus had the highest intensity of psychological menopausal symptoms (mean 8.2), followed by those from cities (6.3), and rural areas (2.8). The examined women from towns in Belarus had the lowest intensity of vasomotor menopausal symptoms (mean 2.5), followed by those from cities (2.8), and rural areas (3.5).

Relationships were found between the place of residence and intensity of menopausal symptoms measured by the Kupperman Menopausal Index among the examined women from Belarus (Fig.7). A half of respondents from towns and cities in Belarus had no menopausal symptoms. Mild intensity of menopausal symptoms was observed in a half of the women from towns, 40.5% of those from cities, and every third respondent from rural area in Belarus. Moderate and severe menopausal symptoms did not occur in the examined women from towns (moderate in 5.4% and severe also in 5.4%), in every sixth – moderate, and in none of the examined women from Belarus – severe.

Relationships were confirmed between the marital status and intensity of menopausal symptoms measured by the Greene Climacteric Scale: psychological in the examined women from the Ukraine; somatic in the examined women from the Ukraine, Czech Republic and Slovakia, vasomotor – in all the countries in the study (Figs. 3, 4 and 5).

The highest intensity of psychological menopausal symptoms was observed among never married women from the Ukraine (mean 15.0), followed by married women (9.6), while the lowest – in those divorced and widowed (mean values 8.0 each). Similarly, never married women from the Ukraine had a significantly higher intensity of somatic menopausal symptoms (mean 10.2), compared to married women (5.5), those widowed (5.2) and divorced (4.9).

The highest intensity of somatic menopausal symptoms was found among the examined widows living in Czech Republic and Slovakia (mean 8.3 each), while the lowest – among those divorced (mean 4.6 and 4.8, respectively). In turn, the moderate intensity of somatic menopausal symptoms occurred in married women (mean 6.4 and 6.3, respectively), never married women (6.3 and 6.2) and those separated (5.8 each).

The highest intensity of vasomotor menopausal symptoms was observed in never married women from all the countries in the study (mean values: Poland 4.1, Belarus and Ukraine 4.5 each, Czech Republic 3.8, Slovakia 3.9), whereas the lowest – in divorced women from four countries, except from the Ukraine (Poland and Slovakia 1.4 each, Belarus 2.2, Czech Republic 1.2).

An moderate intensity of vasomotor menopausal symptoms was observed among the examined married women (Poland,

Czech Republic and Slovakia 2.6 each, Belarus 2.9, Ukraine 3.0), widows (Poland 3.3, Belarus 2.7, Ukraine 3.4, Czech Republic and Slovakia 2.9 each) and those separated from the three countries in the study (Poland 3.3, Czech Republic and Slovakia 3.2 each), and divorced from the Ukraine (3.2).

Relationships were confirmed between the marital status and intensity of menopausal symptoms, measured by the Kupperman Menopausal Index in all the countries in the study (Fig. 8). In none of the examined countries were never married and separated women without menopausal symptoms. The highest intensity of menopausal symptoms was noted among women who were separated, the same structures for Poland, Czech Republic and Slovakia: 60% severe, 20% moderate and 20% light. The lowest intensity of menopausal symptoms in these countries was observed among women who were divorced.

The majority of the divorced women in Belarus did not report any menopausal symptoms (83.3%). As many as 47.1% of married women and 42.9% of widows had no menopausal symptoms.

In the Ukraine, more than 70% of married women had mild or moderate menopausal symptoms, while 27.1% – had no menopausal symptoms. Approximately 1/3 of women who were widowed and divorced had no menopausal symptoms, whereas the remaining women experienced symptoms of a mild or moderate intensity. Only 5% of the divorced women in the Ukraine had severe menopausal symptoms.

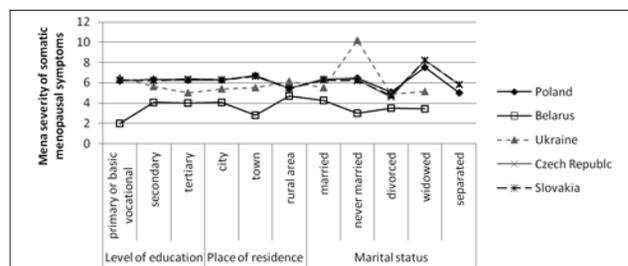


Figure 3. Greene Climacteric Scale psychological symptoms acc. to the level of education, place of residence and marital status

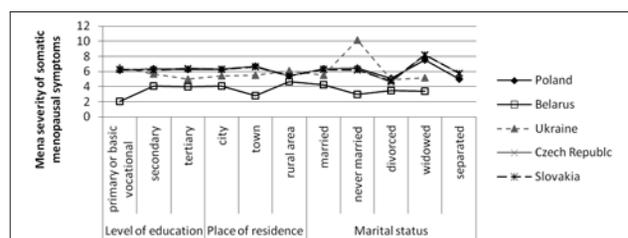


Figure 4. Greene Climacteric Scale somatic symptoms acc. to the level of education, place of residence and marital status

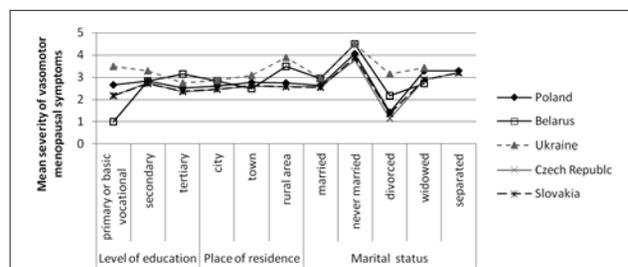


Figure 5. Greene Climacteric Scale vasomotor symptoms acc. to the level of education, place of residence and marital status

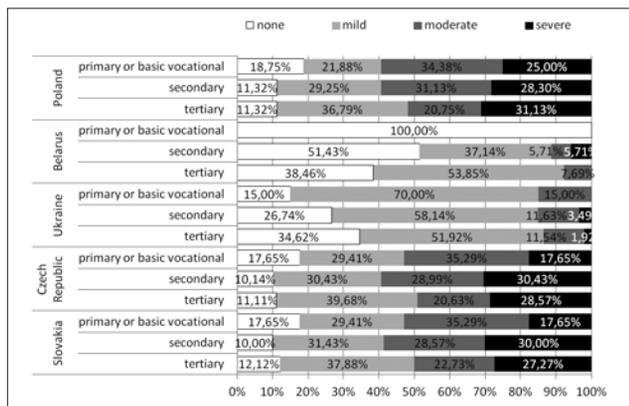


Figure 6. Kupperman Menopausal Index acc. to the education level

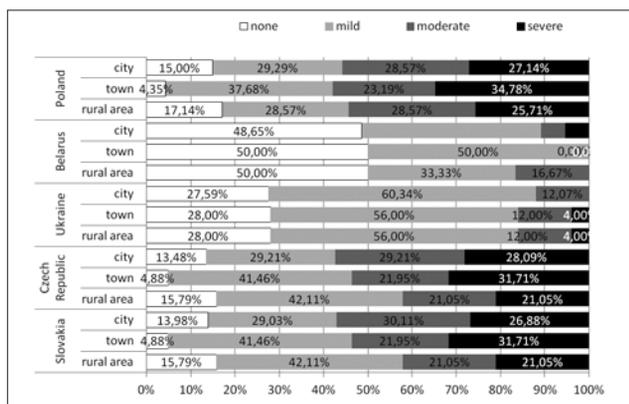


Figure 7. Kupperman Menopausal Index acc. to the place of residence

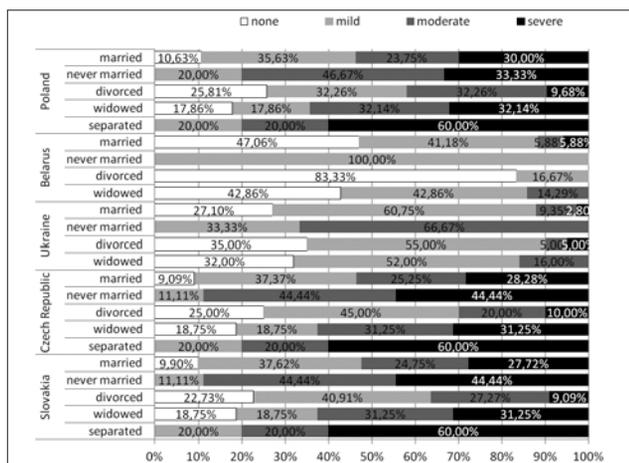


Figure 8. Kupperman Menopausal Index acc. to marital status

DISCUSSION

Mean age at the last menopause for individual countries in the study was from 50.2 to 51.6, and was similar to the age at menopause in other European countries [1, 2, 27].

The symptoms which occur during the peri- and postmenopausal period are caused by hormonal changes taking place in the body of a woman due to the cessation of the hormonal ovarian function, related with total exhaustion of ovarian follicles, the loss of which begins as early as during the foetal period, and accelerates over the age of 35 [28], and even six times in women aged over 39 [29, 30].

Women at peri-menopausal age report so-called menopausal symptoms with varied frequency [31, 32]. Some of these symptoms are clearly ascribed to the effect of a decreased synthesis of sex hormones (e.g. vasomotor symptoms), while others may have a multi-factor etiology (e.g. mood swings). The constellation of symptoms occurring in this period of life is often described as a menopausal or climacteric syndrome; however, there is no uniform definition of this syndrome. Many cohort and cross-sectional studies have been conducted in order to characterize menopausal symptoms [30, 33–36]. The majority of reports regularly mention hot flushes and vaginal dryness. Other symptoms, such as sleep disorders, sexual problems, and mood changes have not always been present. Differences in this respect are observed in individual regions of the world.

In our study, the women from Belarus had a significantly lower intensity of psychological menopausal symptoms than women from the remaining countries. The highest intensity of psychological menopausal symptoms was observed in women from Ukraine, and slightly lower in those from Poland, Czech Republic and Slovakia. In turn, women from Belarus had the lowest intensity of somatic menopausal symptoms, followed by women from Ukraine, while the highest intensity was noted among women from the remaining countries, i.e. Poland, Czech Republic and Slovakia. Women from Belarus and Ukraine had a significantly lower intensity of vasomotor menopausal symptoms than women from the remaining countries, i.e. Poland, Czech Republic and Slovakia.

The intensity of menopausal symptoms measured by the Kupperman Menopausal Index was similar in all the countries in the study. Approximately 12% of these women did not experience menopausal symptoms, 1/3 had mild, about 27% moderate, and 27–29% severe symptoms. The highest percentage of women from Belarus and Ukraine did not have any menopausal symptoms, or these symptoms were mild.

Vasomotor symptoms are classified into the so-called early consequences of menopause and concern approximately 40% of premenopausal women and as many as 85% of postmenopausal women [1, 39].

The intensity of menopausal symptoms in 1,025 Greek women indicates that 30% of them experienced moderate or severe menopausal symptoms, 39% of women complained of vasomotor symptoms, 21% – psychological symptoms, 6% – psychosomatic symptoms, and 34.5% – sexual disorders [40].

Zhang et al., in their study concerning 2,429 women in Taiwan aged 40–59, found that as many as 50% of the examined women had no menopausal symptoms. Mild symptoms measured by the Kupperman Menopausal Index were observed in 30% of these women, moderate – in 18.5%, and severe symptoms occurred in 2.5% of the study participants. The most frequent five symptoms were: fatigue, osteoarticular/muscular pain, low libido, sleeplessness and nervousness. Also, 55% of the examined women declared difficulties with falling asleep [41]. Zhang pays attention to the ethical differences in the domination of particular menopausal symptoms. The researcher reports that 68.1–93.7% of Caucasian women experienced at least one symptom of the climacteric period; whereas in Chinese and Japanese women this was 49.8%. Menopausal symptoms in the Caucasian race are also characterized by a higher intensity [41, 42]. The researcher confirmed that among Chinese women menopausal symptoms are manifested mainly as

osteoarticular symptoms, memory disorders, easy fatigue, whereas in Caucasian women there occur typical climacteric symptoms in the form of hot flushes and night sweats [42].

Gold also pays attention to the more rare occurrence of hot flushes and night sweats in Chinese and Japanese women (17.6%), compared to Afro-American women (45.6%), Hispanic women (35.4%), or Caucasian women (31.2%). The researcher reports that from among all menopausal symptoms, vasomotor symptoms occur most frequently in Afro-American women, whereas difficulties with falling asleep are most frequent among Caucasian women [43]. Similarly, based on the results of own study, Anderson states that Chinese and Japanese women have a lower frequency of menopausal symptoms, compared to Caucasian women, except for memory disorders and heart palpitations, which are more typical of this race [44]. Islam pays attention to the prevalence among Asian women of physical symptoms, over psychological vasomotor and sexual symptoms [45], by which they differ from the women in the presented study.

In our study, it was confirmed that the intensity of menopausal symptoms was related with the level of education, place of residence, and marital status of the examined women.

The examined women from the Ukraine had a higher intensity of psychological, somatic and vasomotor menopausal symptoms the lower their education level. The situation was different among women living in Belarus, who showed the intensity of vasomotor menopausal symptoms the higher their level of education.

The examined women from towns or rural areas in the Ukraine had a higher intensity of psychological menopausal symptoms, compared to those from cities. Nevertheless, the examined women from cities in the Ukraine had the lowest intensity of vasomotor menopausal symptoms, a higher intensity of these symptoms observed among women from towns, and the lowest – in rural women. It was different in Belarus: women from towns had the highest intensity of psychological menopausal symptoms, followed by those from cities, and rural women. Women from towns in Belarus had the lowest intensity of vasomotor menopausal symptoms, followed by those from cities and from rural areas.

In addition, own study showed relationships between marital status and the intensity of menopausal symptoms: psychological – in the examined women from the Ukraine; somatic – in women from Ukraine, Czech Republic and Slovakia; and vasomotor in all countries in the study.

Similar to the presented study of women from the countries of similar culture and traditions, other researchers report many discrepancies concerning the occurrence, intensity and conditioning of menopausal symptoms.

In the study by Skrzypulec et al. it was found that the intensity of menopausal symptoms increases with: women's age, living alone, and poor material standard [46]. Gharaibeh mentions a significant relationship between the severity of menopausal symptoms and age, lack of family, low education level, and poor state of health [47]. In turn, Krajewska, after analyzing the quality of life of menopausal women in Poland and Greece, observed that women who have tertiary education level experience climacteric symptoms considerably more mildly than those with vocational education [48]. Bień confirms a correlation between severe menopausal symptoms measured by the Kupperman Index, and lower education level, lack of employment, and living in a rural area [49]. Similar results were obtained by Li among Swedish women,

who found that women with tertiary education experience less menopausal symptoms [50].

Completely different results were obtained by Joseph among women living in India. The researcher observed that women who had tertiary education level complained of a larger number of menopausal symptoms [51]. The situation when better educated women report more menopausal symptoms was also confirmed among the examined women from Taiwan [52]. In the Polish study by Makara – Studzińska the situation was the opposite, i.e. women with the most severe menopausal symptoms were the worst educated [53].

The diversity of the above-mentioned results of studies conducted among similar and culturally different groups of menopausal women indicated the need for systematic, uniform worldwide studies concerning the problems related with the course of menopause.

SUMMARY

1. The intensity of all menopausal symptoms measured using the Kupperman Menopausal Index and Greene Climacteric Scale was similar in Poland, the Czech Republic and Slovakia. Severe, moderate and mild menopausal symptoms measured by the Kupperman Menopausal Index occurred in these countries with a similar frequency. The results were also similar with respect to the Green Climacteric sub-scales of psychological, somatic and vasomotor symptoms.
2. Nearly a half of the women from Belarus did not report any menopausal symptoms measured by the Kupperman Menopausal Index. In the Greene Climacteric sub-scales of psychological and somatic symptoms they obtained significantly lower results (lighter complaints), compared to the inhabitants of the remaining countries in the study.
3. The majority of women from Ukraine experienced mild menopausal symptoms measured using the Kupperman Menopausal Index. In the subscale of psychological and vasomotor symptoms they obtained significantly higher results (more severe complaints) than the inhabitants of the remaining countries in the study.
4. The intensity of menopausal symptoms in women from Ukraine and Belarus was related with educational level, place of residence and marital status, whereas in Poland Czech Republic and Slovakia – only with marital status.

REFERENCES

1. Grycewicz J, Cypryk K. Wpływ hormonów płciowych na występowanie zaburzeń metabolicznych u kobiet w okresie menopauzy. *Prz Menopauz.* 2008; 1: 29–37.
2. Skalba P. Endokrynologia ginekologiczna. Wydawnictwo Lekarskie PZWL. Wyd III 2008 Rozdz 11: 307–333.
3. Bielawska-Batorowicz E. Koncepcje menopauzy. Część I– ujęcie demograficzne i kulturowe. *Prz Menopauz.* 2005; 2: 10–18.
4. Szkup-Jabłońska M, Tutaj E, Jurczak A, Wieder-Huszla S, Brodowska A, Grochans E. Wpływ warunków socjodemograficznych na jakość życia kobiet w okresie pomenopauzalnym. *Perinatologia, Neonatologia i Ginekologia.* 2012; 1(5): 34–38.
5. Jędrzejuk D. Wiek menopauzy uwarunkowania demograficzne. W: *Endokrynologia kliniczna.* Milewicz A (red.). Polskie Towarzystwo Endokrynologiczne, Wrocław 2012.
6. World Health Organization. The European health cohort 2012. Charting the way to well-being.
7. Skalba P. Objawy wypadowe. W: *Endokrynologia kliniczna.* Milewicz A (red.). Polskie Towarzystwo Endokrynologiczne, Wrocław 2012.

8. Greene JG. A factor analytic study of climacteric symptoms. *J Psychosom Res.* 1976; 20: 425–430.
9. Kupperman HS, Blatt MHG, Wiesbader H, Filler W. Comparative clinical evaluation of estrogenic preparations by the menopausal and amenorrheal indices. *J Clin Endocrinol.* 1953; 13: 688–703.
10. Avis NE, Colvin A, Bromberger JT, Hess R, Matthews KA, Ory M, Schocken M. Change in health-related quality of life over the menopausal transition in a multiethnic cohort of middle-aged women: Study of women's health across the nation. *Menopause.* 2009; 16: 860–869.
11. Wieder-Huszla S, Grześkowiak H, Jurczak A, Pilch D, Stanisławska M, Szkup-Jabłońska M, Augustyniak K, Grochans E. Style radzenia sobie ze stresem kobiet w okresie okołomenopauzalnym z uwzględnieniem intensywności objawów wypadowych. *Problemy Pielęgniarstwa.* 2014; 22(1): 82–90.
12. Chedraui P, Aguirre W, Hidalgo L, Fayad L. Assessing menopausal symptoms among healthy middle aged women with the Menopause Rating Scale. *Maturitas.* 2007; 57(3): 271–8.
13. Bal MD, Sahin NH. The effects of personality traits on quality of life. *Menopause.* 2011; 18: 1309–1316.
14. Badania nad menopauzą w latach 90. Instytut Medycyny Pracy im. prof. J. Nofera. Łódź 2001.
15. Wojnar M, Drózd W, Araszkiewicz A, Szymański W, Nawacka-Pawlaczyk D, Urbański R, et al. Assessment and prevalence of depression in women 45–55 years of age visiting gynecological clinics in Poland. *Arch Women's Mental Health.* 2003; 6: 193–201.
16. Holte A. The changing truth about how natural menopause affects health complaints: results from the Norwegian Menopause Project. W: K Wijma, B von Schoultz (red.) *Reproductive life. Advances in research in psychosomatic obstetrics and gynecology.* The Parthenon Publishing Group. Carnforth 1992.
17. Koster A, Eplow LF, Garde K. Anticipations and experiences of menopause in a Danish female general population cohort born in 1936. *Arch Women's Mental Health.* 2002; 5: 9–13.
18. Jokinen K, Rautava P, Makinen J, Ojanlatva A, Sundell J, Helenius H. Experience of climacteric symptoms among 42–46 and 52–56-year-old women. *Maturitas.* 2003; 46: 199–205.
19. Conboy L, Domar A, O'Connell E. Women at mid-life: symptoms, attitudes, and choices, an internet based survey. *Maturitas.* 2001; 38: 129–36.
20. Lam PM, Leung TN, Haines C, Chung TK. Climacteric symptoms and knowledge about hormone replacement therapy among Hong Kong Chinese women aged 40–60 years. *Maturitas.* 2003; 45: 99–107.
21. Pan HA, Wu MH, Hsu CC, Yao BL, Huang KE. The perception of menopause among women in Taiwan. *Maturitas.* 2002; 41: 269–74.
22. Xiao B, Ge QS. Role of reproductive health in the quality of life of women in the menopause. In: T Aso, T Yanaihara, S Fujimoto (ed.). *The menopause at the millennium. The proceedings of the 9th International Menopause Society World Congress on the Menopause.* The Parthenon Publishing Group. New York 2000.
23. Obermeyer CM, Schulein M, Hajji N, Azelmat M. Menopause in Morocco: symptomatology and medical management. *Maturitas.* 2002; 41: 87–95.
24. Limpaphayom KK. Healthy aging in the 21st century. W: T Aso, T Yanaihara, S Fujimoto (red.). *The menopause at the millennium. The proceedings of the 9th International Menopause Society World Congress on the Menopause.* The Parthenon Publishing Group. New York 2000.
25. Humeniuk E, Bojar I, Owoc A, Wojtyła A, Fronczak A. Psychosocial conditioning of depressive disorders in post-menopausal women. *Ann Agric Environ Med.* 2011; 18(2): 441–5.
26. Bojar I, Wojcik-Fatla A, Owoc A, Lewinski A. Polymorphisms of apolipoprotein E gene and cognitive functions of postmenopausal women, measured by battery of computer tests – Central Nervous System Vital Signs. *Neuro Endocrinol Lett.* 2012; 33(4): 385–92.
27. Mondul AM, Rodriguez C, Jacobs EJ, Calle EE. Age at natural menopause and cause-specific mortality. *Am J Epidemiol.* 2005; 162(11): 1089–97.
28. Al-Azzawi F, Palacios S. Hormonal changes during menopause. *Maturitas.* 2009; 63(2): 135–137.
29. Nelson HD. Menopause. *Lancet.* 2008; 371: 760–70.
30. North American Menopause Society. *Menopause Guidebook, 6th end.* <http://www.menopause.org/MGI.pdf> (access: 16.08.2016).
31. Ortman O, Dören M, Windler E. Hormone therapy in perimenopause and postmenopause (HT): Interdisciplinary S3 Guideline, Association of the Scientific Medical Societies in Germany AWMF 015/062-short version. *Arch Gynecol Obstet.* 2011; 284: 343–355.
32. Freeman EW, Sammel MD, Lin H, Liu Z, Gracia CR. Duration of menopausal hot flashes and associated risk factors. *Obstet Gynecol.* 2011; 117(5): 1095–104.
33. Utian WH, Archer DF, Bachmann GA, Gallagher C, Grodstein F, Heiman JR, et al. Estrogen and progestogen use in postmenopausal women: July 2008 position statement of The North American Menopause Society. *Menopause.* 2008; 15: 584–602.
34. MacLennan AH, Broadbent JL, Lester S, Moore V. Oral oestrogen and combined oestrogen/progestogen therapy versus placebo for hot flashes. *Cochrane Database Syst Rev.* 2004; (4) CD002978.
35. Eberhardt S, Kulp W, von der Schulenburg JM, Willich SN, Keil T, Greiner W. Hormones for therapy of climacteric afflictions. *GMS Health Technology Assessmen.* 2007; 3 Doc03.
36. Vesco KK, Haney EM, Humphrey L, Fu R, Nelson HD. Influence of menopause on mood: a systematic review of cohort studies. *Climacteric: the journal of the International Menopause Society.* 2007; 10: 448–465.
37. Ortman O, Dören M, Windler E. Hormone therapy in perimenopause and postmenopause (HT): Interdisciplinary S3 Guideline, Association of the Scientific Medical Societies in Germany AWMF 015/062-short version. *Arch Gynecol Obstet.* 2011; 284: 343–355.
38. Warenik-Szymankiewicz A. [Estrogens and aging in women]. *Pol Arch Med Wewn.* 2001; 105 (supl.): 105–110.
39. Pertyński T, Stachowiak G. Współczesne poglądy na opiekę menopauzalną. *Przew Lek.* 2010; 2: 146–148.
40. Grigoriou V, Augoulea A, Armeni E, Rizos D, Alexandrou A, Dendrinou S, Panoulis K, Lambrinouaki I. Prevalence of vasomotor, psychological, psychosomatic and sexual symptoms in perimenopausal and recently postmenopausal Greek women: association with demographic, lifestyle and hormonal factors. *Gynecol Endocrinol.* 2013; 29(2): 125–8.
41. Jian-Ping Zhang, Yao-Qin Wang, Mei-Qin Yan, Zhao-Ai Li, Xiu-Ping Du, and Xue-Qing Wu. Menopausal Symptoms and Sleep Quality During Menopausal Transition and Postmenopause. *Chin Med J (Engl).* 2016; 129(7): 771–777.
42. Zhang QX, Yang DZ, Wang WJ, Liang XY, Xie MQ, Wang LA, et al. The prevalence of climacteric symptoms in Guangzhou with report of 1090 women (in Chinese) *Maternal & Child Health Care Chin.* 2004; 19: 95–8.
43. Gold EB, Sternfeld B, Kelsey JL, Brown C, Mouton C, Reame N, Salamone L, Stellato R. Relation of demographic and lifestyle factors to symptoms in a multi-racial/ethnic population of women 40–55 years of age. *Am J Epidemiol.* 2000; 152(5): 463–73.
44. Anderson D, Yoshizawa T, Gollschewski S, Atogami F, Courtney M. Menopause in Australia and Japan: effects of country of residence on menopausal status and menopausal symptoms. *Climacteric.* 2004; 7(2): 165–74.
45. Islam MR, Gartoulla P, Bell RJ, Fradkin P, Davis SR. Prevalence of menopausal symptoms in Asian midlife women: a systematic review. *Climacteric.* 2015; 18(2): 157–76.
46. Skrzypulec V, Naworska B, Droszdol A. Analiza wpływu objawów klimakterycznych na funkcjonowanie i jakość życia kobiet w okresie około menopauzalnym. *Prz Menopauzal.* 2007; 2: 96–101.
47. Gharaibeh M, Al-Obeisat S, Hattab J. Severity of menopausal symptoms of Jordanian women. *Climacteric.* 2010; 13(4): 385–94.
48. Krajewska K. Analiza porównawcza jakości życia kobiet w okresie menopauzy w Polsce i Grecji z zastosowaniem skali MRS i Indeksu Kuppermana. *Doniesienie wstępne. Zakład Pielęgniarstwa Ogólnego AMB 2007.*
49. Bień A, Rzońca E, Iwanowicz-Paus G, Pańczuk-Szeptuch M. The influence of climacteric symptoms of women's Lives and Activities. *Int J Environ Res Public Health.* 2015; 12: 3835–3846.
50. Li C, Samsioe G, Borgfeldt C, Lidfeldt J, Agardh CD. Menopause—Related symptoms: What are background factors? A prospective population—Based cohort study of Swedish women (The Women's Health in Lund Area study). *Am J Obstet Gynecol.* 2003; 189: 1646–1653.
51. Joseph N, Nagaraj K, Saralaya V, Nellyyanil M, Rao PJ. Assessment of menopausal symptoms among women attending various outreach clinics in South Canara District of India. *J Midlife Health.* 2014; 5: 84–90.
52. Cheng MH, Wang SJ, Wang PH, Fuh JL. Attitudes toward menopause among middle-aged women: a community survey in an island of Taiwan. *Maturitas.* 2005; 52(3–4): 348–55.
53. Makara-Studzińska M, Kryś-Noszczyk K, Jakiel G. The influence of selected socio-demographic variables on symptoms occurring during the menopause. *Prz Menopauzal.* 2015; 14: 20–26.
54. The Greene Menopause Index, also known as the Greene Climacteric Scale, is a questionnaire a tool used by researchers to study the symptoms of menopause.