

The influence of selected socio-demographic variables on symptoms occurring during the menopause

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Abstract

Introduction: It is considered that the lifestyle conditioned by socio-demographic or socio-economic factors determines the health condition of people to the greatest extent. The aim of this study is to evaluate the influence of selected socio-demographic factors on the kinds of symptoms occurring during menopause.

Material and methods: The study group consisted of 210 women aged 45 to 65, not using hormone replacement therapy, staying at healthcare centers for rehabilitation treatment. The study was carried out in 2013-2014 in the Silesian, Podlaskie and Lesser Poland voivodeships. The set of tools consisted of the authors' own survey questionnaire and the Menopause Rating Scale (MRS).

Results: The most commonly occurring symptom in the group of studied women was a depressive mood, from the group of psychological symptoms, followed by physical and mental fatigue, and discomfort connected with muscle and joint pain. The greatest intensity of symptoms was observed in the group of women with the lowest level of education, reporting an average or bad material situation, and unemployed women.

Conclusions: An alarmingly high number of reported psychological symptoms in the group of menopausal women was observed, and in particular among the group of low socio-economic status. Career seems to be a factor reducing the risk of occurrence of psychological symptoms. There is an urgent need for health promotion and prophylaxis in the group of menopausal women, and in many cases for implementation of specialist psychological assistance.

Key words: menopause, lifestyle, education, material situation.

Introduction

It is thought that the socio-economic factors which shape a pro-health or anti-health attitude and at the same time create the lifestyle of a given individual have a significant influence on the health of both individuals and the whole population. This group of factors includes the material situation, social status, level of education and social support. Poverty and a low level of education most often are responsible for inequalities in health. Individuals of a low socio-economic status in their own opinion have worse health, more often engage in behaviors risky for health, and have impeded access to healthcare institutions. Social support in the human living environment is considered to be a significant factor for shaping pro-health attitudes and preventing the pathogenic influence of potential stress factors.

The World Health Organization (WHO) suggests that at present depressive disorders constitute the fourth most serious health problem in the world, and in 2020, they will become the second most serious problem after ischemic heart disease [1], or they will be

placed second by 2030 [2]. Depressive disorders in the course of chronic diseases are often diagnosed in the course of the metabolic syndrome and osteoporosis [3], i.e. diseases characteristic for the menopause period in women.

The perimenopause stage occurs in women in Poland on average between age 47 and 51. Together with the postponement of the occurrence of the last period, the other conventional stages are postponed [4]. While numerous changes in the bio-psycho-physical functioning of women occur, the most bothersome symptoms are psychological, somatic-vegetative and/or genitourinary symptoms.

Symptoms of discomfort connected with the pain of muscles and joints often intensify during the menopause and are connected with the involuntional changes. Therefore, they can be an accompanying symptom in the course of osteoporosis, osteoarthritis, degenerative disc disease or other complaints with the character of involuntional-proliferative changes of the motor system.

Women living on the African continent reported the occurrence of symptoms of discomfort connected with

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the pain of muscles and joints in 59% to 88% of the cases studied in Nigeria [5, 6], to 90% of the cases in the group of women from Egypt [7]. In South America, discomfort connected with the pain of muscles and joints was reported by up to 84% of the studied women in Ecuador [8]. In North America, the percentage of women reporting the symptoms was up to 80% of the studied women in the USA [9]. In Australia, the percentage of women suffering from complaints of the motor system was up to 40% of the studied women [10]. In studies conducted in Asia the symptoms were noted in 33% to 77% of women studied in India [11]. A review of European reports showed that in Italy the symptoms were reported by 31% of the studied women [7].

The next important symptom was depressive mood, from the subscale of psychological symptoms. The whole group of psychological symptoms may occur against the background of depressive disorders.

Many experts think that the depressive disorders in menopausal women are most often connected with psycho-sociological factors. In reference to the influence of socio-economic factors on the risk of occurrence of depressive disorders, residence in urban areas, lower monthly incomes and lower education have an effect [12].

The highest frequency of occurrence of psychological problems in the group of menopausal women was observed in a study from Pakistan, where 96% of the studied women reported the symptoms [13], or in a study from China, where 90% of respondents reported the occurrence of psychological symptoms [14].

However, attention should be paid to the fact reported in the literature that not all cognitive and emotional disorders have an environmental background and some of them can be proved to have a genetic background [15].

Freeman and Sherif found in 2007 that the following factors affect the occurrence of vasomotor symptoms: climate, diet, lifestyle, functions which the women have and their attitude towards the aging process [16].

In a study of 8373 women conducted in twelve countries in Central America, the occurrence of hot flashes in over 50% of women was observed. Greater intensity of the feeling of hot flashes was connected with a lower level of education and additional occurrence of psychological problems as well as urogenital dysfunctions [17].

In studies from Seattle it was found that the occurrence of, among other things, hot flashes in women in perimenopausal age is connected with sleep disorder, stress, depressive disorders and experiencing muscular and joint pain [18]. In the *Penn Ovarian Aging* study, hot flashes were associated with sleep disorders, which can be explained by the domino hypothesis, i.e. the decreased mood in women during the daytime due to awakenings and additionally the occurrence of depressive disorders against this background [19].

The aim of the study is to evaluate the influence of age, material situation, level of education and type of career on the kind of symptoms occurring during the menopause.

Material and methods

In November 2013, the organization of the area to conduct the studies began, after obtaining a positive opinion for the research project from the Bioethics Committee by the Medical University of Lublin, resolution number KE – 0254/269/2013 of 28 November 2013. The following healthcare centers were formally invited to co-operate: 1) NZOZ Centrum Opieki i Rehabilitacji “Zdrowie” S.C. [Non-Public Healthcare Institution – Center of Care and Rehabilitation “Zdrowie” Civil Partnership], Częstochowa; 2) NZOZ Sanatorium Uzdrowskie [Non-Public Healthcare Institution Spa Sanatorium], Gołdap; 3) 20. Wojskowy Szpital Uzdrowsko-Rehabilitacyjny SPZOZ [20th Military Spa and Rehabilitation Hospital Independent Public Healthcare Institution], Krynica Zdrój.

After obtaining formal written permission from the Management Staff of the above centers, the study began in December 2013. It was completed in March 2014.

All respondents, before completing the questionnaire, were informed about the aim of the study and anonymity of answers. They were made familiar with the instructions for completing the questionnaires and ensured that the material would be used for scientific purposes.

The respondents also completed forms with the patient's informed consent to participation in the study, in accordance with the documentation based on which the project of the study obtained the positive opinion of the Bioethics Committee.

Women aged 45-65 not using hormone replacement therapy and staying at healthcare centers for rehabilitation treatment, who were willing to take part in the study and provided written consent, were eligible for inclusion in the study. During the first day of stay at the healthcare center, questionnaires were handed in to women; in compliance with the principle of anonymity, women returned the questionnaires to specially marked boxes in the centers. Three hundred questionnaires were given out, from which 212 were returned; 210 correctly completed questionnaires were subjected to further analysis. The return rate was 70.67%.

The questions were adjusted on the basis of merit to the cognitive abilities of the study group. The set of research tools consisted of:

- the authors' own survey questionnaire,
- the Menopause Rating Scale (MRS).

The questions in the authors' own survey questionnaire were of multiple choice and half-open form, which allowed for subjective and spontaneous answers.

The Menopause Rating Scale was developed at the beginning of the 1990s by Professor Heinemann from the Center of Epidemiology and Health Research in Berlin [20, 21]. The first use of the scale dates back to 1992, when the symptoms of menopause were documented and their changes during the treatment were observed [22]. In 1996, a randomized study of the representative group of 689 women aged 40-60 was carried out in Germany, and based on the results, an evaluation of the scale was conducted [23]. The scale is available in 25 languages.

The Polish version was used in the study after receiving the author's permission. At present the scale is commonly used to assess the symptoms of menopause among women of various nationalities, evaluating sleeplessness, sleep disorders [24] or the effect of using hormone replacement therapy. The currently available scientific evidence indicates the high methodological quality of the MRS to measure and compare the symptoms of menopause in the area of the quality of life of aging women in various regions of the world and the high reliability of the scale [20].

The tool is characterized by the ease of understanding for respondents and the clarity of questions. It contains 11 symptoms of menopause (hot flashes and sweating; heart problems; sleep problems; depressive mood; irritability; anxiety; physical and mental fatigue; sexual problems; bladder problems; vaginal dryness; discomfort connected with joints and muscles) whose intensity should be marked on the axis of the 5 categories: no symptom, mild, moderate, marked and severe. The respondent ensures subjective perception of symptoms by marking 1 of 5 possible fields. The total result of MRS is from 0 (no symptom) to 44 points (the highest grade of complaints of symptoms), and 11 symptoms were divided as follows:

- psychological symptoms (depression, irritation, anxiety and fatigue): from 0 to 16 points – questions 4, 5, 6, 7,
- somato-vegetative symptoms (sweating/hot flashes, heart palpitations, sleep disorders and muscular complaints): from 0 to 16 points – questions 1, 2, 3, 11,
- urogenital symptoms (sexual problems, urological problems and vaginal dryness): from 0 to 12 points – questions 8, 9, 10.

The results were statistically analyzed. The values of the analyzed measurable parameters were presented using the average value and standard deviation, the immeasurable parameters were presented using frequencies and percentage. For quality characteristics to detect the existence of differences between the compared groups χ^2 test was used. To test the normality of the variables in the study groups the Shapiro-Wilk normality test was performed. To examine differences between two groups non-parametric Mann-Whitney U test was used and for more than two groups test ANOVA, or Kruskal-Wallis test was used. The level of significance

was $p < 0.05$, indicating the existence of significant differences or relationships. Database and statistical tests were carried out on the basis of computer software Statistica 9.1 (StatSoft, Poland).

Results

In the group of 210 studied women, those aged 45-50 made up the highest percentage (39.05%), then women aged 51-55 (25.24%), women aged 56-60 (20.48%), and the least numerous group were women aged over 60 (15.24%). Unequal number of women surveyed in each age group constitute a restriction for testing, but using appropriate statistical tests, it is possible to obtain reliable test results.

More than half (53.33%) of the studied women lived in a district town, 27.14% in municipalities, and 19.52% in the provincial capital.

The majority of women (59.05%) reported an average financial situation, while 26.19% described their financial situation as good, 7.14% as quite bad, 4.76% as very good, and 2.86% as bad.

More than half of those studied reported having a secondary education (52.86%). Next there was vocational education (20.48%), higher education (15.71%), postgraduate education (7.62%), and primary education (3.33%).

The majority of women were working (66.19%), 15.71% were retired, 10.95% had disability pension, while 7.14% were unemployed. Among all women, 35.24% were white-collar workers, 32.86% were manual workers, and 31.90% were not working.

The mean value of the sum of the points in the MRS was 14.95, and the standard deviation was 8.60.

The highest frequency of occurrence of symptoms was observed in the case of depressive mood (82.86%), then discomfort connected with joints and muscles (82.38%) and physical and mental fatigue (82.38%). A very often occurring symptom was the feeling of irritation (81.90%). Detailed results are presented in Table I.

Statistically significant differences were observed in the intensity of "hot flashes and sweating" between the age groups ($p = 0.012$). The differences concern groups I and II (between the age group 45-50 years and the group 51-55 years). Younger women (aged 45-50) achieved the mean result of $M = 1.05$, and the women aged 51-55 on average $M = 1.64$, i.e. the symptoms increased with the age of the studied women.

The lowest intensity of hot flashes occurs in groups I and IV, and the highest among women aged 51-55 and 56-60. No statistically significant differences were observed between groups I-III, II-III and I-IV.

In the case of the "heart problems", statistically significant differences were observed between groups I-II and I-IV ($p = 0.002$). No statistically significant differences were observed between groups I-III and II-III. Wom-

en aged 45-50 obtained the mean result of $M = 0.76$, women aged 51-55 on average $M = 1.28$, whereas those aged over 60 obtained on average $M = 1.34$. The symptoms significantly increased with age.

Also statistically significant differences were noted in intensity of bladder problems ($p = 0.022$) and discomfort connected with muscles and joints ($p = 0.003$).

In the case of bladder problems, the differences concern groups I-II. Women aged 45-50 obtained the mean result of $M = 0.68$, and women aged 51-55 on average $M = 1.15$. In the case of other age groups, no statistically significant differences were noted.

There were statistically significant differences in the intensity of discomfort connected with muscles and joints comparing groups I-III and I-IV. Women aged 45-50 obtained the mean result of $M = 1.41$, women aged 56-60 on average $M = 2.07$, those aged over 60 on average $M = 2.19$. In the case of other age groups, no statistically significant differences were noted. The detailed results are presented in Table II.

Comparing two groups of financial situation (very good/good and average/bad) in reference to the results of the MRS and its subscales, all differences turned out to be statistically significant. The greatest intensity of symptoms in the MRS were noted in the case of women whose financial situation was average or bad (Table III).

Statistically significant differences were also observed when comparing the three groups of women depending on the level of education and the result in the MRS subscales. The differences in the MRS total score concern groups I-II (persons with primary education, vocational education and secondary education) and I-III (persons with primary education, vocational education and higher education). The highest MRS score, i.e. the

Tab. I. Structure of symptoms' occurrence

Symptoms	n	%
Hot flashes, sweating	144	68.57
Heart problems	131	62.38
Sleep problems	162	77.14
Depressive mood	174	82.86
Irritation	172	81.90
Anxiety	160	76.19
Physical and mental fatigue	173	82.38
Sexual problems	137	65.24
Bladder problems	112	53.33
Vaginal dryness	139	66.19
Discomfort connected with joints and muscles	173	82.38

greatest intensity of the symptoms, was noted in women with the lowest education ($M = 18.14$). The detailed results are presented in Table IV.

The analysis of the results of the MRS compared to the kind of performed work shows that all differences are statistically significant. The differences in the MRS total score concern groups I-III (white-collar women and non-working women). The highest MRS score, i.e. the greatest intensity of symptoms, was observed in women who did not work ($M = 17.93$). Statistically significant differences for psychological symptoms were noted in groups I-III; i.e. in women who did not work, the intensity of psychological symptoms was greater ($M = 7.16$) compared to the white-collar women ($M = 5.15$).

Tab. II. Occurrence of symptoms in individual age groups of studied women

Symptoms	I) 45-50 years		II) 51-55 years		III) 56-60 years		IV) Over 60 years		Analysis of differences		Differences between groups
	M	SD	M	SD	M	SD	M	SD	H	p	
Hot flashes, sweating	1.05	1.08	1.64	1.19	1.44	1.05	1.09	0.96	10.878	0.012	I-II
Heart problems	0.76	0.92	1.28	0.99	1.05	1.07	1.34	0.94	14.556	0.002	I-II, I-IV
Sleep problems	1.28	1.16	1.79	1.29	1.70	1.17	1.72	1.08	8.112	0,044	-
Depressive mood	1.48	1.21	1.83	1.22	1.72	0.98	1.53	0.98	4.100	0.251	-
Irritation	1.43	1.12	1.64	1.11	1.77	0.92	1.38	1.04	5.124	0.163	-
Anxiety	1.32	1.09	1.53	1.15	1.51	1.18	1.34	1.10	1.506	0.681	-
Physical and mental fatigue	1.26	1.09	1.64	0.96	1.65	1.04	1.56	0.91	8.109	0.044	-
Sexual problems	1.02	1.10	1.40	1.01	1.14	1.06	1.31	1.15	5.448	0.142	-
Bladder problems	0.68	0.98	1.15	1.06	0.91	1.13	1.19	1.20	9.620	0.022	I-II
Vaginal dryness	0.88	0.93	1.34	1.07	1.12	1.03	1.28	1.17	7.330	0.062	-
Discomfort connected with joints and muscles	1.41	1.25	1.91	1.15	2.07	1.10	2.19	1.26	14.47	0.003	I-III, I-IV

Tab. III. Material situation versus the Menopause Rating Scale (MRS) subscales

MRS	Very good/Good		Average/Bad		Analysis of differences	
	M	SD	M	SD	Z	P
MRS	11.92	7.09	16.31	8.88	-3.310	0.001
Psychological symptoms	4.62	3.17	6.71	3.85	-3.629	< 0.001
Somato-vegetative symptoms	4.74	3.25	6.10	3.31	-2.656	0.008
Urogenital symptoms	2.57	2.09	3.50	2.75	-2.078	0.038

Tab. IV. Education versus the Menopause Rating Scale (MRS) subscales

MRS	I) Primary/Vocational		II) Secondary		III) Higher/Postgraduate		Analysis of differences		Differences between groups
	M	SD	M	SD	M	SD	F	p	
MRS	18.14	7.72	13.89	7.97	14.10	10.07	4.680	0.010	I-II, I-III
Psychological symptoms	7.20	3.39	5.78	3.69	5.53	4.14	3.125	0.046	I-II, I-III
Somato-vegetative symptoms	6.92	2.95	5.30	3.16	5.27	3.84	4.713	0.010	I-II, I-III
Urogenital symptoms	4.02	2.62	2.81	2.32	3.31	2.99	3.881	0.022	I-II

The somato-vegetative symptoms were most intense in the group of non-working women ($M = 6.69$) compared to women performing manual labor ($M = 5.49$) or white-collar women ($M = 4.93$). A similar tendency of intensity of symptoms occurred in the case of urogenital symptoms (Table V).

Discussion

Cross-sectional surveys conducted in 2005-2007 among healthy adult women – inhabitants of Poland’s southern voivodeships ($n = 896$; age over 40 years) – show that the most frequent reported complaints were irritation, hotness, sleep disorders and sudden changes of mood. The fewest women reported vaginal dryness [25]. Those results differ from the information obtained in the present study. In our study, the highest percentage of occurrence of symptoms was observed in the case of depressive mood (82.86%), followed by discomfort connected with joints and muscles (82.38%) and physical and mental fatigue (82.38%). A very common

symptom in the group of surveyed women was irritability (81.90%). The results of this study are similar to recent data from the scientific literature of the world.

The results concerning the structure of the occurrence of the menopause symptoms are closest to the data reported by Joseph *et al.* [26] and da Silva *et al.* [27] referring accordingly to the women of the Indian and Brazilian population. The most often occurring symptoms in the Indian study using the MRS were discomfort connected with the pain of muscles and joints (85.4%) and physical and mental fatigue, and the educated women reported considerably more symptoms, which was statistically significant. No statistically significant correlation was noted in the case of the number of reported symptoms and the age of the studied women or the kind of their employment [26], which considerably distinguishes this part of the study results and socio-demographic situation of the Polish and Indian women.

The situation in which better educated women reported more symptoms during the menopause was

Tab. V. Type of work versus the Menopause Rating Scale (MRS) subscales

MRS	I) White-collar work		II) Manual labor		III) Not working		Analysis of differences		Differences between groups
	M	SD	M	SD	M	SD	F	p	
MRS	12.81	7.90	14.36	8.02	17.93	9.18	6.825	0.001	I-III, II-III
Psychological symptoms	5.15	3.58	5.97	3.51	7.16	4.00	5.254	0.006	I-III
Somato-vegetative symptoms	4.93	3.12	5.49	3.34	6.69	3.38	5.205	0.006	I-III, II-III
Urogenital symptoms	2.73	2.45	2.90	2.24	4.07	2.90	5.723	0.004	I-III, II-III

also noted in the presented study results from Taiwan [28]. The opposite situation is observed in Poland, in light of the results of this study. The greatest intensity of symptoms is observed in the group of women with the lowest education. In European countries it is assumed that poverty and a low level of education are most often the reason for inequality in health.

The greatest intensity of symptoms in the MRS in this study was noted in the case of women whose financial situation was average or bad, in women with the lowest education and in women who did not work. These differences were statistically significant and such results are confirmed in the literature of the subject [27, 29-31].

Women in the post-menopausal stage who reported the intensity of symptoms in reference to the particular stages of experiencing the menopause were qualified for the study in Italy [7]. In most of the studied women – about 66% – pain symptoms occurred before the menopause and in half of the cases decreased during the menopause or stayed at a constant level. The symptoms of discomfort connected with joints and muscles in light of this study were rarer among women aged 45-50 years (70.73%), and most frequent in women aged 56-60 years (93.02%), which may be connected with different age of entering the menopause in Italy and Poland and of the kind of work performed by the studied women. Unfortunately, no detailed information on the kind of work performed by the women is available from the Italian report.

Studies conducted in Malaysia proved the statistical significance and correlation between the general result in the scale of menopause symptoms and age [32]. In a study of 31 patients aged 47-62 years differing in numerous psychosocial factors a correlation between age and level of dejectedness [33] was also observed. The results of the present study do not show statistically significant differences between age and the level of dejectedness. Humeniuk *et al.* found that residence in rural areas is a factor increasing the risk of depressive disorders, which was not confirmed in this study [34].

In this study statistically significant differences were observed in the intensity of “hot flashes and sweating” between age groups of women. The intensity of symptoms significantly increases at the age of 51-55 compared to younger women – which indicates a mean age of women during the menopause transition, related to the severity of sleep disorders, excessive stress, depressive disorders [35, 36]. According to the researchers, the severity of symptoms may also be associated with having lower education, urinary dysfunction – sex, prevalence of psychological symptoms [17], and also inhabiting in a distinctive climate, the use of diet, appropriate lifestyle, which features a woman fully in social life, family and her attitude to the aging process [16].

Conclusions

An alarmingly high number of reported psychological symptoms in the group of menopausal women, and in particular among the group of low socio-economic status, unemployed, with the basic level of education was observed.

What remains unclear is the relationship between selected socio-demographic variables and the occurrence of intensifying depressive disorder during menopause.

Emotional disorder during menopause is not willingly reported by women and an important symptom of the deteriorating woman's health.

Career seems to be a factor reducing the risk of occurrence of psychological symptoms.

There is an urgent need for health promotion and prophylaxis in the group of menopausal women, and in many cases of implementation of specialist psychological assistance.

Disclosure

Authors report no conflict of interest.

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