



Original research article

Factors affecting the quality of life and health status of Czech women during the transition from reproductive to post-reproductive life

Romana Belešová¹ * , Valérie Tóthová¹ , Małgorzata Nagórska² ¹ University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences, Institute of Nursing, Midwifery and Emergency Care, České Budějovice, Czech Republic² Rzeszow University, Medical College, Institute of Medical Sciences, Rzeszow, Poland

Abstract

Introduction and objective: In the period of transition from the reproductive to post-reproductive phase, clinical problems and changes of various character and intensity occur, which can affect the life of women. The aim of this quantitative study was to evaluate the factors affecting quality of life and quality of health of Czech women during the transition from reproductive to post-reproductive life.

Methods: The data were obtained using two standardized questionnaires – (1) the WHO's WHOQOL-Bref and (2) Women's Health Questionnaire, (WHQ), as well as one non-standardized questionnaire to identify the women's quality of life and quality of health.

Results: In relation to the quality of life, a statistical analysis showed that physical health was evaluated as the best item, while the home environment was considered to be the worst of the evaluated items. A comparison of the quality of health variables showed that during the climacteric, respondents were most troubled by vasomotor symptoms and least troubled by anxiety/fear. Most respondents perceived their quality of life as good, and the majority of women were satisfied with their health.

Conclusions: A comparison of the quality of health variables showed that during the climacteric, respondents were most troubled by vasomotor symptoms and least troubled by anxiety/fear. Most respondents perceived their quality of life as good, and the majority of women were satisfied with their health.

Keywords: Factor; Menopause; Menopause symptom; Quality of health; Quality of life; Woman

Introduction

In recent decades, the climacteric has received far more attention in biomedicine, public health and social sciences (Morison et al., 2014). The climacteric period is defined as the transition phase from the reproductive to post-reproductive period of life (Souza Guerra et al., 2019).

It is a period in a woman's life that is the result of physiological ageing, changing levels of hypophyseal hormones, such as follicle-stimulating hormone (FSH) and luteinization hormones (LH), as well as changing levels of hormones produced by the ovaries (estrogen, progesterone). Physiologically, the climacteric occurs in women between 40 and 60 years of age. Menopause is characterized by a permanent end of menstruation influenced by the immediate loss of the follicular function of ovaries, and is diagnosed when 12 months have elapsed since the last menstruation (Dalal and Agarwal, 2015; Mishra, 2017).

Prior to diagnosing menopause, changes in a woman's body gradually occur lasting 5–6 years. The occurrence of these changes is usually seen between 42 and 47 years of age,

e.g., in Poland, the first changes are observed between 47 and 51 years of age (Pawlak et al., 2016). The beginning of the menopause depends on genetic factors, age at menarche, ethnic origin, and geography (Utian and Woods, 2013). A study in India proved that early and late ages at menarche are associated with early and late ages of menopause. The fertility of women also seemed to be associated with menarche and menopause. Indian women have a lower mean age at menopause than European and South Asian women, such difference was evident so for age at menarche such an age was also evident at the onset of the first menstruation (Sharma et al., 2016). During the transition from the reproductive to the post-productive stage, women undergo three phases – pre-menopause, peri-menopause, and post-menopause (Ortmann et al., 2020).

The climacteric period is experienced in different ways. This transient period is characterized by physiological variability in endocrine gland activity and unpredictable changes in hormone levels. The decrease in ovarian function is caused by a shortage of estrogen, and is associated with a number of physiological changes, such as urogenital problems (e.g., frequent urination, cystitis, and non-bacterial urethritis), vasomotor instability (i.e., hot flushes and night sweats), and headaches.

* **Corresponding author:** Romana Belešová, University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences, Institute of Nursing, Midwifery and Emergency Care, U Výstaviště 26, 370 05 České Budějovice, Czech Republic; e-mail: rbelesova@zsf.jcu.cz; <http://doi.org/10.32725/kont.2022.025>

Submitted: 2022-05-24 • Accepted: 2022-09-15 • Prepublished online: 2022-09-21

KONTAKT 24/4: 294–301 • EISSN 1804-7122 • ISSN 1212-4117

© 2022 The Authors. Published by University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences.

This is an open access article under the CC BY-NC-ND license.

Additionally, skin atrophy and dyspareunia occur. In addition to physiological changes, psychological changes can also occur, i.e., anxiety, depression, low self-esteem, irritability, and social isolation (Anjaly et al., 2014; Jami et al., 2014; Sorpreso et al., 2015). Moreover, sexual problems, decreased cognitive functions, and psycho-social problems, e.g., tiredness, sleeping disorders, poor concentration, and forgetfulness, can also occur (Sharifi et al., 2015). The symptoms are not only influenced by hormonal changes but by the experiences of women during menopause, which can be influenced by still other factors, such as family and partner relationships, the home environment, and job and leisure activities (Mishra, 2017).

The climacteric period is experienced in different ways. Qualitative and quantitative studies have been performed in the U.S.A., Japan, and Europe to explain the physiological, psychological, and behavioral experience of climacteric women and to explain ethnic differences (Morisson et al., 2014). For example, the results of quantitative studies found ethnic differences in psychosomatic symptoms by White, Afro-American, Hispanic and Asian women. In comparison to other ethnicities, white American women generally experienced symptoms to a lesser degree (Im et al., 2014).

With age and the natural aging process, the state of health (HS) and the associated quality of life (QOL) of women changes. The quality of life (QOL) is generally perceived as a broad, multidimensional concept that includes physiological, psychological, and psycho-social factors (Almeida-Brasil et al., 2017).

The aim of the study was to evaluate the factors affecting QOL and the quality of health of Czech women during the transition from reproductive to post-reproductive life. The results are important for public health and could be used in health education to improve the quality of lives of Czech women.

Materials and methods

The study design was a cross-sectional descriptive study. Respondents were selected using the functional choice method combined with the snowball method. This created a representative sample of women ($n = 400$) of sufficient size for statistical analysis.

Criteria for selection in the study were: women aged over 40 years, a permanent address in the South Bohemian Region, a willingness to complete the questionnaire.

Prior to the data collection, a pilot study was performed in January 2019 to test variables and the understandability of the questionnaires. The survey took place from March to June 2019 in the South Bohemian Region of the Czech Republic.

Questionnaires were distributed to women in the waiting rooms of gynecological outpatient clinics. All respondents were informed of the study goals, study procedures, and possible use of the study results. All participants agreed to respond to the questionnaires. Consent consisted of completing the questionnaire. On average the questionnaire took 15–25 minutes to complete. Participation in the research was voluntary and anonymous.

A total of 425 questionnaires were distributed to women in the South Bohemian Region (Czech Republic); of these, 400 (94.1%) were returned by respondents.

Research instruments

WHOQOL-BREF

To evaluate the QOL of women we used the WHOQOL-BREF (abbreviated version of WHOQOL-100). The questionnaire contains 26 items; 24 items represent facts and 2 items rep-

resent subjective evaluations of the general QOL and the General Health. The questionnaire was based on four domains: (1) Physical Health (DOM1) – 7 items, (2) Experiences (DOM2) – 6 items, (3) Social relationships (DOM3) – 3 items, and (4) Environment (DOM4) – 8 items. Each item is rated on a 5-point Likert scale. Each item of the WHOQOL-BREF is scored from 1 to 5 on a response scale. The WHOQOL results are expressed as domain scores representing a raw score calculated from relevant items, including transformation to a scale that ranged from 4 to 20, and the values of two independent items evaluating the general QOL and the General Health (Almeida-Brasil et al., 2017). Domain scores are scaled in a positive direction – higher scores denote higher QOL (Jenabi et al., 2015).

Women's Health Questionnaire (WHQ)

To identify the quality of health of the women, the Czech version of Women's Health Questionnaire (WHQ) was used. The WHQ was developed in 1992 by Hunter to assess women's health. It includes physical and emotional aspects, even in elderly post-menopausal women. The tool contains 9 dimensions (37 items) specifically focused on the symptoms of climacteric women: (1) Depressive mood (DEP) – 8 items, (2) Somatic symptoms (SOM) – 8 items, (3) Memory/Concentration (MEM) – 3 items, (4) Vasomotor symptoms (VAS) – 2 items, (5) Anxiety/Fear (ANX) – 4 items, (6) Sexual behavior (SEX) – 3 items, (7) Sleeping disorders (SLE) – 3 items, (8) Menstruation signs (MEN) – 4 items, and (9) Attractiveness (ATT) – 2 items (Hunter, 2003). WHQ results are expressed as scores on individual dimensions representing a raw score calculated from the relevant items, including transformation from 0 to 1 scale: the higher the value of the mean, the worse the health quality for the relevant dimension (Hunter, 2000). The Czech WHQ version has been available since 2001 (Hunter, 2003).

In addition, to assess the characteristics of the study group a self-developed questionnaire survey was used in which we asked about socio-demographic data (age, education, marital status, occupation, place of residence) and general information about attitudes to health.

Statistical analysis

The data were analyzed using SASD and SPSS software. Kendall's tau-c and Cramer's V tests were used for the correlation of the mutual factors.

The study also focused on a comparison of correlations in women associated with perception of the climacteric. We were also interested in the correlations between somatic symptoms and age, education, size of the place of residence (population), occupation, and preventive gynecological examinations. The correlation between somatic climacteric symptoms and BMI were also assessed. Besides somatic symptoms, psychological symptoms were compared, and their correlation with age, marital status, education, size of the place of residence (population), occupation, and preventive gynecological examinations were studied. We were also interested in the comparison of correlations between age, marital status, education, size of the place of residence (population), occupation, and preventive gynecological examinations, and vasomotor symptoms.

For the analysis, respondents were categorized both by biological factors, such as age, presence or absence of menstruation, presence or absence of subjective symptoms, BMI value, and socio-demographic factors including education, marital status, size of the place of residence (population), and occupation.

Results

The study included 400 respondents. The largest group contained women 45–50 years (174 respondents, 43.5%), and the smallest group consisted of women aged 61–65 years (53 respondents, 13.2%). The average age of respondents was 52.86 years. Regular and irregular menstruation was reported by 99 (24.8%) and by 53 (13.2%) respondents, respective-

ly. Amenorrhea was reported by 248 (62%) respondents; the mean age of amenorrhea onset was 48 years. Subjective climacteric symptoms were experienced by 246 (61.5%) respondents while 154 (38.5%) respondents reported no symptoms. The characteristics of the women are shown in Table 1. The basic assessment of the sample showed deviations of 5.389596 for age, 1.12758 for education, 0.879181 for occupation, 1.86582 for marital status, and 1.14158 for the size of place of residence (population).

Table 1. Characteristics of study participants

Category	Frequency	%	Category	Frequency	%
<i>Age</i>			<i>Marital status</i>		
45–50 years	174	43.5	Single	51	12.8
51–55 years	94	23.5	Married	242	60.7
56–60 years	79	19.7	With a partner	64	16.0
61–65 years	53	13.3	With children	136	34.0
<i>Education level</i>			<i>Place of residence</i>		
Primary	15	3.8	Up to 1,000 inhabitants	103	25.8
Secondary without graduation (school-leaving exam)	127	31.8	1,001–3,000 inhabitants	62	15.5
Secondary with graduation (school-leaving exam)	164	41.8	3,001–20,000 inhabitants	173	43.2
Higher professional school	18	4.5	20,000–100,000 inhabitants	39	9.8
College	76	19.0	More than 100,000 inhabitants	23	5.8
<i>Employment</i>			<i>Subjective symptoms</i>		
Full-time employment	291	72.9	She feels	246	61.5
Business	45	11.3	She doesn't feel	154	38.5
Unemployed	9	2.3	<i>Menstruation</i>		
Pensioner	39	9.8	Regular menstruation	99	24.8
Disabled pensioner I–III	12	3.0	Irregular menstruation	53	13.2
Care for a close person	2	0.5	Amenorrhea	248	62.0
Early retirement	1	0.3	<i>BMI</i>		
<i>BMI</i>			Mean		29.5
Underweight	2	0.5	SD		7.2
Normal BMI	187	46.8	<i>Age</i>		
Overweight to moderate obesity	206	51.6	Mean		52.86
Morbid obesity	5	1.2	SD		5.90

Women's Quality of Life and Women's Quality of Health

Table 2 presents the quality of respondents' lives. Mean raw scores of individual domains are provided. The best evaluations were awarded to physical health, with environment classified as the worst of the domains. Domain scores did not differ significantly and ranged between 15.05 and 15.49.

The QOL was reported as good by 61.7% of respondents, very good by 17.5%, neither good nor bad by 18.5%, bad by 1.5%, and very bad by 0.8%. Regarding health, 83.0% of respondents were satisfied with their health, 7% of respondents were very satisfied, 22% were neither satisfied nor dissatisfied, 8.8% were dissatisfied, and 1.2% were very dissatisfied.

Table 2 also shows the assessment of participants using the standardized WHQ. A comparison of individual dimensions showed that anxiety/fear was the least perceived problem, while vasomotor symptoms represented the worst problem. The values of means of individual domains range from 0.1850 and 0.3950.

Comparison of correlations

In addition to respondents' quality of life and quality of health, correlations with age, marital status, education, place of residence (population), occupation, and preventive gynecological examinations were studied. Next to the quality of

Table 2. Evaluation of the quality of life of women in climacteric (WHOQOL-BREF); Health assessment of women in climacteric (WHQ) – descriptive statistics

Item	Minimum	Maximum	Mean	Std. deviation
WHOQOL-BREF				
DOM1	4.57	20.00	15.4886	2.33313
DOM2	4.00	20.00	15.1217	2.34952
DOM3	4.00	20.00	15.3400	2.75541
DOM4	8.00	20.00	15.0463	2.10108
WHQ				
DEP	0.00	0.86	0.2654	0.18853
SOM	0.00	1.00	0.3561	0.27007
MEM	0.00	1.00	0.3533	0.36199
VAS	0.00	1.00	0.3950	0.42946
ANX	0.00	1.00	0.1850	0.27219
SEX	0.00	1.00	0.2870	0.32209
SLE	0.00	1.00	0.3792	0.36079
MEN	0.00	1.00	0.2294	0.25780
ATT	0.00	1.00	0.2800	0.34372

Legend: DOM1 – psychological health; DOM 2 – experiencing; DOM3 – social relationships; DOM4 – environment; DEP – depressive mood; SOM – somatic symptoms; MEM – memory/concentration; VAS – vasomotor symptoms; ANX – anxiety /fear; SEX – sexual behavior; SLE – sleeping complaints; MEN – menstruation symptoms; ATT – attractiveness.

life and quality of health, correlations between respondents' somatic symptoms and their age, marital status, education, place of residence (population), occupation, and preventive gynecological examinations were studied. No correlations were found between somatic symptoms and place of residence (population), and somatic symptoms and the frequency of preventive gynecological examinations. Statistical analysis of the ordinal correlation of the measured aspects using Kendall's τ showed that somatic symptoms, such as headaches, dizziness, and nausea, were not associated with age. On the other hand, tiredness, pain in the extremities and backache, tingling in hands, and feet, and more frequent urination were slightly associated with age. For more frequent urination, the highest level of explained variability was identified at 2.7%. It can be observed that with increasing age, the frequency of these somatic symptoms also increases.

The correlation between somatic symptoms and respondent education was also studied. Except for headaches, other somatic symptoms were only slightly correlated with education; the highest level of explained variability (5.4%) was identified for pain in extremities and backache. The test results show that the frequency of these symptoms decreased with increasing levels of education.

When testing the correlation between somatic symptoms and marital status using Cramer's V test, the only correlation was found for headaches, where the level of explained variability was 1.8%.

Cramer's V test only showed correlations between respondents' somatic symptoms and employment, dizziness, and more frequent urination (the correlations were rather low), the level of explained variability for dizziness was slightly higher, i.e., 2.9%. Kendall's tau-c test also explored the correlation between BMI and somatic symptoms.

No correlations between BMI and headaches, dizziness and nausea were found.

On the other hand, tiredness, pain in extremities and backache, tingling in the hands and feet, and more frequent urination correlated with BMI, i.e., the higher the BMI level, the more frequently the somatic symptoms occurred. The highest

level of explained variability was 6.7% and was found for pain in extremities and backache. The results of tests and the correlations with somatic symptoms are demonstrated in Table 3.

In addition to somatic symptoms, vasomotor symptoms were tested with attention paid to their correlations with age, marital status, education, place of residence (population), occupation, and preventive gynecological examinations. The testing did not show any correlations between respondents' vasomotor symptoms and marital status, place of residence (population), and the frequency of preventive gynecological examinations.

Although the age of climacteric women was associated with vasomotor symptoms, Kendall's tau-c test found a low correlation, the level of explained variability was 1.5%. It can be stated that the causality is clear in this case – i.e., the frequency of vasomotor symptoms increases with age (e.g., night sweats and hot flushes).

Similarly, a low correlation was found between education and vasomotor symptoms (e.g., hot flushes and night sweats). The level of explained variability was found to be from 1.5% to 2.5%. Nevertheless, if this correlation exists, the causality is again obvious: the higher the education, the less frequently the symptoms occur (e.g., hot flushes and night sweats).

Cramer's V test showed a slight correlation between night sweats and employment, the level of explained variability was 2.1%.

Kendall's tau-c test identified a marginal correlation between BMI and vasomotor symptoms (hot flushes) in climacteric women; the level of explained variability was less than 1%. The tests confirmed that BMI does not correlate with night sweats. The test results and the mentioned correlations are shown in Table 4.

Estrogen deficit in climacteric women also influences their psyche. Therefore, the correlations between respondents' psychological symptoms and their age, marital status, education, occupation, place of residence (population), and preventive gynecological examinations were studied. No statistically significant correlations were found between psychological symptoms and place of residence (population) or preventive

Table 3. Mutual correlations of somatic symptoms and age, education, marital status, occupation, BMI – symmetric measures

Correlation between		Value	Degree of variability explained
... tiredness and age	Kendall's tau-c	-0.096	slight association
... pain in extremities and backache and age	Kendall's tau-c	-0.111	slight association
... tingling in hands and feet and age	Kendall's tau-c	-0.111	slight association
... more frequent urination and age	Kendall's tau-c	-0.164	2.7
... pain in extremities and backache and education	Kendall's tau-c	0.233	5.4
... headaches and marital status	Phi Cramer's V	0.236 0.136	1.8
... dizziness and occupation	Phi Cramer's V	0.295 0.170	2.9
... more frequent urination and occupation	Phi Cramer's V	0.292 0.169	slight association
... BMI and tiredness	Kendall's tau-c	-0.163	slight association
... BMI and pain in extremities and back	Kendall's tau-c	-0.258	6.7
... BMI and tingling in hands and feet	Kendall's tau-c	-0.088	slight association
... BMI and more frequent urination	Kendall's tau-c	-0.153	slight association

Table 4. Correlations of vasomotor symptoms and age, occupation, BMI – symmetric measures

Correlation between		Value	Degree of variability explained
... hot flushes and age	Kendall's tau-c	-0.122	1.5%
... night sweats and age	Kendall's tau-c	-0.112	1.5%
... hot flushes and education	Kendall's tau-c	0.157	1.5%
... night sweats and education	Kendall's tau-c	0.122	2.5%
... night sweats and occupation	Phi Cramer's V	0.253 0.146	2.1%
... hot flushes and BMI	Kendall's tau-c	-0.097	<1%

gynecological examinations. Statistically significant correlations are shown in Table 5.

The tests confirmed that the respondents' age correlated with psychological symptoms only marginally, namely, panic attacks; using the Kendall's tau-c test, the level of explained variability was 1.1%.

A similar result was found in correlations between psychological symptoms and education. It means that the correlation between psychological symptoms (particularly anxiety when leaving home) and education was marginal; Kendall's tau-c

test showed the level of explained variability for this feature was <1%.

Similarly, marital status only marginally correlated with psychological symptoms of climacteric women (anxiety when leaving home); Cramer's V test, found the level of explained variability was 2%.

Cramer's V test showed a low correlation between occupation and anxiety perceived when leaving home. The level of explained variability was 2.3%. Employed women very seldom felt anxiety when leaving home.

Table 5. Correlations between respondents' psychological symptoms and age, marital status, education, occupation – symmetric measures

Correlation between		Value	Degree of variability explained
... panic attacks and age	Kendall's tau-c	-0.108	1.1%
... anxiety when leaving home and education	Kendall's tau-c	0.096	1.0%
... anxiety when leaving the home and marital status	Phi Cramer's V	0.244 0.141	2.0%
... anxiety when leaving home and occupation	Phi Cramer's V	0.265 0.153	2.3%

Discussion

In the climacteric period, there is an increase in follicle-stimulating hormone (FSH), and the absence of menstruation in some cycles followed by the total disappearance of menstruation (Schmidt, 2017). Menopause is defined by the WHO as a permanent end of menstruation due to the loss of ovarian function; 12 months of amenorrhea is defined to be natural menopause. Though it occurs at the mean age of 52 years, the age of natural menopause can vary, ranging from 40 to 58 years (Shifren and Gass, 2014). This was confirmed by our sample, in which 248 (62%) of the 400 respondents stated that they no longer menstruated; the respondents' mean age at the onset of amenorrhea was 48 years. The view of women on the fact can also be interesting that they have the menstruation or not. A cross-sectional study performed on Korean women aged 45–65 years, recorded respondents' opinions on menopause; 65% of participants perceived menopause as a disease requiring treatment (Kim et al., 2017). The survey of our 400 respondents confirmed the correlation between health and the onset of amenorrhea, and whether a climacteric woman considered menstruation to be connected with her personal view of her physical condition. The level of explained variability was 1.3% in this case.

Of the respondents, 246 (61.5%) reported a positive perception of subjective climacteric symptoms, while 154 (38.5%) respondents did not describe any subjective symptoms. It can be supposed that this was due to many respondents, i.e., 174 (43.5%), giving the age range of 45–50 years.

Our study was focused on the quality of life and the quality of health in women in the climacteric period. Based on an evaluation of the abbreviated version (WHOQOL-BREF) of the WHO's WHOQOL-100 questionnaire focusing on the quality of life (Faraji et al., 2018), and while comparing the individual domains, the study shows a positive evaluation of physical health in contrast to the negative evaluation of the environment. Quality of life also influences the roles of women, and, as a result, it influences their families and the whole society (Swain et al., 2021).

To assess the health of climacteric women, the standardized WHQ tool was used for Czech ethnic conditions. Respondents scored lowest on the anxiety/fear dimension but scored high on vasomotor symptoms. The comparison of other studies performed across the world shows that hot flushes and night sweats have the greatest negative impact on a woman's quality of life (Gonçalves et al., 2016).

Besides the quality of life and the quality of health, attention was paid to correlations with pre-menopause, peri-menopause, and post-menopause. We were interested in correlations between somatic, vasomotor, and psychological symptoms, vs. age, marital status, place of residence (population), education, and frequency of preventive gynecological examinations. Researchers in Poland compared climacteric symptoms relative to respondents' education, place of residence, marital status, and quality of life. In the Polish study, the influence of climacteric symptoms vs. respondents' activities on the quality of their lives was analyzed. Respondents who felt moderate to severe climacteric symptoms were more likely compared to respondents who felt mild or no climacteric symptoms. The intensity of climacteric symptoms can strongly influence the lives and activities of women, and the more severe the climacteric symptoms, the lower the reported quality of life (Bień et al., 2015).

Statistical analysis found a slight correlation between age and tiredness, pain in extremities and backache, tingling in hands and feet, and more frequent urination. The highest level of explained (2.7%) was associated with increased frequency of urination. The frequency of somatic symptoms increase with age. No correlation was found between age and psychological symptoms, such as anxiety. A correlation between age and panic attacks was found, and the explained variability was 1.1%. On the other hand, contrasting results were obtained by a study in Minnesota. In women aged 50–70 years ($n = 932$) who were included in the Minnesota Green Tea Trial, a decrease of the severity of climacteric symptoms was observed. Women aged 50–54.9 mentioned stronger night sweats (and sweating in general) than other age groups. They also mentioned more severe hot flushes than women older than 60 years. Respondents aged 50–54.9 described more symptoms associated with a negative mood than respondents older than 65 years (Webster et al., 2018).

The testing also revealed a correlation (though negligible) between age and general satisfaction with the quality of health; the level of explained variability was 0.6%.

Obesity is (in addition to hypertension and lack of exercise) regarded as an important factor that should be assessed in climacteric women since it can affect the characteristic features of this period (Blümel et al., 2015). Therefore, correlations between BMI and vasomotor symptoms were studied. The testing of these correlations made clear that tiredness, pain in limbs and backaches, tingling in hands and feet, and more frequent urination were related to BMI in Czech climacteric women, i.e., the frequency of mentioned somatic symptoms occurred more frequently with increasing BMI. The highest level of explained variability of 6.7% is evident for extremities and back pain. Further studies have found that exercising and regular physical activity is effective in reducing vasomotor symptoms and the improvement of sleep disorders, hot flushing, and psychological problems of menopausal women (Taebi et al., 2018).

Our statistical analysis found correlations between vasomotor symptoms and age, education, and occupation. Although the age of climacteric women was associated with vasomotor symptoms (Kim et al., 2017), the correlation in our respondents was weak; the level of measurable variability was 1.5%. It can be declared that if there is a correlation, the causality is clear – women at a higher age suffer from vasomotor symptoms (hot flushes and night sweats). A weak correlation was found between education and vasomotor symptoms (hot flushes and night sweats); the level of explained variability was from 1.5% to 2.5%. Nevertheless, as far as the demonstrability of the correlations is concerned, the causality is again clear – the higher the level of education, the less frequent the symptoms (hot flushes and night sweats). In addition, the correlation between night sweats and employment was confirmed, the level of explained variability was 2.1%.

The seriousness of climacteric symptoms can also be influenced by personality factors. Numerous studies suggest that characteristics such as optimism, self-confidence, and aggression are associated with response to and coping with climacteric symptoms, i.e., vasomotor symptoms, psychological (mood disorders, depression), and psycho-somatic symptoms (Hunter and Chilcot, 2021). In our study, the statistical analysis found correlations between psychological symptoms and education, marital status, and employment of climacteric women. The study showed a marginal correlation between anxiety when leaving home and education; the level of ex-

plained variability was <1%. The levels of explained variability for anxiety and marital status were 2%, and 2.3% for anxiety and employment.

Conclusions

The presented results – based on the standardized WHOQOL-BREF questionnaire – showed that the majority of respondents perceived their quality of life as good and the majority of women were satisfied with their health. Using the standardized WHQ we found that vasomotor symptoms were the most common, while fear/anxiety was the least common. Besides the estrogen deficit, the presence, intensity and frequency of vasomotor symptoms are influenced by genetic and biological factors, lifestyle, nutrition, stress, etc.

Limitations

Since vasomotor symptoms were assessed as the most troubling, it could be useful to perform another study focused on groups of Czech women to assess the influence and effectiveness of counseling and education in this topic. Such studies could benefit women by helping them cope with this demanding stage of their lives while maintaining a good quality of health.

Funding

This study was supported by purpose-bound Research & Development finances of the Faculty of Health and Social Sciences, the University of South Bohemia in České Budějovice, No. 058/2018 /S.

Ethical aspects and conflict of interests

The authors have no conflict of interests to declare.

Faktory ovlivňující kvalitu života a zdravotní stav českých žen v období přechodu z reprodukční do postreprodukční fáze života

Souhrn

Úvod a cíl: V období přechodu z reprodukční do postreprodukční fáze dochází ke klinickým problémům a změnám různého charakteru a intenzity, které mohou ovlivnit život ženy. Cílem této kvantitativní studie bylo zhodnotit faktory ovlivňující kvalitu života a kvalitu zdraví českých žen při přechodu z reprodukční do postreprodukční fáze života.

Metody: Data byla získána pomocí dvou standardizovaných dotazníků – (1) WHO's WHOQOL-Bref a (2) Women's Health Questionnaire (WHQ), a dále jednoho nestandardizovaného dotazníku ke zjištění kvality života a kvality zdraví žen.

Výsledky: Ve vztahu ke kvalitě života statistická analýza ukázala, že jako nejlepší bylo hodnoceno fyzické zdraví, naopak jako nejhorší z hodnocených položek bylo hodnoceno domácí prostředí. Porovnání kvality zdravotních proměnných ukázalo, že v klimakteriu respondentky nejvíce trápily vazomotorické symptomy a nejméně je trápila úzkost/strach. Většina respondentek vnímala kvalitu svého života jako dobrou a většina žen byla spokojena se svým zdravím.

Závěr: Porovnání kvality zdravotních proměnných ukázalo, že v klimakteriu respondentky nejvíce trápily vazomotorické symptomy a nejméně úzkost/strach. Většina respondentek vnímala kvalitu svého života jako dobrou a většina žen byla spokojena se svým zdravím.

Klíčová slova: faktor; kvalita zdraví; kvalita života; menopauza; symptom menopauzy; žena

References

- Almeida-Brasil CC, Silveira MS, da Silva KR, Lima MG, Faria CDCM, Cardoso CL, et al. (2017). Quality of life and associated characteristics: application of WHOQOL-BREF in the context of Primary Health Care. *Cien Saude Colet* 22(5): 1705–1715. DOI: 10.1590/1413-81232017225.20362015.
- Anjaly N, Viswanath L, Anju Philip T (2014). Assess the knowledge on menopausal self care among perimenopausal women. *J South Asian Fed Menopause Soc* 2(2): 55–58. DOI: 10.5005/jp-journals-1032-1041.
- Bień A, Rzońca E, Iwanowicz-Palus G, Pańczyk-Szeptuch M (2015). The Influence of Climacteric Symptoms on Women's Lives and Activities. *Int J Environ Res Public Health* 12(4): 3835–3846. DOI: 10.3390/ijerph120403835.
- Blümel JE, Chedraui P, Aedo S, Fica J, Mezones-Holguin E, Barón G (2015). Obesity and its relation to depressive symptoms and sedentary lifestyle in middle-aged women. *Maturitas* 80(1): 100–105. DOI: 10.1016/j.maturitas.2014.10.007.
- Dalal MS, Agarwal M (2015). Postmenopausal syndrome. *Indian J Psychiatry* 57(Suppl. 2): S222–S232. DOI: 10.4103/0019-5545.161483.
- Faraji K, Kamrani MA, Saeieh SE, Farid M (2018). Could a Midwife Leading Health Behaviour Counseling Improve Self-Care of Women During Perimenopause? A Quasi- Experimental Study. *J Mid-life Health* 9(4): 195–199. DOI: 10.4103/jmh.JMH_18_17.
- Gonçalves JT, Silveira MF, Campos MC, Costa LH (2016). Overweight and obesity and factors associated with menopause. *Cien Saude Colet* 21(4): 1145–1156. DOI: 10.1590/1413-81232015214.16552015.
- Hunter MS (2000). The women's Health Questionnaire (WHQ): The development, standardization and application of a measure of mid-aged women's emotional and physical health. *Qual Life Res* 9: 733–738. DOI: 10.1023/A:1008973822876.
- Hunter MS (2003). The Women's Health Questionnaire (WHQ): Frequently Asked Questions (FAQ). *Health Qual Life Outcomes* 1: 41. DOI: 10.1186/1477-7525-1-41.
- Hunter MS, Chilcot J (2021). Is cognitive behaviour therapy an effective option for women who have troublesome menopausal symptoms? *Br J Health Psychol* 26(3): 679–708. DOI: 10.1111/bjhp.12543.
- Im E-O, Ko Y, Chee W (2014). Ethnic differences in the clusters of menopausal symptoms. *Health Care Women Int* 35(5): 549–565. DOI: 10.1080/07399332.2013.815752.
- Jami Abedmokhadam Z, Bijeh N, Hashemi Gavaheer A (2014). The effect of aerobic exercise on menopausal symptoms and quality of life in non athlete postmenopausal women. *Nurs Midwifery J* 12(3): 173–182.
- Jenabi E, Shobeiri F, Hazavehei SM, Roshanaei G (2015). Assessment of Questionnaire Measuring Quality of Life in Menopausal Women: A Systematic Review. *Oman Med J* 30(3): 151–156. DOI: 10.5001/omj.2015.34.

14. Kim MK, Seo SK, Chae HD, Hwang KJ, Kim T, Yoon BK, Lee BS (2017). Perceptions of Postmenopausal Symptoms and Treatment Options among Middle-Aged Korean Women. *Yonsei Med J* 58(3): 533–539. DOI: 10.3349/ymj.2017.58.3.533.
15. Mishra GD (2017). Menopause, A stage in the Life of Women. In: Cano C. *Menopause. A Comprehensive Approach*. Cham: Springer, pp. 3–7.
16. Morisson LA, Brown DE, Sievert LL, Reza A, Rahberg N, Mills P, Goodloe A (2014). Voices from the Hilo Women's Health Study: Talking Story about Menopause. *Health Care Women Int* 35(5): 529–548. DOI:10.1080/07399332.2013.829067.
17. Ortmann O, Beckermann MJ, Inwald EC, Strowitzki T, Windker E, Tempfer C (2020). Peri- and postmenopause-diagnosis and interventions interdisciplinary S3 guideline of the association of the scientific medical societies in Germany (AWMF 015/062): short version. *Arch Gynecol Obstet* 302(3): 763–777. DOI: 10.1007/s00404-020-05682-4.
18. Pawlak IE, Wolińska I, Mroczek B (2016). Impact of climacteric and depressive symptoms on the quality of life of postmenopausal women. *Fam Med Prim Care Rev* 18(3): 325–331. DOI: 10.5114/fmpcr/62338.
19. Schmidt CW (2017). Age at Menopause: Do Chemical Exposures Play a Role? *Environ Health Perspect* 125(6): 062001. DOI: 10.1289/ehp2093.
20. Sharifi N, Jalili L, Najar S, Yazdizadeh H, Haghighizadeh MH (2015). Survey of general health and related factors in menopausal women in Ahvaz city, 2012. *Razi J Med Sci* 21(128): 59–65.
21. Sharma K, Bansal M, Chopra S, Kaur M (2016). Menopause Characterization, Menarche and Fertility among Rural Females of Shimla (Himachal Pradesh). *SM J Reprod Health Infertil* 1(1): 1005.
22. Shifren JL, Gass ML (2014). The North American Menopause Society recommendations for clinical care of midlife women. *Menopause* 21(10): 1038–1062. DOI: 10.1097/GME.0000000000000319.
23. Sorpreso IC, Soares Júnior JM, Fonseca AM, Baracat EC (2015). Female aging. *Rev Assoc Med Bras* 61(6): 553–556. DOI: 10.1590/1806-9282.61.06.553.
24. Souza Guerra GE Júnior, Prates Caldeira A, Piana Santos Lima de Oliveira F, Santos Figueiredo Brito MF, de Oliveira Silva Gerra KD, Mendes D'Angelis CE, et al. (2019). Quality of life in climacteric women assisted by primary health care. *PLoS One* 14(2): e0211617. DOI: 10.1371/journal.pone.0211617.
25. Swain D, Nanda P, Das J (2021). Impact of yoga intervention on menopausal symptoms-specific quality of life and changes in hormonal level among menopausal women. *J Obstet Gynaecol Res* 47(10): 3669–3676. DOI: 10.1111/jog.14939.
26. Taebi M, Abdollahian S, Ozgoli G, Ebadi A, Kariman N (2018). Strategies to improve menopausal quality of life: A systematic review. *J Educ Health Promot* 7: 93. DOI: 10.4103/jehp.jehp_137_17.
27. Utian WH, Woods NF (2013). Impact of hormone therapy on quality of life after menopause. *Menopause* 20(10): 1098–1105. DOI: 10.1097/GME.0b013e318298debe.
28. Webster AD, Finstad DA, Kurzzer MS, Torkelson CJ (2018). Quality of life among postmenopausal women enrolled in the Minnesota Green Tea Trial. *Maturitas* 108: 1–6. DOI: 10.1016/j.maturitas.2017.10.013.