Symptoms of Estrogen Deficiency and Quality of Life

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Abstract

Introduction: The quality of life of every individual is influenced by many different factors. For women in menopause, estrogen deficiency is undoubtedly one of these factors. Estrogen deficit leads to a series of symptoms, which may affect their quality of life to some extent. In the clinical practice, it is important to have a tool to assess the quality of life that is practical and is able not only to assess the quality of life.

Aim: The aim of the research was to determine whether and to what extent the symptoms of estrogen deficiency occur in women during menopause and how they affect their quality of life.

Method: The survey ran from July to October 2016 in a medical facility in Zlín. The research involved 284 women aged 45–60 years who suffered from the symptoms of estrogen deficiency. The incidence and severity of symptoms were assessed using the printed form of the Czech version of the Menopause Rating Scale questionnaire.

Results: The respondents reported mostly mild or no problems. Only a few of the respondents rated the intensity of some problems as intolerable. Total score points to the fact that most women have high quality of life.

Conclusion: Given that women currently spend up to one third of their life in the postmenopausal period, it is very important to deal with these symptoms and address them. If women suffer from estrogen deficiency symptoms, it is necessary to evaluate their intensity and impact for which the Menopause Rating Scale is a suitable tool.

Keywords: estrogen deficiency, menopause, Menopause Rating Scale, quality of life

Introduction

The climacteric is an inevitable period in every woman's life. It is a period of cessation of the reproductive functions and hormonal instability. This transitional period from woman's fertile age to the beginning of old age may be accompanied by a number of symptoms, invoked by a lack of female hormones – estrogens (Roztočil, 2011, p. 91).

Estrogens are fundamental for the morphology and function of woman's organism throughout her life. Therefore, in the climacteric period, when their production is rapidly decreasing and estrogen deficiency symptoms start to appear, women need to be given adequate care. The aggregate of acute symptoms caused by estrogen deficiency is called acute climacteric syndrome. Its most frequent symptoms include: hot flushes, mood swings, anxious conditions, depressions, irritation, tiredness and fatigue, feeling of loneliness, loss of libido, headache and sleeping disorders. The lack of estrogen may start to take the effect of other symptoms over time. Women may experience symptoms of urogenital atrophy: the vagina starts to lose elasticity and its epithelium thins away; paracolpium and pelvic floor muscles become weaker. Urogenital atrophy considerably worsens women's sexual life, which may also significantly reduce their quality of life. These unwanted symptoms are numerous and occur in a varying extent in every woman. Atrophy caused by estrogen deficiency may also take effect outside the woman's urogenital tract, e.g. on eye, nose and other mucosas. These

symptoms are collectively referred to as organic estrogen deficiency syndrome (Kolařík, Halaška & Feyereisl, 2011, s. 287–298). The most serious group of symptoms is the metabolic estrogen deficiency syndrome. It is a combined glucose and lipid metabolism disorder in genetically determined persons with visceral adiposity and adipose tissue dysfunction. Metabolic syndrome is manifested by osteoporosis, hypertension, inflammatory protrombotic condition and glucose intolerance. The occurrence of metabolic syndrome is supported by estrogen deficiency, android body habitus with weight gain and lack of physical activity. Later metabolic syndrome is better known as pre-coronary syndrome because it correlates with an increased risk of cardiovascular accidents including most frequently heart attack, stroke or sudden death (Donát, 2011, p. 726).

Estrogen deficiency symptoms may negatively impact woman's physical and mental health and reduce her quality of life. It is important to recognize that for most women, the quality of life is rather more important than its length. Fortunately, estrogen deficiency is a condition that may be positively influenced, to a certain extent, by timely and adequate care (Fait, 2013, p. 17).

Women suffering from estrogen deficiency symptoms are mostly encountered by general practitioners and local gynaecologists, sought after by women especially due to subjective complaints and clinical climacteric symptoms. Communication between the healthcare professional and the patient is of major importance and often represents a highly effective treatment method available to the physician or obstetrician/general nurse (especially for sensitive and vulnerable clients). The quality and intensity of the relationship between the client and healthcare personnel may significantly affect the treatment result. It has been repeatedly proven that a good communicative relationship to the medical staff is an indispensable part of quality healthcare. To a great extent, a clients appraises the quality of healthcare based on how the healthcare personnel communicate with her, what information they share with her (in what manner, amount and quality), how much room she obtains for expressing her wishes, how she is accepted by the personnel and whether they support her dignity and confidence (Payne, 2005, p. 181). Apart from a consequent and high-standard communication and careful education, superior quality of care and increase of women's adherence are also supported by tools that can be used for evaluating the extent of impact on the women's lives but also the intensity of present acute or subacute estrogen deficiency symptoms. One of such tools is the specific Menopause Rating Scale (MRS) questionnaire, applied for evaluating the quality of women's lives in the period affected by menopause.

Objective

The objective of the research study was to use the printed form of the Czech version of Menopause Rating Scale tool to determine what estrogen deficiency symptoms were present in the sample of respondents (n = 284) and what their intensities are. Another objective was to determine to what extent the present estrogen deficiency symptoms affect the quality of respondents' lives. An additional objective was to ascertain how estrogen deficiency symptoms evolve over the time in a group of respondents (n = 20) by a repeated completing of the MRS questionnaire.

Methodology

The research study took place from July to October 2016 at a healthcare facility in Zlín. The respondents were 284 women, aged 45 to 60, with at least one acute or subacute estrogen

deficiency symptom. It was not taken into account whether or not the respondents were already undergoing any treatment related to estrogen deficiency symptoms. The data collection took place while the respondents were waiting for a visit at the obstetric-gynaecology ward. The respondents were educated by an obstetrician and after providing informed consent they filled in the printed form of the standardized Menopause Rating Scale questionnaire in the Czech version (Tab. 1).

A sample of respondents (n = 20) with the same characteristics and conditions as those described above for the basic group of respondents was used for repeated administration of the MRS questionnaire.

Tab. 1 **The Czech version of MRS**

Menopause Rating Scale (MRS)

Standard Czech version 1.0

Jméno a příjmení: **Věk:**

Vzdělání*: základní - střední bez maturity - úplné střední - vyšší odborné - vysokoškolské

Léčba*: bez léčby - před léčbou - 1 měsíc - 3 měsíce - 12 měsíců **Dnešní datum:**

*Které z následujících příznaků (obtíží) se Vás **za poslední měsíc** týkají? **Zakroužkujte**, prosím, u každého typu obtíží míru intenzity, která odpovídá Vaší reálné situaci za poslední měsíc. Zhodnoťte, prosím, **VŠECHNY** níže napsané obtíže (nelze jakoukoli položku přeskočit nebo vynechat)! Jestliže Vás některý z příznaků v tuto chvíli netrápí, zakroužkujte u něj 0 (žádné obtíže). Pokud se rozhodnete během vyplňování dotazníku některou ze svých odpovědí změnit, původní odpověď přeškrtněte a zakroužkujte odpověď novou.*

Intenzita obtíží

0 *ŽÁDNÉ* ***1*** *MÍRNÉ* ***2*** *STŘEDNÍ* ***3*** *VÝRAZNÉ* ***4*** *NESNESITELNÉ*

1	**Návaly horka, pocení** (občasné pocení) ……	**0**	**1**	**2**	**3**	**4**
2	**Srdeční obtíže** (bušení srdce, nepravidelný rytmus, zrychlený tep, pocit tísně) ……..…	**0**	**1**	**2**	**3**	**4**
3	**Poruchy spánku** (potíže s usínáním, předčasné probouzení, potíže s trváním spánku) ……	**0**	**1**	**2**	**3**	**4**
4	**Depresivní nálady** (pocity smutku, plačtivost, nedostatek energie, proměnlivost nálad) …….	**0**	**1**	**2**	**3**	**4**
5	**Předrážděnost** (nervozita, vnitřní tíseň, pocity agresivity) ……..….....	**0**	**1**	**2**	**3**	**4**
6	**Úzkost** (vnitřní roztěkanost, pocity paniky) ……..……..	**0**	**1**	**2**	**3**	**4**
7	**Vyčerpání** (pokles výkonnosti, výpadky paměti, pokles koncentrace, zapomínání) …….	**0**	**1**	**2**	**3**	**4**
8	**Sexuální obtíže** (změny sexuální chuti, aktivity a uspokojení) ….……....	**0**	**1**	**2**	**3**	**4**
9	**Močové obtíže** (obtíže při močení, močová inkontinence, časté močení) ……	**0**	**1**	**2**	**3**	**4**
10	**Suchost pochvy** (pocity suchosti a pálení v pochvě, obtíže při pohlavním styku) …….,	**0**	**1**	**2**	**3**	**4**
11	**Bolesti svalů a kloubů** (bolesti kloubů, revmatické potíže) ……	**0**	**1**	**2**	**3**	**4**

Děkuji Vám za spolupráci a projděte si, prosím, ještě jednou úplnost a správnost všech svých odpovědí.

The Menopause Rating Scale questionnaire is one of the most frequently applied specific tools for evaluating women's health-related quality of life (HRQL) in the period affected by menopause in the global clinical practice (Zöllner, Acquadro, & Schaefer, 2005, s. 324). The questionnaire was elaborated in the mid-1990's in Germany, where it was standardized and its psychometric characteristics were defined (Heinemann, 2006).

The questionnaire includes 11 items (estrogen deficiency symptoms, subdivided into three domains – psychological, somato-vegetative and urogenital (Tab. 2). For each symptom, women indicate the experienced intensity in the given period, using a five-degree scale (0–4). The questionnaire evaluation approach is simple. The more points a woman obtains, the more serious are her complaints. Each of the three domains is evaluated by summing up the points in every single area. The sum total from all three domains then makes up the total score for total evaluation of difficulties. Generally, the more intensive the woman's complaints are, the higher the impact on her quality of life (Berlin Center for Epidemiolgy and Health Research, 2008; Moravcová and Mareš, 2011, p. 440).

The MRS is recommended by its authors as a suitable method for evaluating the level of quality of life, to evaluate the intensity of symptoms and, last but not least, to evaluate the evolution over time for assessing the effects of potential treatment. Monitoring the development of symptom spectre and intensity in a specific woman in clinical practice is undoubtedly very desired and useful. In our research study, the MRS was, among other things, used for monitoring the evolution over the time in a sample of twenty respondents.

Tab. 2 **Domains and symptoms of MRS**

Domain	Symptoms, item number
Somato-vegetative (score 0 – 16 points)	1) Hot flushes, sweating 2) Hearth discomfort 3) Sleep problems 11) Muscular and joint discomfort
Psychological (score 0 – 16 points)	4) Depressive mood 5) Irritability 6) Anxiety 7) Exhaustion
Urogenital (score 0 – 12 points)	8) Sexual problems 9) Bladder problems 10) Vaginal dryness
Total score (0 – 44 points)	

Results

The results of the research survey in the various areas are presented below. Table 3 shows the basic statistical indicators of the symptoms under consideration, or more precisely the intensity of problems for the various symptoms in 284 respondents, who completed the printed form of the MRS questionnaire.

In the **somato-vegetative domain** of the MRS, respondents rated the intensity of the following problems: hot flushes, heart discomfort, sleep problems and muscular and joint discomfort.

A vast majority of the totally 284 respondents reported minor (39.44%) or no (32.39%) intensity of hot flushes. Only two respondents (0.70%) reported this symptom as unbearable. The intensity of heart discomfort was present in the respondents almost to the same extent as hot flushes. 108 respondents (38.03%) experienced minor heart discomfort and 86 respondents (30.28%) did not experience any problems. 74 women (26.06%) reported medium intensity of these complaints. Sleep problems occurred in medium intensity in 72 women (25.35%) and no sleep problems were reported by 76 respondents (26.76%). Out of the 284 respondents under consideration, 85 women (29.93%) reported minor muscular and joint discomfort, 98 women (34.51%) did not suffer from any muscular and joint pain and 4 women (1.41%) rated these difficulties as unbearable.

We can thus imply that in somato-vegetative area, most symptoms occurred in no or minor intensity. The most frequently occurring symptom out of the somato-vegetative domain were sleep problems, reported by 208 women (73.24%) in varying intensities.

In **psychological** domain, the respondents assessed the occurrence and intensity of the following symptoms: depressive mood, irritability, anxiety and exhaustion. Out of the total number of 284 respondents, most women experienced depressive mood in minor (37.32%) or medium (30.28%) intensity. Only 44 women (15.49%) had no depressive mood at all. As

for irritability, 128 women (45.07 %) did not report any intensity at all and 102 women (35.92 %) experienced minor intensity. 54 women (19.01 %) encountered medium or major intensity of irritability but no woman was bothered so as to rate it as unbearable. Anxious conditions in minor or medium intensity were reported by 175 respondents (61.62%), 101 respondents (35.56%) did not encounter anxious conditions at all and 2 women (0.70 %) rated them as unbearable. The last symptom out of the psychosomatic domain is exhaustion. 232 women (81.69%) experienced exhaustion and only 52 women (18.31 %) were not affected by this symptom.

The **urogenital domain** includes the following three symptoms: sexual problems, bladder problems and vaginal dryness. Sexual problems were not encountered at all by 147 respondents (51.76%). 26 women (9.15%) faced major sexual problems and 2 respondents suffered from unbearable problems (0.70%). 129 respondents (45.42%) had no bladder problems. Minor or medium intensity of problems was reported by 130 respondents (45.77%) and 20 respondents (7.04%) experienced major complaints. The last symptom out of the urogenital domain is vaginal dryness. 113 respondents (39.79%) experienced no vaginal dryness, minor intensity of dryness was reported by 85 respondents (29.93%) and even unbearable vaginal dryness was reported by 9 women (3.17%).

Tab. 3 **MRS symptoms**

MRS symptoms	N	Average	M	Min.	Max.	Variance
1. Hot flushes, sweating (SV)	284	1,10	1,00	0,00	4,00	1,04
2. Heart discomfort (SV)	284	1,08	1,00	0,00	4,00	0,83
3. Sleep problems (SV)	284	1,28	1,00	0,00	4,00	1,10
4. Depressive mood (P)	284	1,52	1,00	0,00	4,00	1,02
5. Irritability (P)	284	0,81	1,00	0,00	3,00	0,83
6. Anxiety (P)	284	0,95	1,00	0,00	4,00	0,74
7. Physical and mental exhaustion (P)	284	1,56	1,00	0,00	4,00	1,19
8. Sexual problems (UG)	284	0,89	0,00	0,00	4,00	1,14
9. Bladder problems (UG)	284	0,89	1,00	0,00	4,00	1,03
10. Dryness of vagina (UG)	284	1,02	1,00	0,00	4,00	1,13
11. Joint and muscular discomfort (SV)	284	1,22	1,00	0,00	4,00	1,30

For all symptoms, the respondents reported a very low average intensity, ranging between no or only minor intensity of complaints. The most intensively sensed complaints by the respondents were those of **Fatigue**, where the total sum and the average symptom intensity achieved the highest values. As for the intensity of a specific symptom, the respondents mostly agreed on **Anxiety** (representing the lowest variance of values) (tab. 3).

Furthermore, we identified the total score achieved by the respondents. Based on the results, we determined to what extent the estrogen deficiency symptoms affect the quality of their lives. To assess the level of quality of life in specific women, the authors of the MRS tool use certain intervals, whereas the total score ranging from 0 to 15 points stands for high quality of life, 16 to 30 points mean slightly reduced quality of life and the interval of 31 to 44 points means a significantly reduced quality of life (Berlin Center for Epidemiology and Health Research, 2008). Out of the total 284 women, 208 (73.24%) experienced a high quality of life. 62 women (21.83 %) faced a reduced quality of life and 14 women (4.93 %) a low one (Tab. 4).

Tab. 4 **MRS total score**

	Total score	n_i	f_i (%)
0 - 15	high quality of life	208	73.24%
16 - 30	slightly reduced quality of life	62	21.83%
31 - 44	low quality of life	14	4.93%
	Total	**284**	**100.00**

Another outcome of our research survey was the finding that the occurrence and intensity of estrogen deficiency symptoms in respondents fluctuates. We found that out based on the repeated completion of the MRS questionnaire by a selected group of twenty women, who completed the questionnaire three times in three-month time intervals (Fig. 1). We are aware of the limits of findings regarding the monitoring of changes in time in the spectrum of symptoms and the related quality of life. We consider our use of the MRS questionnaire to represent only an initial attempt to use this tool in clinical practice to monitor changes in quality of life over time. We anticipate its further use with clearly specifying the course of treatment and respondents.

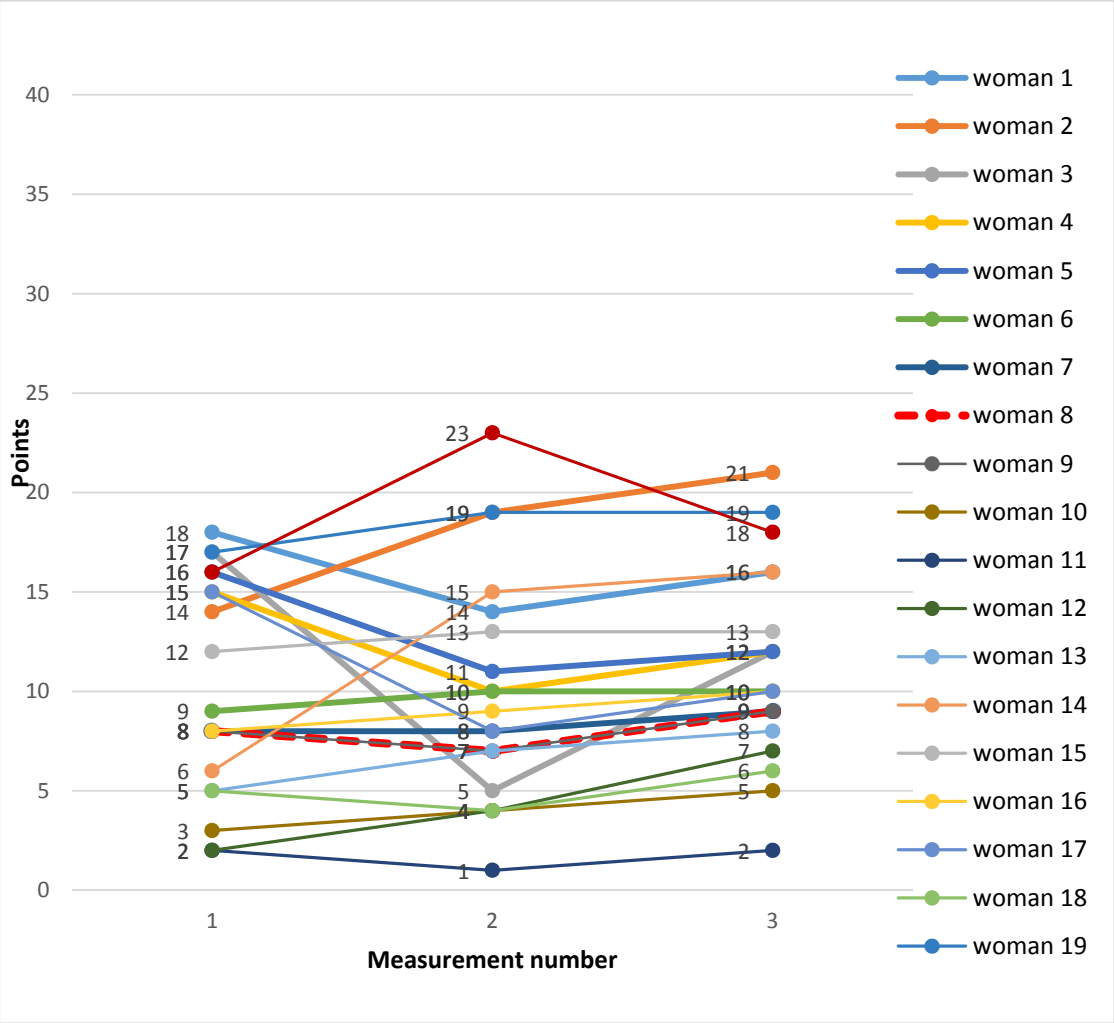

Fig. 1 **Repeated measurements in 20 women**

By repeated measurement of the intensity of symptoms in these 20 respondents, we found out that 10 of them (50.00%) encountered a deepening of the intensity of symptoms over time (woman No. 2, 6, 7, 10, 12–16 and 19). 9 respondents (45.00%) experienced an improvement

in the second measurement; but during the third measurement, the symptoms were again intensified. One respondent (5.00%) experienced the exactly opposite evolution as the second measurement revealed a higher intensity than the third measurement. No one of the total number of twenty respondents experienced an unambiguous improvement (Fig. 1).

Discussion

The objective of the research study was to determine the incidence and intensity of symptoms present in the women under consideration as a result of estrogen deficiency. These data were obtained using a printed form of the standardized Czech version of the MRS questionnaire, serving to assess the quality of women's lives in the period affected by menopause. The respondents were women from 45 to 60 years of age with present estrogen deficiency symptoms. The key questions of the research were what symptoms the respondents encountered, in what intensity and to what extent these symptoms affect the quality of their lives. Further, we explored how MRS could be used for evaluating changes over time.

The respondents in our research in all three domains most frequently reported no, minor or medium difficulties, which is comparable with the outcomes of the research by Urbánková, Moravcová a Dopitová (2016) and the research by Moravcová and Holá (2017). However, the most intensively sensed symptom according to our research was Fatigue, unlike in the research by Moravcová and Holá (2017), where women sensed Heart Discomfort most intensively. The most frequently occurring symptom in our research was Depressive Mood faced by 240 women (84.51%). This result differs from the research conducted by Urbánková, Moravcová, Dopitová et al. (2016), where respondents reported Muscular and Joint Discomfort as the most frequent symptom. On the other hand, the least frequent symptom was Sexual Problems, not experienced by 147 women (51.76%). In the research by Urbánková, Moravcová, Dopitová (2016), the least frequent symptom was Irritability, not reported by 51.80% of the respondents. Only a small number of the respondents assessed some symptoms as unbearable complaints.

The most frequently occurring levels of the total score ranged from 0 to 15 points. 208 (73.24%) of the respondents achieved these values. Contrariwise, a total score ranging from 31 to 44 points appeared in only 14 women (4.93%, Tab. 4). These results are comparable to all available research studies carried out worldwide using the MRS (e.g. Krajewska-Ferishah, Krajewska-Kułak, & Terlikowski, 2010; Moravcová, Mareš, & Ježek, 2014; Schneider, Heinemann, Rosemeier, Potthoff, & Behre, 2008).

Conclusion

The research study was focused on evaluating quality of life using a printed form of the standardized questionnaire for evaluating the quality of postmenopausal women's lives called the Menopause Rating Scale.

Like in similar research studies, utilizing the Menopause Rating Scale for evaluating the quality of life, we arrived at the conclusion that the quality of women's lives in the menopausal period may be affected by the presence of estrogen deficiency symptoms. However, we arrived at the conclusion that in most cases women encounter symptoms in minor or medium intensity or do not experience any symptoms at all. But as a matter of fact, the range of estrogen deficiency symptoms may significantly affect the quality of women's lives and, in a number of cases, even threaten their health.

Therefore, it is very important to pay the necessary attention to women in the menopausal period. Special emphasis should be placed on prevention, making women ready for the various phases in life and for the possible difficulties related to these phases, so that they can prevent them and can be prepared for them.

We also believe that it is important to address targeted education in the clinical practice and to detect problems in a timely manner that may affect women's lives or even their health. Tools for evaluating the changes in the quality of life, like the Menopause Rating Scale that we applied in our research, are valuable methods serving this purpose.

Ethical aspects and conflict of interest

From the perspective of possible conflict of interests, no circumstances potentially threatening the fundamental research principles and publishing the results were identified.

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