

The body self and the frequency, intensity and acceptance of menopausal symptoms

Olga Sakson-Obada, Jowita Wycisk

Institute of Psychology, Adam Mickiewicz University, Poznan, Poland

Abstract

Introduction: There are many studies on the concept of body image (usually understood narrowly as body acceptance) in menopausal women, but relationships between the body self and menopausal symptoms have not been explored yet. In the research discussed in this paper, a complex model of the body self, including its functions, body identity and body image, has been presented.

Aim of the study was to explore the relationships between different aspects of the body self, and the frequency, intensity and acceptance of menopausal symptoms.

Material and methods: The investigated sample consisted of 81 women (age: 51.8 ± 4.2 years; range: 45-58 years). The authors used an extended version of the Menopause Symptom List and the Body Self Questionnaire.

Results: Perception of sensations, interpretation and regulation of emotions and physical states as well as body identity were the most important correlates of the intensity and frequency of menopausal symptoms (psychological, vasomotor and somatic). Among the body image aspects investigated in the study, the appearance evaluation was associated with the frequency of vasomotor and psychological symptoms. The level of acceptance of symptoms was only related to the ability to cope with emotions and physical needs.

Conclusions: The findings indicate that aspects of the body self (which are stable personality traits) are significant for the way women experience menopausal symptoms.

Key words: body self, body image, menopausal symptoms.

Introduction

Theoretical and empirical studies most frequently highlight negative changes in the appearance and health of menopausal women [1], for example: hair loss [2], weight gain, aging [3], loss of fertility, increased risk of osteoporosis [4], and also many troublesome sensations recognized as menopausal symptoms. These symptoms are generally divided into three categories: vasomotor, somatic and psychological ones [5]. All these physiological and psychological changes may have implications for the way women experience their bodies, especially in terms of physical attractiveness and fitness [6-8].

On the other hand, it has been suggested that certain culture- and personality-related variables may affect the frequency and intensity of menopausal symptoms. Empirical studies have shown that in societies where aging is valued positively, women declare less vasomotor symptoms [9]. It has been also proven that the intensity of menopausal symptoms is, to a certain degree, dependent on different personality aspects, such as high reactivity and neuroticism, emotion-focused and avoidance styles of coping with stress [10],

negative self-perception, or catastrophic thinking [11]. Furthermore, it has been claimed that both emotional (anxiety, somatization, depression) and cognitive components (focusing on the body, beliefs about menopause) influence not only the perception and cognitive assessment of sensations from the body, but also the neurohormonal processes activating some menopausal symptoms (e.g. hot flushes and night sweats [4]). In this context, it seems interesting to investigate whether stable aspects of the body self (a personality dimension), such as perception, interpretation and regulation of bodily sensations, are also related to the intensity and frequency of menopausal symptoms occurrence. In the present study, a complex model of the body self was applied. The model enables distinguishing representations (more susceptible to situational variability) as well as more stable functional and identity-related components, shaped in the course of development at early stages of life.

Another issue worth considering is the subjective way of how women are related to menopausal symptoms. In the present study, the acceptance of each group of symptoms was explored. It has been assumed that the acceptance of symptoms is relatively inde-

Corresponding author:

Olga Sakson-Obada, Institute of Psychology, Adam Mickiewicz University, 89 AB Szamarzewskiego St., 60-568 Poznan, Poland, e-mail: osakson@wp.pl

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pendent of the intensity and frequency of symptoms. Yet, treated as a measure of the affective response to changes within the body, the acceptance of symptoms may be connected with the body self. Investigation of the relationships between these variables seemed interesting to the authors.

The concept of body self

The concept of body self was developed by Olga Sakson-Obada [12, 13] in order to present a cohesive conceptualization of the body-mind phenomena. The body self is a tridimensional structure composed of (1) functions (the perception, interpretation and regulation of bodily experiences), (2) sense of physical identity and (3) representations (e.g. the body image [14, 15]). Thus, the body self is a subsystem of personality, responsible for processing bodily experiences at a mental level. Relationships between the aspects mentioned above have been presented below (Fig. 1).

Organization of bodily experiences is possible thanks to the functions of the body self. These functions are acquired and shaped in the process of development, with a significant influence of the child's caregivers [12]. The primary function of the body self is to perceive stimuli coming from the interior of the body (e.g. muscle tone or heart beat) as well as those coming from the outside (e.g. tactile, olfactory or gustatory stimuli). In the case of a strong body self, the experienced sensations are adequate, both with respect to the modality and to the level of receptors activation. Another important function of the body self is interpretation of sensations in terms of emotions and physical states (e.g. hunger, fatigue or sexual arousal). Finally, the body self plays a role in regulation of emotions and physical states. It is understood as knowledge of the causes and ways of coping with emotions and physical states. In other words, a strong body self enables the person to feel changes that take place in his or her body (function of perceiving), to make the changes meaningful (function of interpretation), and to specify

their causes and ways of managing them (function of regulation).

It was also assumed that the ability to feel, understand and cope with one's own bodily experiences should be reflected in the sense of one's physical identity. In other words, the ability to perceive and correctly interpret physical and emotional states, and to regulate them, is the basis on which the person builds such aspects of the sense of physical identity as the core sense of existing [16-18], the sense of having physical boundaries [19] as well as the sense of unity with one's own body [20-22] and the sense of its permanence in time and space [23].

The last dimension of the body self is perception of different body aspects associated with the affective and/or cognitive appraisal. It refers to the concept of body image, extensively discussed in the literature of the subject [15, 24]. So far, however, no unanimous definition of the body image has been developed; there has been no agreement among the authors on what aspects are crucial for behavior (except for physical appearance). For instance Brown, Cash & Mikulka [25], besides the appearance evaluation, take also into consideration health and fitness evaluation, and overweight preoccupation. In the present study, three aspects of the body image were included: (1) appearance evaluation, (2) fitness evaluation, and (3) acceptance of biological sex.

The present study has been designed to answer two questions:

1. Is there a relationship between the body self and menopausal symptoms?
2. Is acceptance of menopausal symptoms connected with indicators of the body self-adaptability?

Referring to the first question, it has been hypothesized that the higher levels of indicators of the body self-inadaptability (functions, sense of identity, body image), the higher the intensity and frequency of menopausal symptoms. The hypothesis is consistent with the premise of influence of stable personality factors on both the objective changes within the body and the perception and cognitive appraisal of physical symptoms [4]. Moreover, menopausal symptoms can con-

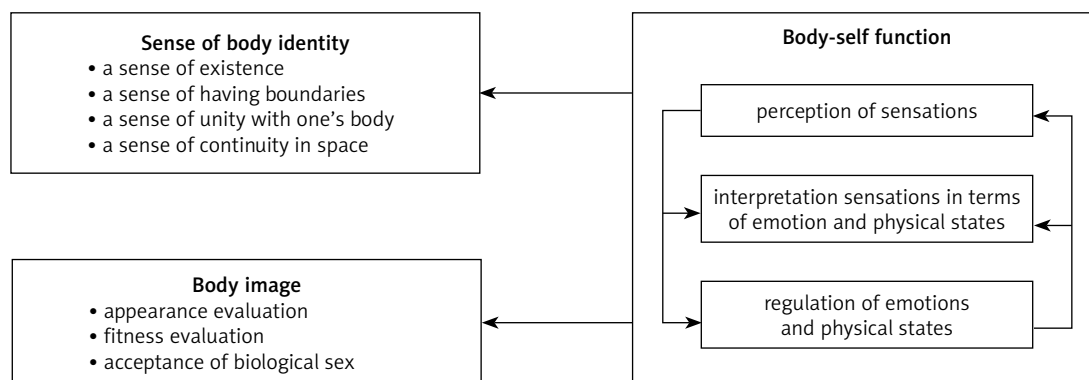


Fig. 1. The theoretical model of the body-self

tribute to the deterioration of acceptance of different body image aspects.

The second question was open; it has been designed to explore the relationship between the acceptance and the body self.

Material and methods

The study was conducted in Poznań and Szczecin in the first quarter of 2014, on a sample of female patients of gynecological clinics, and it was anonymous and voluntary. Two structured questionnaires were applied: the Menopause Symptom List – the extended version, and the Body Self Questionnaire. Demographic information pertaining to age, education, place of residence, employment, economic status, relationship status as well as menopausal hormone therapy (MHT) is presented in

Tab. I. Demographic characteristics of the sample ($n = 81$)

Variables	Occurrence (%)
Education level	
Primary education	2 (2.5)
Vocational education	10 (12)
Secondary education	39 (48)
Incomplete higher education	3 (4)
Higher education	27 (33)
Place of residence	
Village	8 (10)
Town up to 50 thousand inhabitants	9 (11)
Town above 50 thousand inhabitants	64 (79)
Employment	
Professionally active	72 (89)
Professionally inactive	9 (11)
Economic status	
Good	35 (43)
Average	36 (44)
Low	10 (12)
Relationship situation	
Single	19 (23.5)
Have a partner	62 (76.5)
Number of children	
Childless	9 (11)
One	21 (26)
Two	39 (48)
Three or more	12 (15)

Table I. Out of the total number of 90 questionnaires, 81 were included in statistical analyses (lack of data excluded surveys from further examination). The investigated sample consisted of 81 women between the age of 45 and 58 ($M = 51.8$; $SD = 4.2$), 11 women (13%) were taking MHT at the time of the study. Women who had undergone mastectomy and/or hysterectomy, and those who had visible physical defects, were excluded from the study. The demographic characteristics have been presented in the table below.

Menopause Symptom List – extended version

The Menopause Symptom List is a self-report questionnaire that assesses the frequency and intensity of menopausal symptoms [26]. The questionnaire uses a 6-point Likert scale (frequency: 0 – never, 5 – almost always; intensity: 0 – does not apply, 5 – very strong). The tool includes 25 menopausal symptoms divided into three groups: somatic, vasomotor and psychological.

In order to measure the level of acceptance of menopausal symptoms, an additional scale was added. After the participants had answered the questions about the intensity and frequency of symptoms, they were asked the following question: “To what degree do you accept the presence of each symptom?”. Answers were given on a 5-point Likert scale (1 – I don’t accept at all; 5 – I absolutely accept). When women did not declare the presence of the particular symptom, they answered 0 – does not apply. The final measure of the level of acceptance of somatic, vasomotor and psychological symptoms was the mean calculated separately for each category of symptoms (symptoms which did not apply, were not taken into account).

Body Self Questionnaire

The Body Self Questionnaire is composed of 76 statements, and can be applied to assess disturbances in functions of the body self (perception, interpretation and regulation), sense of physical identity and three aspects of the body image (appearance evaluation, fitness evaluation, acceptance of biological sex). Answers can be given on a 5-point Likert scale (1 – not true at all, 5 – very true). Higher scores reflect a greater number of disturbances in the body self. In the original version [12], the questionnaire consisted of 6 subscales and was proved to differentiate normal population and clinical groups in which disturbances in body self are assumed (anorexia nervosa [27], repetitive non-suicidal self-injuries [28]). The version applied in the presented study was extended by two additional subscales (Fitness evaluation, Acceptance of biological sex). The description of subscales is presented in Table II.

In the conducted analysis, p value of < 0.05 was considered to be significant. To assess relations be-

Tab. II. Subscales of Body Self Questionnaire

Aspects of body self	Subscale	Number of items	Cronbach's α	Example
Functions	Elevated threshold	10	0.74	Sometimes my whole body or a part of it is insensitive to pain
	Lowered threshold	7	0.75	Sometimes even a delicate touch is felt like something painful to me
	Interpretation of emotions and physical states	13	0.75	I experience feelings that I cannot identify at all
	Regulation of emotions and physical states	10	0.76	When I am joyful or happy, I know how to maintain this pleasant state
Physical identity	Sense of body identity	10	0.84	I have doubts concerning the boundaries of my body
Representations	Appearance evaluation	8	0.84	The way I look makes me ashamed
	Fitness evaluation	5	0.87	I have a good motor coordination
	Acceptance of biological sex	5	0.75	I'd rather be a person devoid of sex attributes

tween variables, the Spearman's ρ coefficient was used. A statistical model of linear multiple regression by the step method was also applied. Statistical analysis was performed using IBM SPSS Statistics, version 22.

Results

It should be noted that the demographic variables, such as employment status, education, relationship status or assessment of financial circumstances, did not differentiate the examined group when it comes to the body self-adaptability, intensity of menopausal symptoms and their acceptance.

In order to answer the first research question, a correlation analysis was applied. Due to the fact that not all variables were normally distributed, a nonparametric test was selected (Spearman's ρ).

Table III presents the results of the correlation analysis between the frequency and intensity of menopausal symptoms, and various aspects of the body self. As it can be seen in the table, medium and high correlation coefficients were obtained between the functions of the body self, physical identity and dependent variables. The frequency and intensity of psychological symptoms turned out to be most strongly associated with functions of the body self and sense of body identity. It means that women who report a lot of psychological symptoms, such as moodiness, worrying, tension, or attention deficits, experience both an increased and decreased sensitivity to external and internal stimuli as well as difficulties in understanding and regulating emotional and physical states. They also experience, from time to time, a distorted sense of body identity, e.g. sense of emptiness, alienation from their own bodies, or uncertainty about their boundaries. Furthermore,

Tab. III. The correlations between the frequency, intensity of menopausal symptoms and body self

Body self	M (SD)	Somatic symptoms		Vasomotor symptoms		Psychological symptoms	
		Frequency	Intensity	Frequency	Intensity	Frequency	Intensity
Elevated threshold	1.56 (0.55)	0.391**	0.373**	0.326*	0.350**	0.482**	0.484**
Lowered threshold	1.81 (0.69)	0.258*	0.283*	0.429**	0.444**	0.433**	0.435**
Interpretation of emotions and physical states	2.33 (0.75)	0.316**	0.357**	0.511**	0.513**	0.643**	0.639**
Regulation of emotions and physical states	2.56 (0.71)	0.476**	0.484**	0.456**	0.455**	0.733**	0.711**
Sense of body identity	1.72 (0.79)	0.288**	0.287*	0.352**	0.348**	0.572**	0.551**
Appearance evaluation	2.35 (0.92)	0.17	0.145	0.229*	0.217	0.259*	0.207
Fitness evaluation	2.82 (0.92)	0.027	0.047	-0.1	-0.09	-0.13	0.005
Acceptance of biological sex	1.22 (0.42)	0.011	0.019	0.06	0.056	0.065	0.045

* $p < 0.05$, ** $p < 0.01$

the above-mentioned aspects of the body self were connected with the intensity and frequency of vasomotor and somatic symptoms, although the correlation coefficients were slightly lower than in the case of psychological symptoms.

Contrary to the expectations, the intensity of menopausal symptoms showed no links to the appearance evaluation, acceptance of biological sex or fitness evaluation. Only weak correlations between the appearance acceptance and the frequency of vasomotor and psychological symptoms were found. The more frequently women experience symptoms from each category, the lower estimations of their physical attractiveness they have.

The authors decided to answer the question of viability of predicting symptoms from each category, based on the investigated aspects of the body self. For this purpose, a statistical model of linear multiple regression by the step method was used. First, aggregation of the frequency and intensity of each category of symptoms was performed by summing frequency and intensity scores. High correlations (from 0.907 to 0.961, $p = 0.001$) between the frequency and intensity of symptoms in each category justified this step. As a result, the authors obtained three general measures of somatic symptoms, vasomotor symptoms and psychological symptoms. In contrast to the somatic and psychological symptoms, the variable "vasomotor symptoms" was not normally distributed. Despite that, the authors decided to use the regression analysis for all categories of the symptoms for the purposes of exploration. Eventually, all variables included in the body self (eight factors in total) were incorporated into the model.

It should be mentioned that some factors of body self (functions and body identity) are expected to be associated with each other, according to the theory. In the presented study, the highest correlations were observed between interpretation, regulation and body

identity (Spearman's ρ ranged from 0.655 to 0.793). For this reason the VIF coefficient was used to control multicollinearity effect (VIF was sufficiently low, see Table IV and V).

Psychological symptoms. The conducted analyses have shown that two aspects of the body self were the best predictors of psychological menopausal symptoms (see Table IV). The investigated women had problems with regulation of emotions and physical states and with fitness evaluation. These two aspects of the body self explain 56 percent of variance of the dependent variable. Introduction of the remaining variables did not result in any significant increases in the variation under scrutiny.

Vasomotor symptoms. The analysis of the regression results for this variable has shown two significant predictors of vasomotor symptoms: interpretation of emotions and physical states and a lowered threshold for sensations (see Table V). These variables explain 33 percent of the general measure of the vasomotor symptoms variance.

Somatic symptoms. In this case, the conducted analyses have pointed only to one predictor – regulation of emotions and physical states ($\beta = 0.47$, $t = 4.72$, $p = 0.001$). It explains 21 percent of the somatic symptoms variance ($R^2 = 0.21$, $F(1, 77) = 22.3$, $p = 0.001$). Introduction of the remaining variables did not result in any significant increases in the variation.

To test whether the body self is associated with the acceptance of each category of symptoms, the correlation analysis (Spearman's ρ) was applied again. Firstly, it should be emphasized that there were no significant associations between the level of symptoms acceptance and their frequency or intensity. The acceptance of psychological symptoms correlated negatively with regulation of emotions and physical states ($\rho = -0.289$, $p = 0.05$), appearance evaluation ($\rho = -0.233$, $p = 0.05$) and fitness evaluation ($\rho = -0.326$, $p = 0.01$). Women

Tab. IV. Results of regression analysis for the predictors of psychological symptoms

	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i> value	<i>r</i> semipartial	VIF
Intercept	-11.269	7.310		-1.542	0.127		
Regulation of emotions and physical states	30.327	2.983	0.796	10.165	< 0.001	0.757	1.106
Fitness evaluation	-6.674	1.927	-0.271	-3.463	0.001	-0.258	1.106

Adj. $R^2 = 0.562$, $F(2, 77) = 51.72$, $p = 0.001$

Tab. V. Results of regression analysis for the predictors of vasomotor symptoms

	<i>B</i>	Standard error	β	<i>t</i>	<i>p</i> value	<i>r</i> semipartial	VIF
Intercept	-11.253	5.823		-1.933	0.057		
Interpretation of emotions and physical states	9.265	2.741	0.365	3.381	0.001	0.312	1.369
Lowered threshold for sensations	11.733	4.135	0.306	2.837	0.006	0.262	1.369

Adj. $R^2 = 0.327$, $F(2, 77) = 20.15$, $p < 0.001$

who have difficulties in coping with emotions and needs, or poorly evaluate their fitness and appearance, are not willing to accept their mood swings, irritability and other menopausal psychological symptoms. In the case of acceptance of vasomotor and somatic symptoms, only two variables of the body self were found significant: regulation of emotions and physical states (ρ vaso = -0.281 , $p = 0.05$; ρ somat = -0.272 , $p = 0.05$) and sense of body identity (ρ vaso = -0.292 , $p = 0.01$; ρ somat = -0.236 , $p = 0.05$). Thus, it seems that the weaker the process of coping with emotional and physical states as well as the greater amount of doubts about the body identity, the lower acceptance of the vasomotor and somatic symptoms. The remaining correlations were insignificant.

Discussion

The obtained pattern of relationships between the functional aspects of the body self and psychological menopausal symptoms seems to be understandable in the light of the existing research results. For example, it has been found that distortions in stimuli perception as well as in understanding and managing emotions and needs, are conducive to a person's tendency to protract a negative affect [29, 30], to experienced anxiety [31] and a lowered sense of control over the body [12]. These factors, in turn, are conducive to depressiveness, irritability, mood swings and weepiness reported by some women during menopause.

However, the relationships between the functions of the body self and the somatic or vasomotor symptoms seem to be particularly noteworthy. These results confirm the thesis presented in the theoretical part: certain stable personality characteristics can affect both the neuroendocrine system and cognitive processes involved in the interpretation of bodily sensations. The findings are consistent with Hunter and Man's [4] theoretical explanation of menopausal symptoms. The authors suggest that deficits in emotion regulation have an effect on menopausal symptoms at three levels: 1) neuroendocrine system, 2) directing attention (e.g. excessive concentration on bodily sensations), and 3) cognitive assessment of sensations (e.g. in terms of an upcoming disease). The functions of the body self interact with each of these levels, although the presented study does not define which level remains under their strongest influence. On the basis of previous studies, it can be assumed that the body self has a particularly strong influence on the processes of perception and interpretation. This thesis is supported by the research conducted by Sakson-Obada [12]. The author found that the distortions in the body self are related to the registration of an inadequately large number of sensations in the experimental hyperventilation procedure. Furthermore, negative affectivity, which results from

the body self dysfunctions, can have an influence on both focusing on disease symptoms (in line with the mechanism of hypochondria proposed by Barsky, Klerman [33]) as well as on the most basic level of neuro-hormonal functioning of the organism. This last thesis was confirmed empirically by Swartzman *et al.* [31]. The authors demonstrated that in women with laboratory-induced stress one could have observed more hot flushes than in the control group. The obtained results were explained with the use of the mechanism of increase in norepinephrine and serotonin secretion (hormones involved in thermoregulation process) under the influence of negative emotions [4].

In this context, a clear link between all menopausal symptoms and the sense of body identity is worth emphasizing. A strong sense of body identity means that the individual is able to easily integrate and understand the sensations coming from his/her body. In contrast, doubts concerning the body identity are a sign of serious difficulties in regulating the bodily sensations. According to the theses presented above, these difficulties result in an excessive concentration on the body as a source of unexplained feelings and tensions. As a result, such individuals may report more menopausal symptoms than women with a strong sense of physical identity, even if the objective hormonal changes are comparable.

Regarding the body image, the intensity and frequency of menopausal symptoms were not reflected in the assessment of physical fitness, sex acceptance and – generally – in the appearance evaluation. Some exceptions were psychological and vasomotor symptoms: their frequency was evidently related to the emotional attitude toward appearance. This result can be interpreted in two ways. First, women may have been dissatisfied with their appearance before the beginning of menopause, so they could react more strongly to changes in their body condition and, consequently, report a higher incidence of vasomotor and psychological symptoms. On the other hand, the inverse relation cannot be excluded: hot flushes, sweating, tingling, breathlessness, heart palpitations and burning eyes, with frequent mood swings and other mental symptoms, can hinder women from making efforts to maintain their physical attractiveness, which contributes to their negative self-evaluation afterwards [34].

In the regression analysis, main predictors of each category of symptoms have been identified. The ability to regulate affective states and – interestingly – the assessment of one's fitness were predictors of the psychological menopausal symptoms. The effect of the former variable has been discussed above. In the case of the latter variable, the direction of the relationship turned out to be surprising. It has been observed that women with a better physical condition and coordination, reported more psychological symptoms. This result is surprising in the light of studies indicating, for example, the influence of physical exercises on mood

improvement [35, 36], yet these studies did not pertain to women during the menopause period. It is possible that women's involvement in physical activities reflects the importance they ascribe to their physicality. It is probable that they consider their bodies as a particularly important area of identity, especially if they are involved in maintaining physical fitness. Thus, the upcoming prospect of aging and loss of efficiency and attractiveness can lead to a deterioration of the psychological well-being. It cannot be ruled out that in the face of the inevitable aging process, focusing attention on physical fitness has a compensatory function.

The ability to interpret emotions and physical sensations as well as a lowered threshold for sensations proved to be significant predictors of vasomotor symptoms. Thus, an increased sensitivity to sensory stimuli and difficulties in understanding one's feelings are conducive to reporting more vasomotor symptoms. This result is consistent with the previously observed associations. At the same time, it points to the importance of assigning meaning to the bodily sensations and to the special role of the processes involved in directing attention.

Regulation of emotions and physical states turned out to be the only predictor possible to distinguish of the somatic symptoms, such as headaches, insomnia, weight gain, loss of sexual interest. This result has once again confirmed the importance of this variable and suggested that in menopausal women, emotional dysregulation may be reflected in the tendency to somatization [37].

Deficits in the ability to regulate emotions and physical states were also reflected in the lack of acceptance of the psychological, somatic and vasomotor symptoms. Women's inability to both determine the cause of their own bodily experiences and to cope with them, can lead to treating every symptom as very problematic, annoying and poorly controllable. It has been also observed that the higher the fitness evaluation and appearance assessment, the greater the acceptance of the psychological symptoms. Probably, regardless of the frequency and intensity of symptoms, what matters in the assessment of their annoyance, is whether a woman likes her body and takes care of its condition. If that is the case, the woman is more likely to attach less significance to the occurring mental symptoms, and she is able to cope with them more effectively.

In addition, it has been found that the stronger the sense of the body identity, the higher the acceptance of somatic and vasomotor symptoms. Women who feel alienated from their own bodies not only report more menopausal symptoms (as mentioned above), but also consider them to be more troublesome.

Conclusions

1. Among the aspects of the body self included in the study, the functions of the body self (perception of

sensations, their interpretation in terms of emotions and body needs, and regulation) and sense of physical identity were the most important for the intensity and frequency of menopausal symptoms. The obtained results support the premise that stable personality traits influence the way women experience their menopausal symptoms.

2. From the aspects of the body image included in the study, the appearance evaluation turned out to be associated with the frequency of occurrence of vasomotor and psychological symptoms in women during menopause.
3. It was found that main predictors of psychological symptoms were: regulation of emotions and physical states, and fitness evaluation, which explained more than a half of the dependent variable variance. This finding suggests that these aspects of the body self play an important role in the development and persistence of psychological menopausal symptoms.
4. Both elevated levels of sensitivity to sensations and difficulties in interpreting them in terms of emotions and physical needs explained 1/3 of the vasomotor symptoms variance. This result emphasizes the importance of cognitive processes in experiencing vasomotor symptoms.
5. Regulation of emotions and physical states turned out to be the only predictor of the somatic symptoms; moreover, it correlated with the level of acceptance of all menopausal symptoms.
6. The level of acceptance of the symptoms turned out to be independent of their frequency and intensity, nevertheless it was associated with the ability to cope with emotions and physical states (e.g. fatigue, hunger).

Conclusions 4-6 should be interpreted with caution because of high correlations between interpretation, regulation and body identity. However it should be stressed that according to the theory of body self, these associations are reasonable.

The obtained results highlight the importance of the regulatory capacity (formed in the process of development) for the physical and mental well-being of women during the menopause period. The way of explaining the menopausal symptoms presented in this paper seems to be worth further exploration as an interesting complement to medical and cultural models [38].

Disclosure

Authors report no conflict of interest.

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