

## Impact of climacteric and depressive symptoms on the quality of life of postmenopausal women

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**A** – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

**Summary Background.** Quality of life consists of many elements that affect the creation of the level of QoL. Women with postmenopausal may experience a phenomenon of loneliness. This phenomenon can be caused by the effects they had on menopausal symptoms and depression from private and professional life.

**Objectives.** The aim of the study was to determine the effect of menopausal symptoms and depression on quality of life in postmenopausal women.

**Material and methods.** The survey was performed among 128 women after menopause. The mean age was  $64.20 \pm 8.61$ , median 65 years. The study used a questionnaire consisting of the SF-36, Kupperman Index, Beck Depression Scale and the author's questionnaire.

**Results.** The sense of mental health – MH women found at most, which was equal to 69.47. Meanwhile, the general level of health – HP was rated the lowest of only 46.68. Of the 128 respondents revealed menopausal symptoms at 32.81% ( $n = 42$ ) of surveyed women. It has been shown statistically significant relationship between the index of climacteric, and the assessment of QoL in the SF-36 domains: RLM (emotional role functioning) – ( $\chi^2 = 24.33$ ;  $p = 0.003$ ), MH (mental health) – ( $\chi^2 = 27.27$ ;  $p = 0.001$ ), EV (vitality) – ( $\chi^2 = 24.28$ ;  $p = 0.003$ ), P (pain) – ( $\chi^2 = 25.89$ ;  $p = 0.002$ ), and the Beck Depression Inventory, and the assessment of QoL by SF-36.

**Conclusions.** Menopausal symptoms, the presence of depression and age have a significant impact on the quality of life of women in postmenopausal period.

**Key words:** quality of life, menopause, loneliness.

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## Background

Late adulthood poses new developmental challenges for people, which they must meet to avoid a decline in their quality of life (QoL). This stage of life is called a 'time of losses' or an 'aging crisis' since it involves numerous critical events, such as the loss of health and vitality, the loss of a job and social status, and the loss of beauty. The forthcoming death is also rated among critical events. All these may be sources of severe mental discomfort [1]. Premature aging can be caused by inadequate physical activity, general passivity and a lack of direction in life. Therefore, it is necessary to give life meaning and significance through setting new and increasingly ambitious goals [1–3].

The World Health Organization defines QoL as 'individuals' perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns' [4]. Hence, we can assume that QoL is closely related to subjective evaluation of satisfaction with life. QoL is grounded on several pillars related to various spheres of human existence, namely physical and mental health, spiritual life, personal self-development, productivity, and free time [5–7]. QoL depends on a number of factors, one of which is widely-understood loneliness. This very complex phenomenon is defined as an objective or a subjective state resulting from poor interpersonal skills [8–10]. Identified with the degeneration of social bonds, loneliness causes stress and sorrow associated with the feeling of helplessness and inability to understand self and others [9, 10].

Menopause is a natural transition from the reproductive age to the process of aging and cessation of fertility [11]. It is characterized by a substantial decline in the production of female sex hormones, especially estrogens, and consequently by climacteric symptoms [12]. These, on the other hand, influence women's everyday lives and affect their physical and mental health. The mean age for menopause in developed countries is 51 years, but it may appear earlier (usually before 40 years of age). In such cases, early menopause is induced by surgical, genetic, iatrogenic, auto immunological or idiopathic factors [6, 13]. In the last decades, special attention has been paid to average life expectancy for women in developed countries that is estimated at 80 years, with natural menopause occurring at the median age. Thus, women spend approximately one third of their lives in the postmenopausal period [14]. Hence, implementation of appropriate prevention strategies in the postmenopausal period may be crucial for women's survival rate and QoL during the process of aging [6, 7, 14, 15].

In most cases climacteric symptoms (hot flashes, excessive sweating, headaches, weight gain, emotional imbalance) subside after several years from the last menstruation, but effects of the lack of hormones are getting worse to the end of a woman's life. These symptoms hinder women's functioning and lower their QoL levels [16, 17]. They may also lead to the worsening of general physical and mental health, the weakening of bonds with a partner, withdrawal from social contacts, and depressive symptoms. All these may have a substantial impact on a woman's perception of her QoL in the future [17].



The purpose of this study was to determine the connection between the QoL of postmenopausal women and climacteric and depressive symptoms that they experience.

## Material and methods

The study was conducted on a group of 128 women – members of the University of the Third Age in Stargard, West Pomeranian Voivodeship in March 2015. The criteria for inclusion to the study were: past menopause and consent to take part in the study. The mean age of the women was  $64.20 \pm 8.61$ , the median of age – 65 years, the range – 47–82 years (Tab. 1).

The research instruments applied in this survey-based study were the Short Form Health Survey (SF-36), the Blatt–Kupperman Menopausal Index, the Beck Depression Inventory (BDI), and a questionnaire of the authors' own design.

The SF-36 measures QoL across eight domains, namely physical functioning (PF), bodily pain (BP), vitality (VT), general health (GH), role physical (RP), role emotional (RE), mental health (MH), and social functioning (SF). A single item is also included that identifies perceived change in health (CIH). The score for each of these areas varies from 0 to 100, with 0 denoting the worst and 100 the best possible QoL.

The Blatt–Kupperman Menopausal Index is used to assess the severity of menopausal symptoms, such as hot flushes, sweats, insomnia, nervousness, melancholia, vertigo, weakness, arthralgia, headache, palpitations and paraesthesia. Its results are interpreted as follows: 0–16 points – no menopausal symptoms, 17–25 points – mild symptoms, 26–30 points – moderate symptoms, and over 30 points – severe symptoms.

Variable	n (%)
Age <sup>1</sup> [years]	$\bar{x} = 64.20 \pm 8.61$ min. = 47 years max. = 82 years
Place of residence:	
– village	16 (12.50%)
– town/city of up to 50.000 people	19 (14.84%)
– town/city of 51.000–100.000 people	71 (55.47%)
– town/city of over 100.000 people	22 (17.19%)
Marital status:	
– married	67 (52.34%)
– single	53 (41.41%)
– cohabitation relationship	8 (6.25%)
Education:	
– primary school	4 (3.12%)
– technical school (not offering the final state examination)	25 (19.53%)
– high school and vocational school (offering the final state examination), and college of continuing education	79 (61.72%)
– university	20 (15.63%)
Financial standing:	
– very good	3 (2.34%)
– good	33 (25.78%)
– average	61 (47.66%)
– bad	30 (23.44%)
– very bad	1 (0.78%)
Number of children:	
– no children	29 (22.66%)
– 1–2 child/children	62 (48.44%)
– 3–4 children	36 (28.12%)
– more than 4 children	1 (0.78%)
Professional activity:	
– yes	35 (27.34%)
– no	93 (72.66%)

Chronic diseases:	
– neoplasms	8 (6.25%)
– unclassified arthritis	30 (23.44%)
– osteoporosis	37 (28.91%)
– asthma/COPD	27 (21.09%)
– hypertension	62 (48.44%)
– diabetes	24 (18.75%)
– other diseases	12 (9.38%)
Hormone Replacement Therapy:	
– yes	15 (11.72%)
– no	113 (88.28%)
Physical activity:	
– yoga	7 (5.47%)
– ballroom dance	13 (10.16%)
– domestic and foreign tourism	24 (18.75%)
– cycling tourism	29 (22.66%)
– sightseeing	34 (26.56%)
– swimming	20 (15.63%)
– physical exercises to music	24 (18.75%)
– health promotion – physical exercises	34 (26.56%)

<sup>1</sup> Arithmetic mean  $\pm$  SD (minimum and maximum ranges).

The Beck Depression Inventory is a 21-item measure of depressive symptoms, with each item answered on a four-point (0 to 3) scale. The scoring is as follows: no depressive symptoms/mild depressive symptoms (0–10 points), moderate depressive symptoms (11–28 points) and severe depressive symptoms (over 28 points).

The authors' questionnaire consisted of 11 questions concerning sociodemographic and economic data, the presence of the most common chronic diseases, participation in physical activities offered by the University of the Third Age, and the use of Hormone Replacement Therapy.

The results were analyzed using descriptive and mathematical statistics. Statistical analysis was performed using PQStat software and an Excel spreadsheet. Pearson's chi-square Test for Independence was applied. The level of statistical significance was set at  $p \leq 0.05$  [18].

## Results

The results obtained by 128 respondents were analyzed. Arithmetic means of the QoL scores from the eight SF-36 domains and CIH were calculated for the whole study sample. The highest QoL scores were obtained for mental health – 69.47, and the lowest for general health – 46.68 (Fig. 1.)

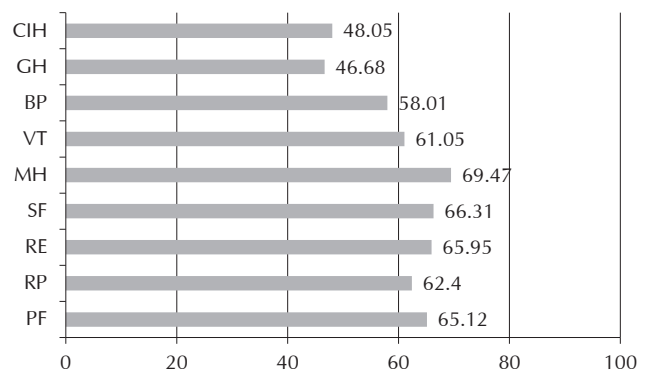


Figure 1. The SF-36 QoL scores

Climacteric symptoms were observed in 32.81% ( $n = 42$ ) of the respondents, 10.94% ( $n = 14$ ) of whom had severe symptoms (Fig. 2).

The women suffered from depressive states. Severe depression was observed in 7.81% ( $n = 10$ ) and moderate depression in 35.16% ( $n = 45$ ) of the respondents.

We compared the Blatt-Kupperman Menopausal Index scores and the SF-36 scores (Tab. 2) and found that the severity of climacteric symptoms was statistically significantly related to the QoL scores in the following domains: role emotional, vitality, bodily pain, mental health.

We compared the Beck Depression Inventory scores and the SF-36 QoL scores (Tab. 3) and demonstrated statistically significant relationships between the presence of depressive symptoms and lower QoL scores in all eight SF-36 domains, and between the severity of depressive symptoms and the CIH scores. The women with moderate and severe depressive symptoms reported the worsening of health status during the last three months.

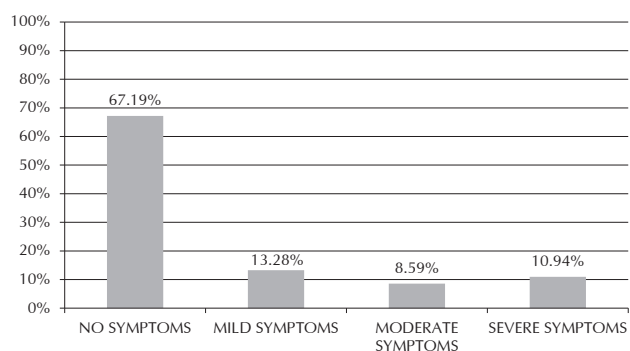


Figure 2. Climacteric symptoms

Table 2. The Blatt–Kupperman Menopausal Index scores vs. the SF-36 scores

Questionnaire	Blatt–Kupperman Menopausal Index				$\chi^2$	p	
	no symptoms n (%)	mild symptoms n (%)	moderate symptoms n (%)	severe symptoms n (%)			
SF-36							
RE	0–25	6 (42.86%)	2 (14.29%)	1 (7.14%)	5 (35.71%)	24.33	0.004
	26–50	14 (56%)	7 (28%)	1 (4%)	3 (12%)		
	51–75	34 (66.67%)	4 (7.84%)	8 (15.69%)	5 (9.8%)		
	76–100	32 (84.21%)	4 (10.53%)	1 (2.63%)	1 (2.63%)		
MH	0–25	1 (16.67%)	2 (33.33%)	1 (16.67%)	2 (33.33%)	27.27	0.001
	26–50	6 (33.33%)	4 (22.22%)	2 (11.11%)	6 (33.33%)		
	51–75	25 (65.79%)	5 (13.16%)	4 (10.53%)	4 (10.53%)		
	76–100	54 (81.82%)	6 (9.09%)	4 (6.06%)	2 (3.03%)		
VT	0–25	3 (25%)	3 (25%)	1 (8.33%)	5 (41.67%)	24.28	0.004
	26–50	16 (53.33%)	5 (16.67%)	5 (16.67%)	4 (13.33%)		
	51–75	40 (74.07%)	6 (11.11%)	4 (7.41%)	4 (7.41%)		
	76–100	27 (84.38%)	3 (9.38%)	1 (3.13%)	1 (3.13%)		
BP	0–25	10 (58.82%)	1 (5.88%)	3 (17.65%)	3 (17.65%)	25.89	0.002
	26–50	15 (44.12%)	8 (23.53%)	4 (11.76%)	7 (20.59%)		
	51–75	25 (64.1%)	7 (17.95%)	3 (7.69%)	4 (10.26%)		
	76–100	36 (94.74%)	1 (2.63%)	1 (2.63%)	–		

Table 3. The Beck Depression Inventory scores vs. the SF-36 QoL scores

Questionnaire	Beck Depression Inventory			$\chi^2$	p	
	no depression n (%)	moderate n (%)	severe n (%)			
SF-36						
PF	0–25	2 (15.38%)	6 (46.15%)	5 (38.46%)	36.46	< 0.0001
	26–50	11 (37.93%)	16 (55.17%)	2 (6.9%)		
	51–75	21 (56.76%)	13 (35.14%)	3 (8.11%)		
	76–100	39 (79.59%)	10 (20.41%)	–		
RP	0–25	2 (14.29%)	7 (50%)	5 (35.71%)	42.95	< 0.0001
	26–50	8 (30.77%)	15 (57.69%)	3 (11.54%)		
	51–75	31 (59.62%)	19 (36.54%)	2 (3.85%)		
	76–100	32 (88.89%)	4 (11.11%)	–		

**Table 3. The Beck Depression Inventory scores vs. the SF-36 QoL scores**

Questionnaire		Beck Depression Inventory			$\chi^2$	p
		no depression n (%)	moderate n (%)	severe n (%)		
RE	0–25	2 (14.29%)	7 (50%)	5 (35.71%)	37.99	< 0.0001
	26–50	10 (40%)	11 (44%)	4 (16%)		
	51–75	29 (56.86%)	21 (41.18%)	1 (1.96%)		
	76–100	32 (84.21%)	6 (15.79%)	–		
SF	0–25	2 (18.18%)	3 (27.27%)	6 (54.55%)	71.31	< 0.0001
	26–50	6 (20.69%)	19 (65.52%)	4 (13.79%)		
	51–75	36 (63.16%)	21 (36.84%)	–		
	76–100	29 (93.55%)	2 (6.45%)	–		
MH	0–25	–	2 (33.33%)	4 (66.67%)	73.79	< 0.0001
	26–50	2 (11.11%)	10 (55.56%)	6 (33.33%)		
	51–75	19 (50%)	19 (50%)	–		
	76–100	52 (78.79%)	14 (21.21%)	–		
GH	0–25	5 (21.74%)	11 (47.83%)	7 (30.43%)	43.64	< 0.0001
	26–50	27 (47.37%)	28 (49.12%)	2 (3.51%)		
	51–75	30 (81.08%)	6 (16.22%)	1 (2.7%)		
	76–100	11 (100%)	–	–		
VT	0–25	–	3 (25%)	9 (75%)	106.28	< 0.0001
	26–50	12 (40%)	18 (60%)	–		
	51–75	31 (57.41%)	22 (40.74%)	1 (1.85%)		
	76–100	30 (93.75%)	2 (6.25%)	–		
BP	0–25	2 (11.76%)	10 (58.82%)	5 (29.41%)	51.23	< 0.0001
	26–50	9 (26.47%)	21 (61.76%)	4 (11.76%)		
	51–75	29 (74.36%)	9 (23.08%)	1 (2.56%)		
	76–100	33 (86.84%)	5 (13.16%)	–		
CIH	0–25	9 (30%)	14 (46.67%)	7 (23.33%)	21.53	0.001
	26–50	49 (61.25%)	28 (35%)	3 (3.75%)		
	51–75	9 (81.82%)	2 (18.18%)	–		
	76–100	6 (85.71%)	1 (14.29%)	–		

**Table 4. Age vs. the SF-36 QoL scores**

SF-36 domain		Age					$\chi^2$	p
		0–50 n (%)	51–60 n (%)	61–70 n (%)	71–80 n (%)	81–90 n (%)		
RP	0–25	1 (7.14%)	2 (14.29%)	7 (50%)	4 (28.57%)	–	46.59	< 0.0001
	26–50	1 (3.85%)	6 (23.08%)	6 (23.08%)	11 (42.31%)	2 (7.69%)		
	51–75	5 (9.62%)	4 (7.69%)	33 (63.46%)	10 (19.23%)	–		
	76–100	5 (13.89%)	19 (52.78%)	8 (22.22%)	4 (11.11%)	–		
RE	0–25	2 (14.29%)	2 (14.29%)	5 (35.71%)	5 (35.71%)	–	32.59	< 0.0001
	26–50	1 (4%)	3 (12%)	10 (40%)	10 (40%)	1 (4%)		
	51–75	4 (7.84%)	7 (13.73%)	30 (58.82%)	10 (19.61%)	–		
	76–100	5 (13.16%)	19 (50%)	9 (23.68%)	4 (10.53%)	1 (2.63%)		
GH	0–25	1 (4.35%)	2 (8.7%)	11 (47.83%)	9 (39.13%)	–	25.82	0.01
	26–50	8 (14.04%)	8 (14.04%)	27 (47.37%)	12 (21.05%)	2 (3.51%)		
	51–75	2 (5.41%)	14 (37.84%)	14 (37.84%)	7 (18.92%)	–		
	76–100	1 (9.09%)	7 (63.64%)	2 (18.18%)	1 (9.09%)	–		

Table 4. Age vs. the SF-36 QoL scores

SF-36 domain		Age					$\chi^2$	p
		0–50 n (%)	51–60 n (%)	61–70 n (%)	71–80 n (%)	81–90 n (%)		
BP	0–25	1 (5.88%)	1 (5.88%)	7 (41.18%)	7 (41.18%)	1 (5.88%)	21.14	0.05
	26–50	3 (8.82%)	6 (17.65%)	14 (41.18%)	10 (29.41%)	1 (2.94%)		
	51–75	5 (12.82%)	7 (17.95%)	19 (48.72%)	8 (20.51%)	–		
	76–100	3 (7.89%)	17 (44.74%)	14 (36.84%)	4 (10.53%)	–		
PF	0–25	1 (7.69%)	3 (23.08%)	4 (30.77%)	4 (30.77%)	1 (7.69%)	23.33	0.03
	26–50	2 (6.9%)	2 (6.9%)	14 (48.28%)	11 (37.93%)	–		
	51–75	2 (5.41%)	7 (18.92%)	20 (54.05%)	8 (21.62%)	–		
	76–100	7 (14.29%)	19 (38.78%)	16 (32.65%)	6 (12.24%)	1 (2.04%)		

\* – statistically highly significant relationship.

Table 5. Place of residence vs. the SF-36 QoL scores

SF-36		Place of residence				$\chi^2$	p
		village n (%)	town/city of up to 50.000 people n (%)	town/city of 51–100,000 people n (%)	town/city of over 100.000 people n (%)		
PF	0–25	1 (7.69%)	2 (15.38%)	6 (46.15%)	4 (30.77%)	20.75	0.01
	26–50	5 (17.24%)	6 (20.69%)	13 (44.83%)	5 (17.24%)		
	51–75	2 (5.41%)	–	31 (83.78%)	4 (10.81%)		
	76–100	8 (16.33%)	11 (22.45%)	21 (42.86%)	9 (18.37%)		

Table 6. Marital status vs. the SF-36 QoL scores

Variable		Marital status			$\chi^2$	p
		married n (%)	single n (%)	cohabitation n (%)		
SF-36						
RP	0–25	6 (42.86%)	8 (57.14%)	–	12.83	0.05
	26–50	9 (34.62%)	16 (61.38%)	1 (4%)		
	51–75	31 (59.62%)	19 (36.53%)	2 (3.85%)		
	76–100	21 (58.33%)	10 (27.78%)	5 (13.89%)		
RE	0–25	7 (50%)	7 (50%)	–	13.87	0.03
	26–50	10 (40%)	15 (60%)	–		
	51–75	28 (54.9%)	21 (41.18%)	2 (3.92%)		
	76–100	22 (57.89%)	10 (26.32%)	6 (15.79%)		

Sociodemographic factors, such as age, place of residence and marital status contributed to the QoL level. Age had significant effects on the QoL score in five domains, namely role physical, role emotional, general health, and physical functioning. Older women obtained lower QoL scores in all domains (Tab. 4).

There was a statistically significant relationship between the place of residence and the physical functioning score ( $\chi^2 = 20.75$ ;  $p = 0.01$ ) (Tab. 5). Residents of towns/cities of 51.000–100.000 people obtained the highest QoL scores for physical functioning.

Marital status was statistically significantly related to the role physical ( $\chi^2 = 12.83$ ;  $p = 0.05$ ) and the role emotional scores ( $\chi^2 = 13.8703$ ;  $p = 0.03112$ ) (Tab. 6). Married women assessed their QoL higher than their single counterparts.

## Discussion

The findings presented in this article provide information about the QoL of postmenopausal women, and demonstrate statistically significant relationships between the QoL level and particular factors. The participants of our study were female members of the University of the Third Age, so the study sample was not representative of the population of postmenopausal women in Poland.

We noticed that the age of the respondents was inversely proportional to their QoL levels. Comparison of our results with those reported by Żońnierczuk-Kieliszek et al. [19], who investigated women at the premenopausal stages of life, showed that postmenopausal women had substantially worse QoL. Hence, we have drawn a conclusion that meno-

pausal status is essential for the QoL level. Postmenopausal women have to face up to a number of climacteric symptoms, and although they abate with time, their underlying reasons i.e. hormonal changes, lead to numerous diseases and complaints having long term effects on their lives.

In our study, severe climacteric symptoms were observed in every tenth woman. They affected QoL scores in four SF-36 domains, namely role emotional, mental health, vitality and bodily pain. We found that in the postmenopausal period women not only experience troublesome physical symptoms, but also mental health problems that can negatively influence their functioning in society. Bojar et al. [20] confirmed negative effects of menopause and climacteric symptoms on women's lives resulting in withdrawal from social, professional and family life [20]. As stated by Daly et al. [21] and Wieder-Huszla et al. [22], even though some women claim that climacteric symptoms that they experience do not interfere with their everyday professional and social functioning, there is a connection between climacteric symptoms and lower QoL levels. According to Whiteley et al. [23], women who experienced adverse effects of menopause assessed their health related quality of life (HRQoL) as much lower. They also noticeably more often lost their jobs due to health problems than their counterparts without climacteric symptoms [23].

Our analysis revealed statistically significant relationships between the Beck Depression Inventory scores and the QoL scores for all SF-36 domains. As indicated by Mroczek et al. [18], higher severity of depression is associated with the fear of losing a job, the fear of retirement and a generally lower QoL level. It corresponds with our findings, showing that 92.19% (n = 118) of the respondents suffered either from moderate or severe depression. In their study of 256 perimenopausal women, Barnaś et al. [24] did not observe any depressive symptoms. Depressive states negatively contribute to all spheres of women's QoL. As said by Michalska-Leśniewicz et al. [25], understanding of depressive disorders will enable scientists to improve the QoL of both women and their families. The results obtained in our study improve understanding of issues related to the QoL of postmenopausal women. Future research may provide further evidence for the relationship between climacteric and depressive symptoms and the self-reported QoL of postmenopausal women [23].

## Conclusions

Climacteric and depressive symptoms as well as age seem to be significant contributors to the QoL level of postmenopausal women. Climacteric symptoms have adverse effects on the mental health of postmenopausal women.

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