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Quality of life in peri- and post-menopausal Polish women living in Lublin Province – differences between urban and rural dwellers

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Abstract

Introduction and objective: The quality of life in peri- and post-menopausal women constitutes a serious public health problem. The aim of this observational cross-sectional study was to reveal the influence of the permanent domicile on the quality of life of women in peri- and post-menopausal period, and to establish the influence of employment as a full-time agricultural worker on the quality of life in these women.

Materials and methods: The research was carried out by means of a survey using the postal questionnaire technique. Three standardized questionnaires: WHOQOL-BREF, Women's Health Questionnaire (WHQ) and SF-36 were used as research tools. An original questionnaire was also used. The study comprised a representative sample of the female population aged 45-65 living in Lublin Province. The sample size was 2,143 women.

Results: The quality of the women's life was significantly affected by the place of permanent residence. The worst quality of life was found in permanent country dwellers. City and town inhabitants revealed a considerably higher level of quality of life. Permanent place of residence in the country was an independent predictor of a poorer quality of life. Employment as a full-time agricultural worker was an independent predictor of a worse quality of life in the SOM domain of WHQ, as well as RP, RF and RE domains of SF-36. On the other hand, employment as a full-time agricultural worker was an independent predictor of a better quality of life in the SLE domain of WHQ, and psychological domain of WHOQFL-BREF.

Conclusions: Awareness of the dependence is necessary in order to effectively plan health education and physical and social health promotion campaigns. Country dwellers need special attention in the process of undertaking any preventive or curative steps.

Key words

quality of life, women, menopause, urban and rural population, agricultural workers

INTRODUCTION AND OBJECTIVE

The quality of life in peri- and post-menopausal women constitutes a serious public health problem. This is due to current demographic trends in Polish society in which women at the peri- and post-menopausal stages constitute an increasing proportion. Improving the health and wellbeing of this group of women will improve the health and wellbeing of families and whole communities through the caring, nurturing and educative roles these women perform on a daily basis [1]. Other benefits of improved health and wellbeing for these women include greater participation and productivity in paid and unpaid occupations [2].

Lublin Province is a typical agricultural area and one of the least populated and least urbanized regions in Poland [3]. The research constitutes the first attempt to describe the differences in quality of life in peri- and post-menopausal women between urban and rural dwellers in Lublin Province. There are no reports on the subject in the scientific literature. The purpose of this research was to fill this gap in the literature, by identifying these differences.

The aim of this observational cross-sectional study was to reveal the influence of the permanent domicile on the quality of life of women in peri- and post-menopausal period, as well as to establish the influence of employment as a full-time agricultural worker on the quality of life in this group of women.

MATERIAL AND METHODS

The survey covered a representative sample of females aged 45-65 living in Lublin Province. Our study population of 2,143 women had an arithmetic mean of age of 53.8 years, a standard deviation of 5.32 years, and a median of age of 53 years.

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The research was carried out by means of a survey method, a postal questionnaire technique. The research was conducted between April 2007 - October 2008, within the area of Lublin Province. The survey proper was carried out in September and October 2007. The postal questionnaires were sent to 7,875 women aged 45-65, living in Lublin Province (2.63% of the studied population). The questionnaires were mailed with a request to complete and return them in the envelopes provided. In a covering letter, the respondents were informed of the purpose of the study, and instructions were enclosed concerning completion of the questionnaires, as well as voluntary and anonymous participation in the study. Consent was also obtained from Bioethical Commission (KE 0254/118/2006).

The mail addresses of the representative sample of females aged 45-65 years living in Lublin Province were obtained from the Local Data Bank of Lublin Provincial Office. The Local Data Bank contains information about the gender, age, and address of every individual living in Lublin Province. The stratified sampling was complied according to age intervals, taking into account the differences between urban and rural areas. The following strata were distinguished: woman aged 45-49, 50-54, 55-59, 60-65, with division into urban and rural areas. Selection of the primary sampling units was independent within each stratum, and proportionate to the population size of each element. Furthermore, the number of selected addresses within each stratum was set to mirror the proportion which each stratum takes in the population. 2,143 letters were returned with correctly filled-in questionnaires (return rate of 27.2 %). The structure of the sample according to age and place of living did not differ from the structure of the general population, i.e. the sample was representative for the population.

The study proper was preceded by a pilot study in a group of 100 women conducted in April 2007. This made it possible to determine the expected questionnaire return rate (24% for the pilot study). Additionally, minor stylistic and technical alterations were introduced to the survey questionnaire.

Each woman was asked to fill in the following questionnaires:

1) An abbreviated form (WHOQOL-BREF) of the World Health Organization Quality of Life Questionnaire, which was developed in collaboration with in a number of countries, including Poland, over several years in order to make it a reliable, valid, and responsive assessment of generic QOL, applicable to people living in different conditions and cultures [4].
2) The Women's Health Questionnaire, which was designed to assess symptom perceptions during menopause transition, and for older post-menopausal women (aged 45-65 years). This is a disease- or population-specific instrument developed by Myra Hunter and is a self-administered questionnaire [5, 6].
3) A 36-item Short Form (SF-36) Health Survey, which was constructed to survey health status in the Medical Outcomes Study. The SF-36 was designed for use in clinical practice and research, health policy evaluations, and general population surveys [7].

The reason for using all three standardized questionnaires was to cover all aspects related to quality-of -life assessment, in order to give a complete description of the evaluated community.

An original questionnaire was also used which included questions concerning the women's socio-demographic data (age, permanent place of residence, living conditions, education, marital status, having children, employment, financial situation), women's state of health (self-assessment of health condition, the presence of chronic diseases, medications taken on a regular basis). The questionnaire also contained questions concerning the women's basic gynaecological history. Women whose amenorrhoea had lasted for at least 12 months were treated as post-menopausal women. Another part of the questionnaire concerned the use of hormonal replacement therapy (HRT) by the studied group (taking hormonal preparations, currently or in the past, to alleviate menopausal ailments).

The study results obtained were subjected to statistical analysis. The domains of quality of life established by the WHOQOL-BREF, WHQ, SF-36 questionnaires were treated as dependent variables, whereas the socio-demographic variables, data concerning the women's menopausal status, their state of health, and whether they received HRT or not were treated as independent variables. Correlates of QOL were first investigated with a series of univariate analyses. Correlations between quantitative variables were estimated using Pearson's linear correlation coefficient. The analysis of qualitative variables was performed using the t-Student test for two groups, and the analysis of variance when more than two groups were compared. For multiple comparisons, Dunnett's T3 test was used. The comparison of two means using the t-Student test was preceded by Levene's test for homogeneity of variances. When the variances in both groups differed significantly, a modified test for heterogeneous variances was used. For comparison of more than two means from independent groups, a one-way analysis of variance (one-way ANOVA) was used and was preceded by Levene's test for homogeneity of variances. The study also included two strong tests for equality of means – the Welch's test and the Brown-Forsythe's test. The adopted significance level of $p<0.05$ displayed statistically significant correlations.

The second stage of statistic analysis involved a stepwise logistic regression analysis used to eliminate the possible disturbing influence of various independent variables. The values of dependent variables were dichotomized according to the median value. For each nine scales of WHQ, women showing values over the median value (i.e. worse QOL) were compared with the remainder. Similarly, for each of the four scales of WHO-BREF and each of the eight scales of SF-36, women showing values under the median value (i.e. worse QOL) were compared with the remainder. The results of the logistic regression analyses were expressed in terms of the odds ratio (OR), together with its associated P value.

To estimate the repeatability of results obtained, a retest study was conducted. This was carried out a year after finalizing the study proper. Postal questionnaires were again sent to 40 women and 30 correctly filled questionnaires were received. The repeatability of results obtained was estimated by the use of the Kappa coefficient, which in most cases was equal 1.0 (ideal compatibility of socio-demographic data and gynaecological history data was obtained). The Kappa coefficient values for detailed variables in the examined group of women ranged from 0.7 - 1.0, which proves the high reliability of the research.

SOCIAL-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION

The examined population of women was divided into four age groups: 45-49 years, 50-54 years, 55-59 years and 60-65 years (Tab. 1).

Table 1. Characteristics of the study population according to women's age.

Age group	No. of women examined	% of the total
45-49	550	25.7
50-54	642	30.0
55-59	587	27.4
60-65	364	17.0
Total	2,143	100.0

The characteristics of the study population according to women's permanent place of residence are presented in Table 2.

Table 2. Characteristics of the study population according to women's permanent place of residence.

Permanent place of residence	No. of women examined	% of the total
Urban area (city over 100,000 inhabitants)	424	19.8
Urban area (town up to 100,00 inhabitants)	894	41.7
Rural area	825	38.5
Total	2,143	100.0

19.8 % of the examined women lived in a city with over 100,000 inhabitants, while 41.7% of those examined lived in small towns of Lublin Province with up to 100,000 inhabitants; 38.5 % of the examined population were country dwellers.

The characteristics of the study population according to women's level of education are presented in Table 3.

Table 3. Characteristics of the study population according to women's education level.

Education	No. of women examined	% of the total
unfinished primary	10	0.5
primary	261	12.2
gymnasium	12	0.6
vocational	401	18.7
secondary	967	45.1
bachelor's degree	88	4.1
master's degree	396	18.5
doctorate	8	0.4
total	2,143	100.0

The women's education according to their place of permanent residence was also examined. The results obtained are presented in Table 4.

City dwellers presented the highest level of education, urban dwellers presented intermediate level of education, whereas permanent rural dwellers were characterized by the lowest level of education ($p<0.05$).

The characteristics of the study population according to women's employment status are presented in Table 5.

Table 5. Characteristics of the study population according to women's employment status*.

Employment status of the examined women	No. of examined women	% of the total
full-time employees	872	40.7
part-time employees, seasonal work	186	8.7
unemployed	135	6.3
solely housekeeping or childcare	69	3.2
disability pension or family pension	349	16.3
old age pension	666	31.1
other situation (retirement allowance, retirement benefit, nursing allowance, social welfare benefits)	45	2.1

*The percentages shown do not add up to a total of 100% because it was a multiple-choice question: the women had the possibility to choose more than one variant of answer. i.e. they could receive a pension at retirement age and be a part-time employee at the same time.

In the group of full-time employed women, 463 women (21.6% of total) gave the details of their professions answering the open-ended question of the original questionnaire. The professions given by the examined women were divided into the categories presented in Table 6.

Table 6. Professions of examined women (full-time workers).

Profession	No. of examined women	% of the total
Teacher	107	5.0
Other type of intellectual work	317	14.8
High-responsibility intellectual work (president, director, manager, chief accountant, physician)	77	3.6
Agricultural worker	88	4.1
Other type of manual work	124	5.8
Own business or owner of a company	30	1.4

RESULTS

Table 7 illustrates the comparison of detailed domains of WHQ, WHOQOL-BREF and SF-36, depending on the women's place of permanent residence.

In univariate analysis statistically significant links were proved between quality of life and permanent place of residence in eight domains of the WHQ questionnaire. In domains depressed mood, somatic symptoms, memory/concentration, vasomotor symptoms, anxiety/fears and attractiveness, permanent country dwellers were characterized by a definitely worse quality of life, whereas inhabitants of towns with up to 100,000 inhabitants enjoyed the best quality of life ($p<0.05$). In domains sexual behavior

Table 4. Comparison of women's education according to place of permanent residence.

Permanent place of residence	Education						p value
	unfinished primary, primary or gymnasium	vocational	secondary	bachelor's degree	master's degree or doctorate	total	
Urban area (city)	6.8%	14.6%	41.0%	2.8%	34.7%	100%	$Chi^2=254.37$ $p<0.001$
Urban area (town)	6.4%	51.7%	51.7%	5.5%	20.4%	100%	
Rural area	23.9%	40.4%	40.1%	3.3%	9.1%	100%	

Table 7. Comparison of detailed domains of WHQ, WHOQOL-BREF and SF-36, depending on women's place of permanent residence.

Domains of standardized questionnaires	Urban area City over 100,000 inhabitants	Urban area Town up to 100,000 inhabitants	Rural area	p value
Domains of the WHQ questionnaire	X	X	X	
Depressed mood DEP	0.30	0.28	0.37	p<0.0005
Somatic symptoms SOM	0.53	0.51	0.62	p<0.0005
Memory/concentration MEM	0.52	0.49	0.59	p<0.0005
Vasomotor symptoms VAS	0.48	0.47	0.52	p=0.019
Anxiety/fears ANX	0.36	0.35	0.44	p<0.0005
Sexual behaviour SEX	0.42	0.44	0.49	p=0.004
Sleep problems SLE	0.46	0.48	0.59	p<0.0005
Menstrual symptoms MEN	0.33	0.33	0.33	p=0.955
Attractiveness ATT	0.45	0.42	0.53	p<0.0005
Domains of the WHOQOL-BREF questionnaire	X	X	X	
Physical health	15.00	15.23	14.08	p<0.0005
Psychological health	13.15	13.20	12.29	p<0.0005
Social relationships	13.63	13.86	13.45	p=0.02
Environment	13.09	13.25	12.51	p<0.0005
Domains of the SF-36 questionnaire	X	X	X	
Physical functioning PF	78.87	75.76	64.26	p<0.0005
Role physical RP	67.45	65.88	55.21	p<0.0005
Bodily pain BP	51.88	53.27	45.21	p<0.0005
General health GH	54.52	54.07	48.10	p<0.0005
Vitality V	53.54	52.49	47.24	p<0.0005
Social functioning SF	66.30	66.93	58.10	p<0.0005
Role emotional RE	73.94	74.02	64.86	p<0.0005
Mental health MH	49.56	50.46	44.74	p<0.0005

and sleep problems, the inhabitants of cities with over 100,000 inhabitants were characterized by a substantially better quality of life. Permanent country inhabitants manifested definitely and most of all sleep and anxiety problems. Women living in rural areas were substantially less interested in sexual life ($p<0.05$). In the menstrual symptom domain of the WHQ, no statistical differences were found. Dunnett's T 3 test for multiple comparisons proved a worse quality of life in women living in rural areas in seven domains of the WHQ questionnaire: depressed mood, somatic symptoms, memory/concentration, anxiety, sexual behaviour, sleep problems and attractiveness ($p<0.05$).

In all domains of the WHQ-BREF questionnaire, i.e.: physical health, psychological health, social relationships, environment, the best quality of life was found in respondents living in towns, and the worst quality of life in country dwellers.

Statistical analysis of the SF-36 results according to the permanent place of residence revealed the worst quality of life in women living in rural areas in all domains of the questionnaire. The town inhabitants were characterized by the best quality of life in physical functioning, vitality, social functioning and mental health domains of SF-36, whereas the city dwellers were characterized by the best quality of life in physical and general health domains of the SF-36 ($p<0.05$).

Quality of life was also largely determined by the practiced profession. A poorer quality of life was observed in female agricultural and manual workers. A considerably higher quality of life was enjoyed by women who worked as teachers, or performed other types of intellectual work or high-responsibility intellectual work ($p<0.05$).

Since many of the variables investigated were correlated (i.e. age, school education, place of permanent residence, professional status, self-assessment of financial situation and living conditions), a series of multiple logistic regression analyses were applied to evaluate their independent role in predicting QOL. The results were expressed as the Odds Ratio (OR).

The logistic regression analysis of nine scales of the WHQ questionnaire revealed that permanent place of residence in the country was an independent predictor of a worse quality of life in sexual behaviour, sleep problems and attractiveness domains of this questionnaire. A high relative risk of a worse quality of life in the sexual behaviour domain of WHQ means that a woman is less interested in sexual life and disappointed with this sphere of her life. The relative risk of a worse quality of life in the sleep problems domain of WHQ (women suffering from sleep and anxiety problems), was also higher in permanent country dwellers (OR 1.59) than in town (OR 1.36) or city inhabitants (OR 1.0). Logistic regression analysis also revealed that permanent place of residence in the country increased the relative risk of a worse quality of life in the attractiveness domain of WHQ questionnaire, which means that a woman feels the lack of fullness of life and physical attractiveness.

Among four domains of the WHO-BREF questionnaire, permanent place of residence in the country proved to be an independent predictor of a worse quality of life in the environment domain of this questionnaire (permanent country dwellers OR 1.15). Logistic regression analysis of eight SF-36 domains of the quality of life showed that the permanent place of residence in the country was an independent predictor of a worse quality of life in the role of physical, bodily pain, social functioning, role emotional and mental health domains of this questionnaire. This means that permanent country inhabitants more often had problems with work or other daily activities as a result of physical health, more often suffered from very severe or extremely limiting pain, more often presented extreme and frequent interference with normal social activities due to physical and emotional problems, and more often complained of permanent feelings of nervousness and depression [7].

In describing the outcomes of logistic regression analysis, it was found that employment as a agricultural worker was an independent predictor of a worse quality of life in the somatic symptoms domain of the WHQ questionnaire, as well as in physical functioning, role physical, and role emotional domains of the SF-36 questionnaire. On the other hand, employment as a agricultural worker was an independent predictor of a better quality of life in the sleep problems domain of WHQ and psychological health domain of WHOQOL-BREF.

DISCUSSION

The univariate analysis of our study results revealed that the respondents' quality of life was largely determined by whether they were rural or urban dwellers. The worst quality of life was found in country dwellers, while city or town dwellers enjoyed a significantly better quality of life. A similar correlation was observed by Bińkowska [8], who in 2004 conducted a large study on a representative sample of 1,083 Polish women aged 45-54. The same was confirmed

by Amore et al. [9], who studied the quality of life in Italian women aged 45-55.

In our study, the rural women showed a considerably worse quality of life in the depressed mood and anxiety domains of the WHQ questionnaire when compared to their city and town counterparts. Rural women of low socioeconomic status are more likely to encounter financial problems, issues of unemployment or underemployment, discrimination, lack of education, and single parenthood. Therefore, it is not unexpected that rural females possess higher risk of anxiety and depression problems [10]. Our results are similar to the conclusions reached by Malacara et al. [11], who in comparing urban versus rural women aged 45-60 years in a multicentric, cross-sectional study from three different states of Mexico, estimated that scores for depression and anxiety were higher in rural women.

Logistic regression analysis showed that permanent place of residence in the country increased the relative risk of worse quality of life in three domains of the WHQ questionnaire (SEX, SLE, ATT), in the environment domain of the WHOQOL-BREF questionnaire and in five domains of the SF-36 questionnaire (RP, BP, SF, RE and MH). According to Amore et al. [9], multivariate analysis showed that place of residence in rural areas was related to more pronounced depressive symptoms and anxiety symptoms of WHQ in Italian women aged 45-55 living in Ferrara Province.

Poorer quality of life outcomes in rural and remote areas are likely to be the result of factors such as greater socioeconomic disadvantage (lower levels of education and poorer access to work, particularly skilled work), poorer access to health services, higher levels of personal health risk factors, and environmental issues linked to road travel and occupation [12, 13]. Women living in the city have more opportunities to be involved in social, cultural or economic activities. In contrast, women in rural areas are more labile to a diminished self-esteem at the end of their child-bearing age. In the presented study, permanent rural dwellers were characterized by the lowest level of education. The influence of low education levels on symptoms at menopause, which affect women's quality of life, has been shown in previous studies [14]. In modern rural and urban societies, a low education level is a handicap for the strong role of post-menopausal women in the family and the society [11].

CONCLUSIONS

Women's quality of life was significantly affected by the place of permanent residence. The worst quality of life was found in permanent country dwellers. City and town inhabitants revealed a considerably higher level of quality of life. The permanent place of residence in the country was an independent predictor of a poorer quality of life. Awareness of the dependence is necessary in order to effectively plan health education and physical and social health promotion campaigns. Country dwellers need special attention in the process of undertaking any preventive or curative steps.

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