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Quality of life and rural place of residence in Polish women – population based study

Pawel Zagozdzon[1], Emilia Kolarzyk[2], Jerzy T. Marcinkowski[3]

[1] *Department of Hygiene and Epidemiology, Medical University, Gdańsk, Poland,*
[2] *Department of Hygiene and Dietetics, Jagiellonian University, Medical College, Kraków, Poland*
[3] *Department of Hygiene, Medical University, Poznań, Poland*

Abstract

Objective: The purpose of this population-based study was to analyse the association between the health-related quality of life and rural residence among Polish females, including variables related to social environment and clinical characteristics.

Methods: The snowball recruitment method was used to invite 1,560 women aged 45-60 to participate in the study. Participants received a questionnaire about demographic characteristics, environmental and work stress, use of anxiolytic-hypnotic medications and self-reported quality of life based on the SF-36 form. Univariate and multivariate analysis was carried out by means of a logistic regression model.

Results: We found worse physical health and better mental health among women living in rural areas compared to those from urban settings. The rural residence was an independent predictor for poor physical health (below 25 percentile) odds ratio [OR] 1.6 95%, confidence interval [CI] 1.17-2.2). Living in rural areas was also associated at the borderline level of statistical significance, with reduction of risk of low quality of life in mental health (OR = 0.75; 95% CI = 0.55-1.02). According to other results from multivariate analysis, being retired, receiving social pension, long duration of illness symptoms, and consulting a medical specialist were the risk factors of reported bad physical health. Higher education and access to medical specialist protects against having a bad quality of life related to mental health. Being given the sack, stress at work, feeling anger, and long duration of symptoms are the risk factors of poor mental health.

Conclusion: The rural residence is strongly associated with environmental and psychosocial factors in women aged 40-65.

Key words

rural residence, epidemiology, women's quality of life

INTRODUCTION

Quality of life (QOL) should be considered as a multidimensional concept, and has been estimated with regard to physiological, psychological and social factors, and usually includes subjective evaluations of both the positive and negative aspects of life [1]. Healthy People 2010 and 2020 Programmes have been identifying quality of life improvement and promotion of healthy behaviors across all life stages as a central public health goal. Health-related quality of life is related to both self-reported chronic diseases (diabetes, breast cancer, arthritis, and hypertension), and their risk factors (body mass index, physical inactivity, and smoking status) [2]. At the individual level, this includes physical and mental health perceptions and their correlates – including health risks and conditions, functional status, social support, and socioeconomic status. In the case of women at midlife, QOL may be determined to some degree by peri-menopausal complaints (hot flushes, sleep disorders, sexual dysfunction, and alterations in mood), and the use of hormone replacement therapy [2, 3-5]. Therefore, many studies describe the relationship between QOL and socioeconomic status, education level, family and professional status of examined women [6]. However, the studies that examine the role of place of residence of women at midlife in relation to QOL are rare, especially in Poland and in other developing countries.

The objective of this study was to assess in cross-sectional approach the role of rural residence on the health-related quality of life in Polish women. We also investigated the prevalence of anxiolytic or hypnotic use in the association between environmental factors and health-related quality of life.

METHODS

Study population. This is a cross-sectional descriptive study. The snowball recruitment method [7] was used in the survey. The sample consisted of 1,560 women aged 45-60, recruited at 8 different places in different regions of Poland. The sample size was computed so that the study has adequate power (83%) to reject the null hypothesis, assuming that the proportion of anxiolytic or hypnotic use was 20%, while the true proportion was 23%.

Variables. The survey used 2 questionnaires; the first dealt with social and clinical characteristics, and the second collected data on health-related quality of life. Data were collected using specific self-report questionnaires between January 2009 – March 2009. The first questionnaire consisted of 16 questions related to socio-economic aspects, including place of residence, life-styles, clinical symptoms, prescribed

Address for correspondence: Prof Emilia Kolarzyk, Department of Hygiene and Dietetics, Jagiellonian University, Medical College,7 Kopernika Street, 31-034 Kraków, Poland, Tel/fax:48(12)422-37-20
E-mail: mykolarz@cyf-kr.edu.pl or emikol45@wp.pl

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medications, and health services utilization. Medications mentioned in the questionnaire were hypnotics and anxiolytics. Clinical symptoms listed in the questions were: headache, palpitations, mood swings, increased muscular tension, anger and duration of symptoms. In the second part of the examination, the standardized SF-36 questionnaire was used for assessment of physical and mental self-perceived health [8]. The following areas of health-related quality of life were assessed within its physical component: lack of limitations in functional status from the aspect of everyday activities, lack of limitations in functional status because of physical health in everyday activities, or doing less than planned, lack of feeling pain in the 4 previous weeks, lack of limitations in everyday activities because of pain, and subjective estimation of own health status. In the SF-36 questionnaire there were also areas of health-related quality of life within its mental component: vitality, lack of depression, lack of feeling exhausted, lack of feeling tired, lack of limitations in social activities-social life, meetings with other family members, lack of limitations in functioning because of mental health in performing everyday activities, or doing less than was planned, general estimation of mental health (lack of feeling nervous or sad, being happy and calm).

The dependent variable was the use of any medication from the group of hypnotics or anxiolytics.

Statistical analysis. Data are presented as mean ± standard deviation (SD) and as percent proportions. For continuous variables with normal distribution the Student's t-tests for independent samples was applied. If variables did not follow normal distribution, Wilcoxon test was used for comparisons of independent measurements. Differences between categorical variables were tested by means of chi-square test. Odds ratios and 95% confidence intervals were calculated in univariate analysis and for variables included into multivariate model. Multiple stepwise logistic regression analysis was applied to all variables that had at least a marginal univariate predictive value ($p<0.2$). Variables with significant independent predictive values ($p<0.05$) were identified. A probability (p) value of < 0.05 was regarded as statistically significant. Low physical and mental health-related quality of life was defined when the corresponding result of SF-36 was below the 25th percentile. Statitical analysis was performed with STATA software (STATA 11.0, STATACorp, Texas, USA).

RESULTS

There were 22% of rural residents among study participants, with the slightly older women among them living in urban settings (52.6 years old vs. 51.8 years old, Table 1). The prevalence of hypnotics or anxiolytics use was similar in both grups – approximately 23% (Table 1). There were more women with a higher education among the women living in urban areas, and more working women comparing to those in rural areas (Table 1). There was more job satisfaction, more stress at work, and more environmental stress among women living in urban settings. Similarly, there were more women on hormone replacement therapy and fewer women with clinical symptoms in urban settings. There were more women consulting their symptoms with medical specialists among those living in urban settings (37% vs. 29.7%). At the same time, there was a statistically significant difference in the physical health-related quality of life: the better scores were found among women from urban areas (Table 1). We found a worse mental health-related quality of life in women from urban areas, with the difference at the borderline significance level compared, to women from rural areas.

Table 1. Characteristics of study participants with regard to rural residence

Characteristics	Living in rural area	Living in urban area	p
Number	350	1220	
Age (mean ± SD)	51.79 ± 4.78	52.66 ± 4.47	0.0016
Using anxiolytic-hypnotic drugs % (n)	22.54% (78)	23.12% (276)	0.88
Education % (n)			0.001
primary	17.63% (61)	9.84% (114)	
vocational	24.28% (84)	26.4% (306)	
secondary	39.31% (136)	40.55% (470)	
tertiary	18.79% (65)	23.21% (269)	
Job activity % (n)			0.001
working	62.82% (218)	72.70% (232)	
not working	16.14% (56)	9.62% (117)	
retired	11.82% (41)	11.35% (138)	
social pension	9.22% (32)	6.33% (77)	
Job satisfaction % (n)	60.98% (186)	71.12% (766)	0.001
Stress at work % (n)	31.8% (97)	42.8% (461)	0.001
Environmental stress % (n)	28.86% (99)	33.72% (403)	0.1
Home as place of rest % (n)	89.34% (310)	91.12% (296)	0.34
Hormone replacement therapy	13.83% (48)	19.83% (240)	0.012
Symptoms % (n):			
headache	70.11% (244)	65.72% (786)	0.14
palpitations	42.03% (145)	39.18% (467)	0.35
mood swings	59.60% (208)	53.88% (639	0.066
increased muscular tension	47.13% (164)	47.14% (561)	1.0
anger	38.90% (135)	32.15% (382)	0.02
Duration of symptoms > week % (n)	31.99% (111)	31.86% (374)	1.0
Consulting medical specialist % (n)	29.71% (104)	37.05% (452)	0.011
Physical health related quality of life (mean ± SD)	58.69%±9.8%	59.87%±9.0%	0.035
Mental health related quality of life (mean ± SD)	49.27% ± 8.7%	48.25%±9.1%	0.064

Results of multivariable analysis of determinants of health-related quality of life. The rural residence is an independent predictor of worse physical health. Living in rural settings statistically significantly increases by 60% the probability of having low quality of life related to physical health (OR 1.6; 95% CI 1.17-2.21) (Table 2). Older age indicates worse physical health. Retired women and on social pensions had a higher probability of having worse quality of life associated with physical health (OR = 2.37; 95% CI = 1.36-4.15 and OR = 1.97; CI = 1.05-3.74 respectively) (Table 2). Women having job satisfaction had a lower probability of worse physical health (OR = 0.64; 95% CI = 0.46-0.9) (Table 2). Hormone replacement therapy was not an independent predictor of the physical health aspects of the quality of life. The presence of anger in the last 3 months increased by 50% the chance of worse physical health (OR 1.48; 95% CI 1.08-2.02) (Table 2). The duration of at least one of the following symptoms: palpitations, mood swings, increased muscular tension or anger, and consulting a medical specialist doubled the risk of having low physical health (OR = 2.13; 95% CI = 1.58-2.86 and OR = 1.99; 95%

Table 2. Adjusted odds ratios for low (below 25th percentile) physical health related quality of life with regard to analysed factors.

Characteristics	Odds ratio	95% Confidence Interval	p
Age	1.045	1.009–1.082	0.014
Rural residence	1.6	1.17–2.21	0.004
Education *:			
primary			
vocational			
secondary			
tertiary			
Job activity:			
working	1		
not working *			
retired	2.37	1.36–4.15	0.002
social pension	1.97	1.05–3.74	0.04
Job satisfaction	0.64	0.46–0.90	0.01
Stress at work *			
Environmental stress *			
Home as place of rest *			
Hormone replacement therapy	0.79	0.55–1.13	0.20
Symptoms:			
headache *			
palpitations	1.26	0.94–1.70	0.19
mood swings *			
increased muscular tension *			
anger	1.48	1.08–2.02	0.01
Duration of symptoms > week	2.13	1.58 - 2.86	<0.001
Consulting medical specialist	1.99	1.48 - 2.67	<0.001
Using anxiolytic-hypnotic medication *			

* Not included into multivariate model (p>0.2 in univariate analysis)

Table 3. Adjusted odds ratios for low (below 25th percentile) mental health related quality of life with regard to analysed factors.

Characteristics	Odds ratio	95% Confidence Interval	p
Age	1.03	0.997–1.06	0.08
Rural residence	0.75	0.55–1.02	0.07
Education:			
primary			
vocational*			
secondary	0.44	0.33–0.59	< 0.001
tertiary	0.30	0.21–0.44	< 0.001
Job activity:			
working	1		
not working	1.62	1.05–2.50	0.03
retired*			
social pension*			
Job satisfaction*			
Stress at work	1.38	1.04 - 1.84	0.03
Environmental stress *			
Home as place of rest *			
Hormone replacement therapy *			
Symptoms:			
headache*			
palpitations*			
mood swings*			
increased muscular tension*			
anger	1.62	1.23–2.13	< 0.001
Duration of symptoms > week	1.34	1.00–1.79	0.05
Consulting medical specialist	0.66	0.50–0.88	< 0.001
Using anxiolytic-hypnotic medication	1.25	0.91–1.71	0.18

* Not included into multivariate model (p>0.2 in univariate analysis)

CI = 1.48-2.67, respectively) (Table 2). Using hypnotics or anxiolytics was not associated with any changes in the level of physical health-related quality of life.

Contrary to the case of physical health, rural residence is associated at the borderline statistically significant level, with reduction in the chance of having a worse mental health-related quality of life (OR = 0.75; 95% CI = 0.55-1.02) (Table 3). Secondary and tertiary education was associated with a lower probability of low mental health-related quality of life (OR = 0.44; 95% CI = 0.33-0.59 and OR = 0.3; 95% CI = 0.21-0.44, respectively) (Table 3). Non-working status was associated with a 60% increased risk of worse mental health (OR 1.62; 95% CI 1.23-2.13) (Table 3). Similarly, stress at work increased the chance of having a low mental health-related quality of life (OR 1.38; 95% CI 1.04-1.84, Table 3). Experiencing anger in the last 3 months also increased the probability of having low mental health-related quality of life, similar to physical health aspects of quality of life, but to a greater extend (OR 1.62; 95% CI 1.23-2.13) (Table 3). The duration of at least one of following symptoms – palpitations, mood swings, increased muscular tension or anger – increased by 30% the chance of having low mental health (OR = 2.13; 95% CI = 1.58-2.86) (Table 3). Women consulting a medical specialist had a lower probability of worse mental health, contrary to physical health (OR = 0.66; 95% CI = 0.50-0.88) (Table 3). Using hypnotics or anxiolytics was not an independent predictor of a worse mental health-related quality of life (OR 1.25; 95% CI 1.91-1.71) (Table 3).

DISCUSSION

In 2010, there lived in Poland a population of 38,200,000 (60.9% in urban areas and 39.1% in rural areas). In the total population of males (100%) and females (100%) in 2010, there were 21.8% of males and 22.0% of females in the age range of 45-60. At this age range, 22.6% of the total population lived in urban areas (of which females formed 22.2%), and 20.3% lived in rural areas (females – 19.4%). The distribution of the female population aged 13 or over, from the aspect of educational level (in percent) in urban areas (U) and rural areas (R) was as follows: tertiary – 26.2% U and 9.4% R; post-secondary and secondary – 39.6%U and 27.5% R; basic vocational – 15.4%U and 22.1%R; lower secondary – 3.9%U and 6.1%R; primary – 14.9%U and 3.0% R (Concise Statistical Yearbook of Poland 2011). Despite the fact that in 2008 (for the first time in history), the number of urban inhabitants reached more than 50% of the world's population, but similar to Poland, almost all the remainder live in the countryside. Evidence exist that many issues connected with rural life have an international character, and the differences in the social and physical environments between villages and cites are clearly visible [9]. Rural areas have a higher level of unemployment and poverty, lower level of education, and more difficult access to health and social services than in urban areas [10-12]. These factors may contribute to different health outcomes for rural and urban residents [13, 14]. It should be pointed out that rural inhabitants generally have worse health status parameters in physical and mental dimensions than their urban counterparts; for example, in the United States, the

higher prevalence of chronic obstructive pulmonary disease and chronic health conditions, higher mortality rates and higher overall death and death rates from unintentional injuries have been noted [13]. In Poland, many rural inhabitants do not have sufficient means to buy necessary medications. Current regulations concerning the refunding of costs of medicines may make effective outpatient treatment of chronic diseases impossible, and people attempt to treat themselves, contrary to medical recommendations [15].

In the range of modifiable risk factors, the differences between rural and urban inhabitants are also observed. Rural residents smoke more (especially men), exercise less, have diets which are less nutritional, and are more likely to be obese than urban residents [16]. Probst *et al.* found that while both urban and rural females more likely to be depressed than males, rural females were also more likely to be depressed than urban females [17]. Rural females in the United States, especially those who are worse educated, are more sedentary than urban females. Such patterns of lifestyle are likely to contribute to a higher prevalence of different diseases, especially obesity, diabetes and cardiovascular disease [18]. Similar results have been obtained in Poland [19]. The examination of 130 females at menopausal age who lived in a rural environment, and 130 females living in Kraków, showed that some health habits depend on the environment in which the people live. In the group of rural females, the prevalence of overweight and obesity was twice as frequent than in females from Kraków (43% vs. 20%). Fewer females living in rural areas smoked cigarettes and drank alcohol, but also fewer of them took up recreational physical activity than females and males from urban areas (29% vs. 52.3%). The level of exposure to stress at work was similar, but the methods of coping with stress were diversified. Females from rural areas reached for sedatives more often, and more often watched television, but practiced sports less frequently [19].

The review of literature indicated that the life of rural inhabitants, especially females, is less convenient than urban life, and this may have impact on the health-related quality of life [20], but this problem is still weakly recognized.

The presented results indicate that living in rural settings is a strong determinant of the health-related quality of life. Rural residence is positively associated with mental health, but negatively with the physical health-related quality of life. Other important risk factors for a low physical health-related quality of life are as follows: being retired or receiving social pension, long duration of illness symptoms, and consulting a medical specialist. Job satisfaction is associated with good physical health. Higher education and access to medical specialist care protects against a low mental health-related quality of life. Being without a job, stress at work, feeling anger, and long duration of symptoms, are bad for mental health.

CONCLUSION

Rural residence is strongly associated with environmental and psychosocial factors determining life quality in the spheres of physical and mental health in Polish midlife women in the peri-menopausal period.

Living in rural areas, together with higher education and access to medical specialist care, are positively connected with mental health. Opposite to these females living in a rural environment and being retired or in receipt of a social pension, long duration of symptoms of illness, and consulting a medical specialist are recognized as negative factors for physical health.

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