10.2478/v10066-012-0010-y

ANNALES
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA

VOL. LXVII, 1 SECTIO B 2012

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Health state of the population living at eastern border of the European Union and its conditioning (based on the example of the south-eastern borderland of Poland)

Stan zdrowia ludności wschodniego pogranicza Unii Europejskiej i jego uwarunkowania (na przykładzie południowo-wschodniego pogranicza Polski)

ABSTRACT

The article analyses modern health problems of population at the eastern border of the European Union and the factors that condition the health state of the population in this area. Spatial-temporal reasoning was conducted with regard to such indicators reflecting the health state of population as death rates due to basic reasons: circulatory system diseases, malignant neoplasm, respiratory system diseases, external causes and infant mortality rate. The above-mentioned elements were analysed with division into counties in Podkarpackie and Lubelskie voivodeships in 2002–2009. The article also analyses selected conditions of health state, such as population wealth and healthcare quality. It was noticed that some parameters of health state in the region deteriorated, especially in Lubelskie voivodeship, which results from synergy effects of socio-economic, medical and organizational nature.

Key words: health problem of the population, eastern border of EU, factors influencing public health status

INTRODUCTION

The health of population is undoubtedly the most important value in the world. Health state has its significant measure for each person because it conditions life quality and, consequently, influences work efficiency and economic development in every region. Lifestyle diseases, whose spread is constantly in-

creasing in developed countries, including EU, are typically chronic and cause temporary or permanent incapacity to work. Therefore, they are a factor that inhibits economic growth in individual countries. Eastern border of EU has been treated by researchers as a problem area (Eberhardt 1989; Bański 1999) characterised by excessive migration outflow, deformation of age structure, defeminisation processes and relatively poor health conditions of the population. Simultaneously, the researchers pay a lot of attention to demographic problems of the region (Kosiński, Tokarski 1987; *Strategia rozwoju Euroregionu Bug…,* 1997; *Przemiany społeczno-gospodarcze Polski…,* 1998; Kawałko, Miszczuk, 2005; *Wspólna polsko-ukraińska strategia współpracy transgranicznej…,* 2005), and economize the analyses concerning health potential of the population, which is an important element of demographic conditions and life quality. The main objective of the present article is to discuss current health problems and socio-economic factors that influence health potential of the population at the eastern border of EU. For the needs of the present article, the spatial range of the analyses was limited to two voivodeships: Lubelskie and Podkarpackie. It was done primarily because of the availability of comparable statistical data that reflect the health state of the population. Eastern region is a very interesting testing ground for demographic and health changes influenced by socio-economic processes. Additionally, border location and intensive investments in human and social capital make the region have a particular position in spatial research.

Current situation in health state of the population in the region is influenced by a number of factors: economic (global and local) historical and socio-cultural. Eastern border of EU is the most diversified Polish region in terms ethnicity and culture (Eberhardt 1996). It is featured by: low level of life quality, high level of hidden unemployment, low economic activity, brain drain of educated youth, advanced depopulation processes resulting from migration outflow of the population, aging processes and polarisation of spatial development. The accession of Poland to the European Union, particularly advantageous for well-developed regions, brought a danger of peripherisation of the most economically backward and the least competitive region of eastern Poland. Transborder location of the region may become a developmental stimulus on the one hand, and with unfavourable political and socio-economic situation in neighbouring countries – Belarus and Ukraine, it may hinder further socio-economic and demographic development of the region resulting from unfavourable migration policy (excessive bureaucracy), which inhibits population inflow from eastern countries, especially Ukraine and Belarus. The research shows that the present eastern border is a barrier, rather than a stimulus of development (Bański et al. 2010). The accession of Poland to EU in May 2004 and reintroduction of visas for Ukrainians and Belarusians unfortunately hinder the development and discourage interpersonal and economic relations. Consequently, this situation has a significant influence on socio-economic

development of the regions including their demographic situation and health state of the population as its important components.

The knowledge on demographic potential of the population, its level, quality and changes in time are very important for proper definition of priorities in socio-economic development and allocation of resources. Facing the shortages of financial resources and inability to satisfy the requirements of all regions, the need arises to make optimal choices. Accuracy in decision-making is closely related to the knowledge on the level of regional development, including the conditions of the population. The analysis of the present conditions in terms of demographic and health potential and their spatial-temporal changeability are the bases for regional policy of the state.

SELECTED INDICATORS CONDITIONING THE HEALTH STATE OF THE POPULATION AT THE EASTERN BORDER OF EU

There are certain interrelations between the health state and economic conditions of the population (Kedelski 1983; Wilkinson 1986; Daly, Cobb 1989; Kickbusch 1989; Duch, Uramowska-Żyto 1990; Frąckiewicz 1990; Marmot 1994; Korporowicz 1999; Rosenberg, Wilson 2000; Cavalini, De Leon 2008). Good health determines the ability to find and do attractive job. Additionally, it stimulates social activity (*Zdrowie i choroba...*, 2002). At the same time, favourable economic conditions facilitate health preservation, while poverty increases the risk of diseases.

The influence of income on health state was proved by M. Blaxter (1990), who claims that "low income is a specific risk factor; although equated to the lack of social care, it may be an indicator of shortages in various resources, and the consequences of low income are dangerous because they accumulate and intensify the proliferation of certain diseases and the old age" (in: *Zdrowie publiczne...*, 2000, pp.76–77). According to the quoted author, poverty may be a primary cause of cancer, cardiovascular diseases, accidents and other diseases.

Traditionally, eastern Poland is considered to be one of the poorest and the most marginalized region of EU (http://epp.eurostat.ec.europa.eu/ portal/page/ portal/ publications/ regional _yearbook). It is characterised by low wages, unfavourable income structure and expenses, significant poverty rate, both extreme and subjective (Tab. 1). Such a situation, along with unfavourable structure of national economy, high unemployment and large number of employees with "junk contracts" undoubtedly have a destructive influence on the health state of the population and do not favour preserving its good shape.

Table 1. Selected indicators of life quality at the eastern border of EU against Poland in 2002–2009

Indicators	Poland		Lubelskie voivodeship		Podkarpackie voivodeship	
	2002	2009	2002	2009	2002	2009
1	2	3	4	5	6	7
Average monthly income (gross), PLN	2097.83	3101.7	1836.32	2727.64	1788.06	2617.50
Income of households, PLN per 1 person						
Total, including	664.21	1114.49	581.22	908.99	538.46	834.59
hired labour	303.13	593.73	232.92	449.48	232.80	434.50
from individual farm (agriculture)	33.53	43.07	47.79	45.91	12.90	22.60
own business	54.37	101.37	29.57	62.10	34.84	49.74
social care	230.75	322.51	223.29	288.45	226.70	295.33
Expenditures of households, PLN per 1 person						
Total, including	624.99	956.68	570.29	826.98	535.88	783.78
food	184.61	240.08	173.12	271.93	175.16	221.11
healthcare	28.32	47.90	28.13	41.33	26.16	38.92
Consumption of selected food types, kg per person						
Meat	5.41	5.55	5.26	5.40	4.56	4.84
Fish	0.40	0.46	0.41	0.43	0.29	0.36
Oil and fats	1.58	1.37	1.65	1.36	1.63	1.41
Fruit	4.07	3.77	4.29	3.78	3.90	3.69
Vegetable	13.02	10.28	13.78	10.63	13.44	11.13
Sugar	1.70	1.38	1.80	1.55	2.08	1.64
Subsistence level, % of households						
Extreme	11.8[1]	5.7	13.1[1]	8.4	14.0[1]	5.7
Relative	20.3[1]	17.3	21.1[1]	26.0	23.7[1]	21.4
Legal	19.3[1]	8.3	19.3[1]	12.6	22.7[1]	10.6
Employment and unemployment						
Registered unemployment rate, %	18.0	12.1	15.7	12.9	16.9	15.7
Long-term unemployment rate, %	51.2	25.8	54.1	31.8	55.1	33.6
Indicators of health care resources and activities						
Number of employed per 1,000 people	326.7	352.0	331.4	52.0	302.8	317.0
Employment structure, including	24.4	28.1	14.0	18.4	19.4	27.7
industry and buildings	29.4	15.9	53.0	36.6	48.3	23.8
primary sphere services	46.3	56.0	32.0	45.0	32.3	48.5
Number of hospital beds per 10,000 people	49.8	48.0	53.8	53.2	42.0	46.2
Patients in hospitals per 100 people	34.9	43.9	35.3	41.1	35.6	43.0

1	2	3	4	5	6	7
Average length of stay in hospital, days	8.0	5.8	8.1	6.6	8.0	5.9
Number of people per 1 pharmacy	3979.4	3188.3	3047.2	2562.0	4193.4	3046.0
Medical advice in health care facilities per 1 person	6.2	7.6	6.1	7.9	5.7	6.9

[1] According to the state in 2004. Source: Own study on the basis of *Podstawowe dane z zakresu…,* 2003, *Podstawowe dane z zakresu*…, 2010; *Rocznik statystyczny województw*…, 2003. *Rocznik statystyczny województw*…, 2010, *Biuletyn statystyczny Ministerstwa Zdrowia ...*, 2003, *Biuletyn statystyczny Ministerstwa Zdrowia*…, 2010.

As far as the problem of monthly gross income is concerned, the analysed voivodeships are characterised by noticeably lower income in comparison to other regions of Poland, which is merely 84–88% of the national average. In comparison to 2009, it appears that public sector was a better employer. In spatial perspective, Łęczna county (due to the location of "Bogdanka" coal mine), the city of Rzeszów, Puławy county, the cities of Lublin, Zamość and Biała Podlaska were in most favourable situations (Fig. 1).

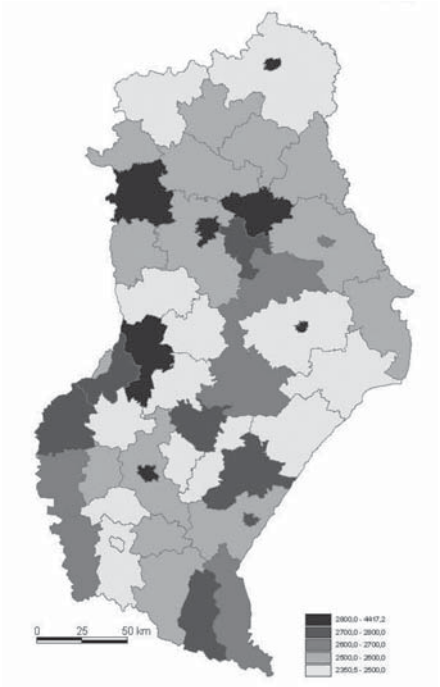

Fig. 1. Average monthly gross income in PLN according to counties in Lubelskie and Podkarpackie voivodeships in 2009. Source: own elaboration on the basis of *Rocznik statystyczny województw*…, 2010.

The measure to evaluate the quality of life are income and its structure. In 2009, the income in Lubelskie was higher than in Podkarpackie voivodeship, however, they reached the value of only 82% of national average. At the same time, the highest share of income was obtained from hired labour and social care. Particularly high share of this type of income was characteristic of Podkarpackie, where it reached the value of 35.4%, while national average was 28.9% in 2009. The decrease of this type of income in the period of 2002–2009 by 6.7% in Podkarpackie and 6.8% in Lubelskie is a positive trend.

According to different authors (Marmot, Wilkinson [in:] *Social Determinants of Health…*, 2000) the level of household expenditures is an important criterion in the material evaluation of the population. It is also important to know the structure of expenditures, with particular consideration for food. The population of Lubelskie is in exceptionally unfavourable situation at the moment because people there spent as much as 33% of their income on food in 2009, while they did 20% in 2002. People who live in Podkarpackie spent 28% of their incomes on food in 2009, which was only 3% more than national average. As a result, not much of their money might have been spent on healthcare – as little as 4.9–5.0% in the analysed voivodeships. The structure of nourishment also changed in 2002–2009 period. Generally speaking, the consumption of meat and fish increased, while the consumption of sugar, oil and other fats, vegetables and fruit decreased, even though the consumption of the latter is at national level.

Work and professional career are not only the main source of income, but also a source of satisfaction, as it is noticed by L. Dawydzik (1994), M. Marmot and R. Wilkinson (in: *Social Determinants of Health…*, 2000) they have direct influence on the health state of the society. Unemployment in Poland is an effect of two factors that overlap: opportunistic and structural, which result from a mismatch between employee's qualifications and new demands of the economy. In literature there is a trend (Saligman's theory) that indicates individual responsibility for the unemployment rate (Abramson et al. 1978), which is not proved in Polish reality. As it appears, unemployment in Poland results from external causes rather than from employees' behaviour. Although the unemployment rate, including long-lasting unemployment rate, decreased significantly in the discussed period, it is still at a very high level, particularly long-term unemployment, which reaches even 34% in Podkarpackie. Long period of being unemployed is primarily associated with lack of income, which contributes to low standard of living for the unemployed person and their family. As E. Laiferowa (1999) says, the effects of long-lasting unemployment related to personal and psychological development are equally important for their health. The voivodeships of the eastern border are characterised by unfavourable employment structure. They are typically agricultural regions. However, the increase of employment in industry and construction is a positive trend. The increase is especially noticeable in Podkarpackie – by 1.4

times with relation to 2002. In services the increase was by 1.5 times in Podkarpackie and 1.4 times in Lubelskie.

Self-evaluation of people's economic condition is an important criterion of life quality measure (Tab. 2). As it appeared, in 2010 nearly 23% of households in Lubelskie declared that their material conditions were bad or very bad, while the value of the indicator for the whole country was 19.6%.

Table 2. Subjective evaluation of financial situation of households at the eastern European border against Poland in 2010, in % of a given group of households

Detail	Poland	Lubelskie voivodeship	Podkarpackie voivodeship
Very good	2.7	1.3	1.7
Quite good	22.6	20.2	19.5
Average	55.1	55.6	58.6
Quite bad	13.4	16.3	14.5
Bad	6.2	6.7	5.8

Source: Own study on the basis of *Sytuacja gospodarstw domowych*…, 2011.

The situation is equally difficult in the border region in terms of the development and accessibility of healthcare facilities. The most important indicator of healthcare functioning is the accessibility of family doctors. According to M. Pączkowska (2009) every seventh patient in 2009 claimed that if you want advice from general practitioner, it is hardly possible to have it on the same day. Those who applied for a daytime home visit experienced similar difficulties (every sixth patient); every second patient had difficulties making appointment for a night visit and every fifth considered it very difficult. The most important reasons for such situations were: too small number of patients served by doctors each day (76% of respondents), too long waiting time for an appointment (73%) and too long waiting time for registration (69%).

The availability of medical services, particularly specialists' ones, is negatively evaluated by patients in Poland, as the waiting time for medical advice services is drastically long. The main cause of this situation is improper distribution of the resources from the National Health Fund (NHF) and the regime of public finance. As M. Węgrzyn (2003) claims, frequently it is the patients that overuse medical services in unjustified situations which prolongs the waiting time and limits the access to doctors for those who need it the most.

As recent data from the NHF show, the waiting time for selected medical procedures in certain health centres is as long as 4 years for hip replacement implant and 2.1 years for lenses (cataract) (www.nfz.gov.pl). The longest waiting time for hospital treatment of a patient classified as stable was noted in surgery department

of NZOZ ARTHROZ Sp. z o.o. in Ryki – 952 days, 5th Department of Interventional Cardiology and Angiology Americal Heart of Poland Sp. z o.o. in Rzeszów – 480 days, neurological rehabilitation of Witold Chodźko Institute of Rural Health in Lublin – 450 days. Considering the specificity of the above-mentioned hospital departments, such long waiting time seems absurd, as many patients may not live so long.

One of the most popular measures defining the availability of health services is the number of hospital beds per a number of population (Fig. 2). General conditions in this respect are better in Lubelskie voivodeship, while Podkarpackie voivodeship is below the national average. The value of this measure is diversified within Podkarpackie voivodeship ranging from 0 for Krosno county (services rendered by hospitals in Krosno) and Przemyśl county (services rendered by a hospital in Przemyśl), up to 147 beds per 10,000 people in the cities of Krosno, Rzeszów (113) and Zamość (112).

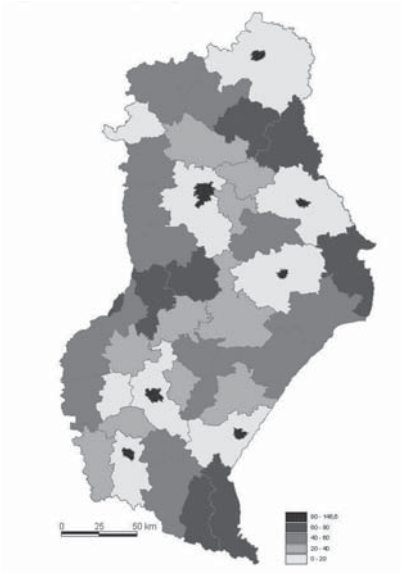

Fig. 2. The number of beds per 10,000 people according to counties in Lubelskie and Podkarpackie voivodeships in 2009

Source: Own study on the basis of the data from the Central Statistical Office.

The indicator of the length of patient's stay in hospital, on the one hand, proves the difficulties in eliminating the diseases, on the other hand, it shows malfunctioning of health care in diagnosing and effective treatment. The indicator should be carefully interpreted as the time that a patient spends in hospital might be influenced by increasing costs of treatment which are frequently covered by the patient, and overcrowding of certain departments, which makes the patient

undergo convalescence at home. Podkarpackie voivodeship does not diverge from national average in this respect, while in Lubelskie voivodeship the period of patient's stay in hospital is 6.6 days.

Another stage of medical services accessibility evaluation is the number of medical services per one person. The capital cities of voivodeships and counties obtained the best results with regard to this indicator, with a general tendency of worse results in Podkarpackie voivodeship. Comparing statistical data concerning the number of medical services per one person in 2002–2009 – it was noticed that the spatial image of this phenomenon hardly changed (Fig. 3) with a general tendency to increase the number of medical advice services in 2009.

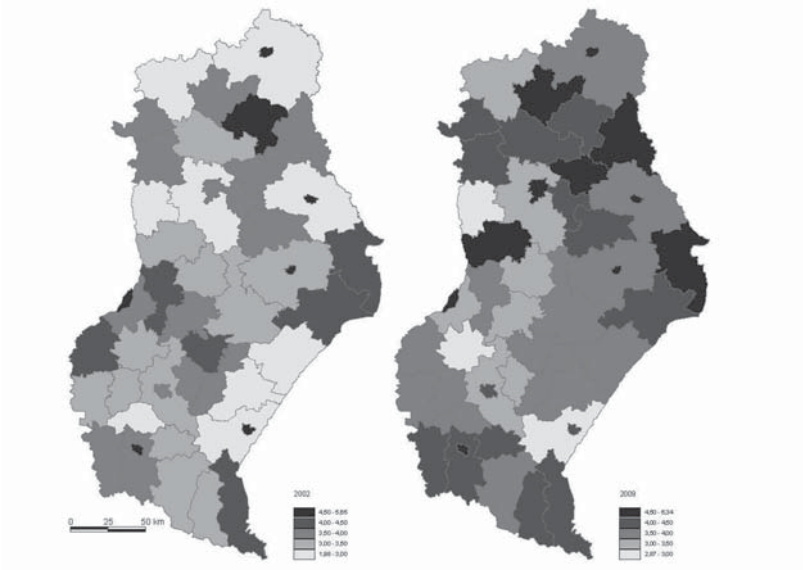

Fig. 3. The number of medical advice per 1 person according to counties in Lubelskie and Podkarpackie voivodeships in 2002 and 2009

Source: Own study on the basis of the data from the Central Statistical Office.

One of supplementary indicators of health care functioning is the number of people per one pharmacy (drugstore). Large range of the value of this indicator in 2009 should be noted: from 55–57 people per one pharmacy to almost 2,000 people. The largest number of people per one pharmacy was noted in Podkarpackie voivodeship: Bieszczadzki County (nearly 2,000 people), Leski county (1,667 people), Przemyski county (1,250). The most favourable situation was observed in the cities of Lublin (57 people per one pharmacy) and Rzeszów (113 people). Comparing the spatial distribution of this phenomenon in 2002–2009, no significant changes were noted (Fig. 4).

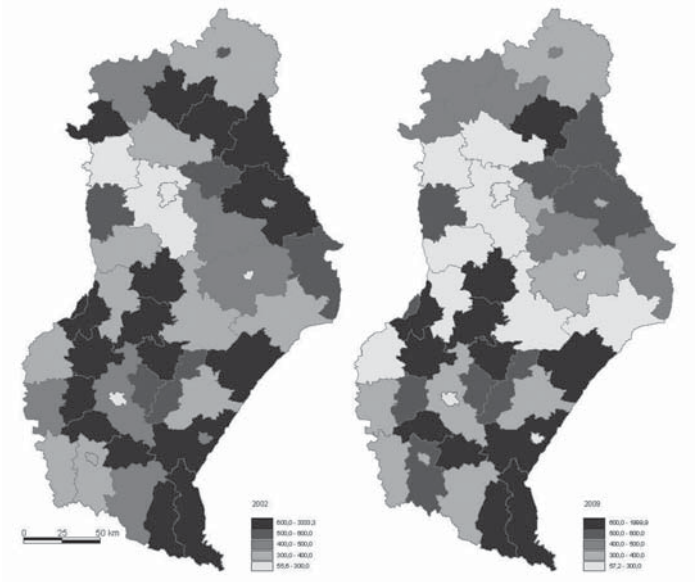

Fig. 4. The number of people per one pharmacy (drugstore) according to counties in Lubelskie and Podkarpackie voivodeships in 2002 and 2009

Source: Own study on the basis of the data from the Central Statistical Office.

Smaller number of people per one pharmacy results in larger competition between pharmacies, which brings lower prices of medicines and a chance to meet the demands of households for necessary medicines. According to sociological data (*Diagnoza społeczna…*, 2009) from the examined voivodeships, nearly 23% of households resigned from purchasing medicines because of financial reasons.

HEALTH PROBLEMS OF THE POPULATION AT THE EASTERN BORDER OF EU

The health state of population is typically estimated with subjective and objective measures. The data concerning subjective health state of the population was taken from the research conducted by the Central Statistical Office from 1996 on self-evaluation of health state with relation to age, sex and place of residence. The results are very objective as they depend on individual personalities of people and different sensitivity to pain. Comparing the data for Poland, for both men and women, in 2004–2009 period, general improvement of health state of the population should be noticed: the share of people who evaluated their state of health as good increased by 4.5% and the share of people who evaluated their health as bad or very bad decreased by 1.7%. The results showed that patients' sex, age and place of residence are the most important factors that determine the state of

health. The correlation is that the number of dissatisfied people increases with their age, especially in case of women. This can be explained with the natural aging process of a human organism and the development of numerous old age-related diseases. Worse evaluation of their health in case of women, in comparison to men, is related to the attention and worries that women have with regard to their health. Comparing the results from the two voivodeships, it should be noted that the population of Lubelskie voivodeship, both men and women, is characterized by worse health state. The worst situation is in marginalied rural areas (Tab. 3).

Table 3. Self-evaluation of health state at Eastern EU border against Poland in 2004–2009

Detail	Very good and good (%)		Average (%)		Bad and very bad (%)	
	2004	2009	2004	2009	2004	2009
Poland, total, including	61.0	65.7	26.4	23.4	12.6	10.9
rural areas	60.1	65.5	26.4	23.0	13.5	11.5
men	64.5	69.1	24.0	21.5	11.5	9.4
women	58.3	62.7	28.2	25.0	13.5	12.3
Lubelskie voivodeship	57.2	61.4	26.8	23.9	16.0	14.7
rural areas	54.8	58.8	26.7	24.3	18.5	16.9
men	60.1	65.5	25.6	21.8	14.3	12.7
women	54.9	57.9	27.7	25.7	17.4	16.4
Podkarpackie voivodeship	62.7	68.1	24.8	22.2	12.5	9.7
rural areas	62.7	66.7	25.2	22.8	12.1	10.5
men	65.4	72.3	23.8	19.4	10.8	8.3
women	60.6	64.4	25.6	24.7	13.8	10.9

Source: Own study on the basis of *Stan zdrowia ludności Polski*…, 2007, *Stan zdrowia ludności Polski*…, 2011.

The most distinctive of all measures of health state is the number of deaths: total deaths, deaths due to basic reasons and also the deaths of people in mobile productive age (up to the age of 39).

The indicator that effectively eliminates the influence of aging on the number of deaths is the juxtaposition of deaths at the age of 0–39 with the number of people at this age. The obtained spatial distribution of deaths in this age group showed that spatial distribution of the above phenomenon did not change much in 2002–2009 (Fig. 5), but maintained the trend of decreasing number of deaths at the age of 0–39 per 10,000 people at this age. The worst situation in the spatial approach can be observed in northern and north-eastern counties of Lubelskie voivodeship and Przemyskie county in Podkarpackie voivodeship. The best situation was observed in the northern part of Podkarpackie voivodeship.

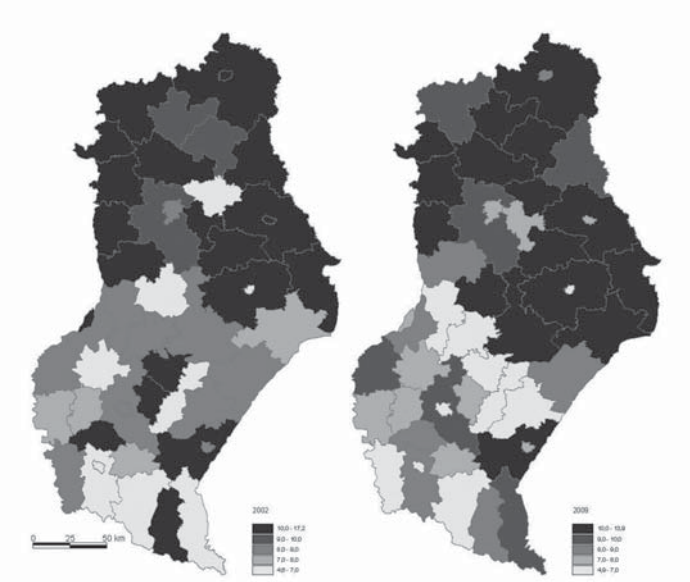

Fig. 5. The deaths of people aged 0–39 per 10,000 people aged 0–39 according to counties in Lubelskie and Podkarpackie voivodeships in 2002 and 2009

Source: Own study on the basis of the data from the Central Statistical Office.

As far as the structure of deaths is concerned, the most notable cause of death is cardiovascular diseases. Death indicators related to this cause are characterised by, rising tendency for both the whole country and the researched voivodeships. Particularly significant increase was noted for Lubelskie voivodeship – by 6.4%, while the death ratio of cardiovascular diseases increased by as little as 0.2% in Podkarpackie voivodeship (Tab. 4).

The best situation in spatial approach was noted in capital cities of the voivodeships and counties as well as certain southern counties of Podkarpackie voivodeship. The situation of the cities can be explained by the location of reputable hospitals, including cardiac hospitals and cardiac departments. The worst situation was in northern, eastern and western parts of Lubelskie voivodeship, as these parts are relatively "old" in terms of demography (Fig. 6).

The factors responsible for the number of deaths of cardiovascular reasons are – apart from natural reasons such as age, broadly understood lifestyle – psycho-social stress, limited physical activities, excessive drinking and smoking. According to the research by J. Czapiński (in: *Diagnoza społeczna…,* 2009) the percentage of smokers in the examined voivodeships oscillates around 22.1–24.9% with national average of 27.8% Thanks to restrictive, anti-nicotine campaign, in 2000–2009 the number of smokers decreased 1.2 times in Poland, and in Lubels-

kie voivodeship – 1.3 times. Similarly, the number of excessive drinkers decreased in the total number of population in 2003–2009.

Table 4. Selected indicators of health situation at eastern border of EU against Poland in 2002–2009

Indicators	Poland		Lubelskie voivodeship		Podkarpackie voivodeship	
	2002	2009	2002	2009	2002	2009
Death rate per 100,000 people	940.0	1008.9	1019.8	1094.9	841.9	885.5
Death rate due to circulatory system diseases per 100,000 people	449.8	466.4	501.2	533.7	458.4	459.5
Death rate due to malignant neoplasm per 100,000 people	228.3	244.5	210.1	226.8	183.9	207.2
Death rate due to respiratory system diseases per 100,000 people	40.8	54.1	40.6	50.8	31.4	34.2
Death rate due to external causes per 100,000 people	64.8	63.4	58.8	68.9	51.9	48.7
Infant mortality rate per 1,000 live births	7.5	5.6	7.8	4.5	6.9	5.5
Tuberculosis incidence rate per 100,000 people	27.4	21.6	39.4	34.3	28.8	15.9
Incidence rate of malignant neoplasm per 100,000 people	287.2[1]	337.7[2]	256.5[1]	344.9[2]	269.6[1]	333.5[2]
AIDS incidence rate per 100,000 people	0.3	0.3	0.0	0.3	0.0	0.3

[1] According to the state in 2000; [2] According to the state in 2007.

Source: Own study on the basis of *Rocznik statystyczny województw*…, 2003, *Rocznik statystyczny województw*…, 2010, *Biuletyn statystyczny Ministerstwa Zdrowia*…, 2003, *Biuletyn statystyczny Ministerstwa Zdrowia*…, 2010.

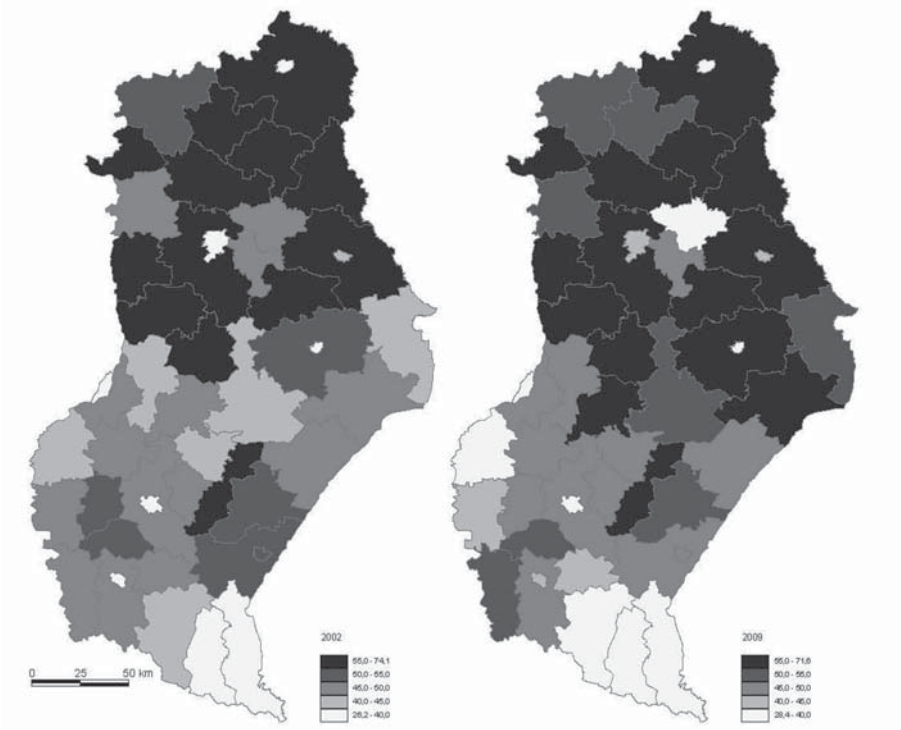

Fig. 6. The death rate due to cardiovascular diseases per 10,000 people according to counties in Lubelskie and Podkarpackie voivodeships in 2002 and 2009

Source: Own study on the basis of the data from the Central Statistical Office

Cancer is the second most common cause of death. Comparing the data in Table 4, one can notice a constant increase of demise of this type of diseases, in both Poland and the researched voivodeships. Increasing number of deaths of cancer and the incidence of cancer may be related to increased exposure to carcinogenic factors, with lifestyle (smoking, drinking alcohol, drug addictions) and deterioration of life quality, especially at border rural regions of Lubelskie voivodeship near Ukraine. Undoubtedly, the cause of the present state lies in psycho-social stress resulting from the crisis of 2008 and low effectiveness of early cancer diagnostics (Pantylej 2008). In spatial approach, marginalised peripheral rural areas in Lubelskie voivodeship are in worse situation – Hrubieszowski, Chełmski and Tomaszowski counties. In 2009, an increased number of deaths of cancer spread to northern and western counties of Lubelskie voivodeship (Fig. 7).

It has been long since the deaths of infants were considered the most distinctive indicator of social-economic situation and health indicator of countries and their regions. These factors have direct impact (on the accessibility of pregnant women to appropriate healthcare facilities, the conditions of birthplace) or inter-

fere with the mortality of infants in a longer time reference (women's procreation health, lifestyle, environment contamination, genetic conditions, general social-economic evaluation of the region). In Lubelskie voivodeship the mortality index of infants was lower than the value of the index for Poland by almost 20%. Spatial distribution of the phenomenon does not demonstrate any notable correlations; the counties characterised by low and high values of the indicator are present in different parts of the researched area (Fig. 8).

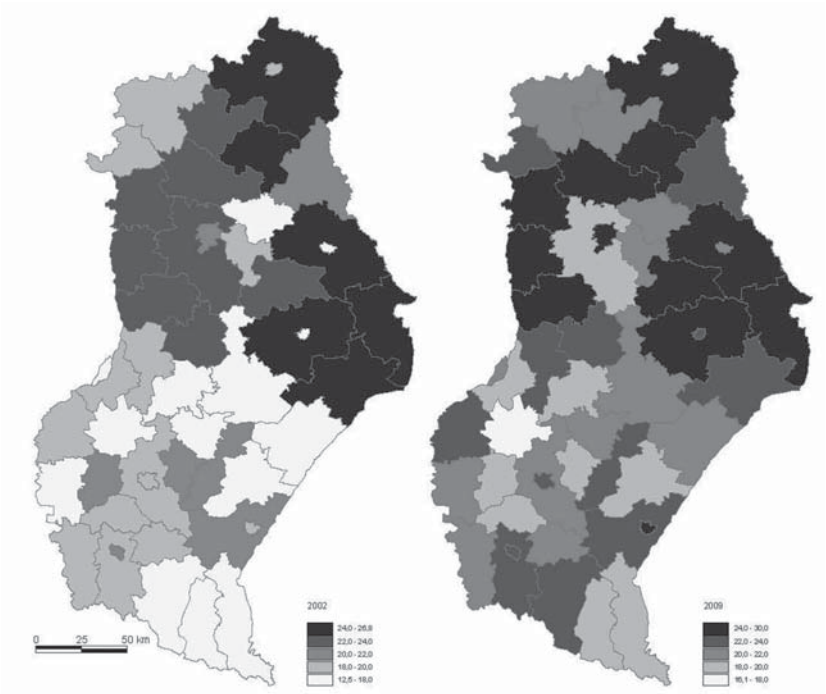

Fig. 7. The death rate due to neoplasm per 10,000 people according to counties in Lubelskie and Podkarpackie voivodeships in 2002 and 2009

Source: Own study on the basis of the data from the Central Statistical Office.

Among other indicators of health state of the population, one should pay special attention to the statistics concerning the incidence of tuberculosis. The disease is broadly considered a disease of the poor, who are malnourished and live in bad conditions, even though there is a new, drug-resistant form of TB that concerns not only the poor, but also other social groups. It is particularly alarming that the incidence of tuberculosis in Lubelskie voivodeship was the highest in Poland and reached the number of 40 cases per 100,000 people.

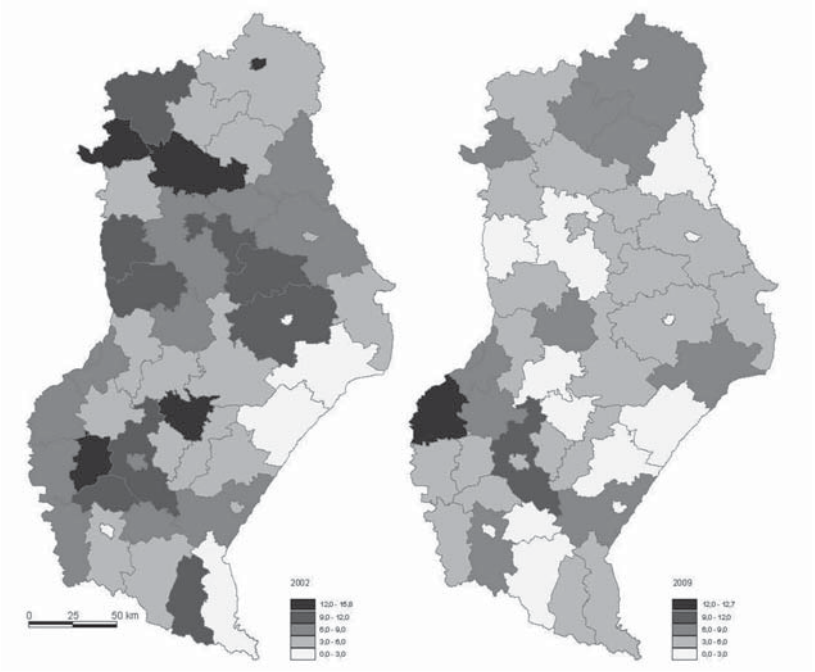

Fig. 8. Infant mortality rate per 1,000 live births according to counties in Lubelskie and Podkarpackie in 2002 and 2009

Source: Own study on the basis of the data from the Central Statistical Office.

CONCLUSIONS

The research in general health of the society along with life quality and the accessibility of health services in spatial modelling are incredibly difficult due to a wide range of factors that influence the health state of the population and because of gaps in statistical data at a lower administrative level than a voivodeship.

The evaluation of the situation in terms of life quality and the accessibility of medical services show a significant advantages of capital cities of voivodeships over other cities at Eastern border area of EU. Similar situation was noted in case of health state of the population on the basis of death indicators due to basic reasons.

Eastern border of EU is a specific research area. In the light of the health condition measures of the population, it is characterised by relatively poor health situation of the people, noticable especially in Lubelskie voivodeship (except for infants mortality). Relatively high values of death ratio of basic reasons: cardiovascular diseases, cancer, external causes of death, and also the incidence of social diseases (tuberculosis, AIDS) and lifestyle diseases (cancer) give a basis to claim that the population of the Eastern EU border area is undergoing an epidemiologi-

cal transformation that is characteristic of highly developed countries[1] in a very specific way. Epidemiological transition in developed countries is a shift of accent of main reasons for deaths and the incidence of diseases from infectious diseases towards non-infectious chronic diseases (Okólski 2004). In the voivodeships of eastern Poland the increased incidence of lifestyle diseases overlaps with a slight decrease of incidence of social diseases, especially tuberculosis.

Eliminating the differences in health state of EU citizens is an important priority of the Community. In order to eliminate unfavourable differences in the level and quality of lifestyle at the eastern border of EU, the actions aimed at improving the situation must be taken. First and foremost, special preventive programes directed to peripheral rural areas should be started with an aim to prevent and diagnose early stages of civilization and social diseases.

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STRESZCZENIE

Artykuł poświęcony jest analizie współczesnych problemów zdrowotnych mieszkańców wschodniej granicy UE, a także czynników warunkujących stan zdrowia ludności badanego obszaru. Przeanalizowano w ujęciu przestrzenno-czasowym takie współczynniki odzwierciedlające stan zdrowia ludności jak poziom zgonów z podstawowych przyczyn: chorób układu krążenia, nowotworów złośliwych, chorób układu oddechowego, zewnętrznych przyczyn zgonów, a także zgonów niemowląt. Wyżej wymienione wskaźniki zostały przeanalizowane na poziomie powiatów województw podkarpackiego i lubelskiego w latach 2002–2009. W pracy poddano także analizie wybrane uwarunkowania stanu zdrowia ludności, takie jak poziom zamożności ludności oraz poziom opieki medycznej. Stwierdzono pogorszenie niektórych parametrów sytuacji zdrowotnej mieszkańców regionu, zwłaszcza na obszarze województwa lubelskiego, będące wynikiem efektu synergicznego nałożenia na siebie czynników natury społeczno-ekonomicznej i medyczno-organizacyjnej.

Słowa kluczowe: problemy zdrowotne ludności, wschodnia granica UE, czynniki warunkujące stan zdrowia ludności