

HEALTH AND SOCIAL CHARACTERISTICS OF MEDICAL GROUP PRACTICES' PATIENTS IN YAMBOL REGION (BULGARIA)

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Abstract

Health, besides being a value, is a prerequisite for economic prosperity of the society. This is one of the reasons which determine the importance of the indicators of public health measuring. The purpose of this article is to study, analyze and present specific health and social characteristics of different groups of patients in Yambol region. During the summer of 2012, 647 patients were interviewed by using a questionnaire for self-assessment of their health (EuroQol 5-D), as well as their socio-economic status. The results show that the population health differs between the subregions.

Key words: health, healthcare facilities, diseases, EuroQol (EQ-5D) index

INTRODUCTION

Assessment of the health of the population (public health) is a challenge for the researchers due to the diversity of the phenomenon and the variety of methods for studying its different aspects. Measurement of indicators of public health is necessary not only to determine the health status in a community, but also to compare it to another, to assess the healthcare needs, for adequate resource allocation in the healthcare system, for forecasting the future development of the phenomenon and especially for establishing a basis for decision making to improve the public health.

Measures of the public health are usually split to classical and modern integrated indicators. They can be estimated from data collected at both individual and population level, including through self-assessment of individuals. Self-administered questionnaires are applied extensively in the recently conducted studies.

Another challenge for the researchers is application of random sample which is representative not only at national but also at regional level.

MATERIALS AND METHODS

A cross-sectional study among 647 patients in Yambol region has been conducted. The sample is typological: health-insured patients, visited three different medical group practices, have been asked to fill in standardised self-administrated questionnaire. The practices are located in the regional centre (practice 1), in the centre of a municipality, close to the regional centre (practice 2) and a practice, located in a border area, far from regional and municipality centres (practice 3. The third practice is more rural and agricultural focused compared to the first two, which are more urban. The data is collected between June and August 2012.

EQ-5D 3L questionnaire is applied for assessment of patients health as well as additional questions related to acute and chronic diseases and number of visits in different health facilities during the last 12 months. Demographic and economical information is also collected.

Statistical methods used: frequencies and cross-tabulations for categorical variables, means for continuous variables, Pearson chi-square test and Kruskal-Wallis test for comparison between the responses of different medical group practices' patients.

RESULTS AND DISCUSSION

A total of 647 patients have been surveyed. More than a half of them (52.9%) live and receive health cares in health practice 1, one of four (27.5%) is patient of practice 2 and one of five (19.6%) is a patient of practice 3, Table 1.

1.1. Social and demographic characteristics

Two of every three respondents (66%) are female, while the males are only 31.8%. Non responders are 2.2%. No significant differences are observed among the group practices ($p > 0.05$), Table 1.

Variable	Total (n=647)	Practice 1 (n=342)	Practice 2 (n=178)	Practice 3 (n=127)	p
Gender – Male	31.8	33.6	33.1	25.2	0.198
Gender – Female	66.0	63.7	65.7	72.4	
Education – Primary	20.9	6.1	27.5	51.2	<0.001
Education – High school	49.3	49.7	60.1	33.1	
Education – University degree	25.7	39.5	9.6	11.0	
Marital status – Married	59.2	62.3	64	44.1	<0.001
Marital status – Married, but separated	3.2	4.1	1.7	3.1	
Marital status – Widowed	15.3	8.5	12.4	37.8	
Marital status – Single	11.3	9.6	18	6.3	
Marital status – Divorced	4.5	7.9	0.0	1.6	
Marital status – Cohabitation	3.9	5.3	2.2	2.4	

Table 1. Distribution of the patients' social and demographic characteristics – total and by medical group practices (Pearson chi-square), percentage by columns

Almost half of the surveyed persons (49.3%) reported finishing high school; every fourth (25.7%) have university degree, whilst every fifth (20.9%) have finished only primary school. Non responders are 4.2%. The patients in the group practises significantly differ by their educational status: the patient surveyed in practice 1 are the most educated, whilst those, receiving medical care in practice 3 are the least educated ($p < 0.05$), Table 1, Fig. 1.

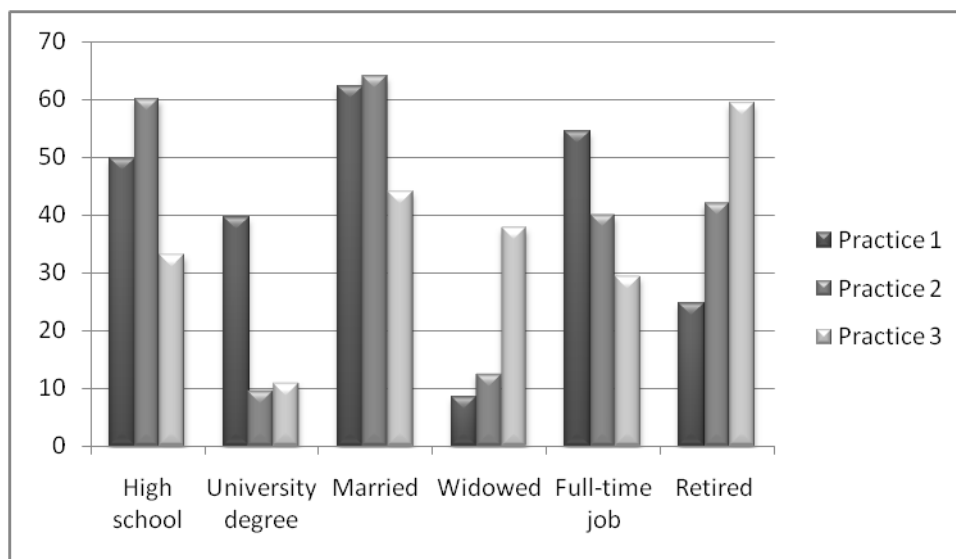


Fig. 1. Distribution of patients' education (high school and university degree only), marital status (married and widowed only) and employment status (full-time and retired only) by medical group practice

Respondents' mean age is 52.86 (median is 52.5, mode is 48); the youngest is 18 and the oldest is 88 years old. The average age differs significantly across the group practices ($p < 0.05$): the first practice holds the youngest surveyed persons, whilst the third one – the oldest, Table 2.

Variable	Total	Practice 1	Practice 2	Practice 3	p
Age	52.86	49.05	53.78	61.91	<0.001
Number of visits to doctor's office for the last 12 months	6.15	5.08	8.49	6.02	<0.001
Number of visits to emergency unit for the last 12 months	0.44	0.53	0.30	0.40	0.357
Number of visits to hospital for at least 1 night for the last 12 months	0.53	0.56	0.63	0.29	0.168
EQ-5D	0.80	0.81	0.80	0.76	0.012

Table 2. Means of variables, describing age and health status of the respondents among the medical group practices (Kruskal-Wallis test)

More than a half of the patients are married (59.2%), 15.3% are widowed, one of ten (11.3%) are single, divorced are 4.5%, cohabitants are 3.9% and married but live separately are 3.2%. Non responders are 2.6%. The patients from the group practices vary according to their marital status: married persons are more in the first and second practices, whilst in the third one the widowed are more ($p < 0.05$). The differences are probably due to the age distribution of the patients, Table 1, Fig. 1.

Almost half of the patients (45.3%) have full-time job, 4.3% have part-time, a third are retired (35.9%), 5.7% are unemployed and another 6.8% don't work due to education or another reason. Non responders are 2%. The proportion of full-time workers is decreased in the second and especially in the third group practice, whilst the retired are more ($p < 0.05$). This is due to the economical differences

in the sub-regions, the ones far from the centre does not offer so many opportunities for work. The proportion of the retired is related to the age distribution of the patients, Table 3, Fig. 1.

Variable	Total	Practice 1	Practice 2	Practice 3	p
Employment status – Full-time	45.3	54.4	39.9	29.3	<0.001
Employment status – Part-time	4.3	5.3	3.4	3.3	
Employment status – Student	1.7	2.3	1.1	0.8	
Employment status – Unemployed	5.7	5	7.9	4.9	
Employment status – Don't work	5.1	6.4	4.5	2.4	
Employment status – Retired	35.9	24.6	42.1	59.3	
Have mobile phone	73.6	85.1	62.4	58.3	<0.001
Have own income source	53.5	59.1	53.4	38.4	0.038
Have money problems	21.2	19.0	23.0	24.4	0.078
Have own/family car	31.1	47.7	12.4	12.6	<0.001
Net monthly income – Up to 240 BGN	34.6	22.2	40.4	59.8	<0.001
Net monthly income – Between 240 and 500 BGN	34.9	36	38.8	26.8	
Net monthly income – Between 500 and 1000 BGN	17.9	26.3	8.4	8.7	
Net monthly income – More than 1000 BGN	5.7	10.5	0.6	0	

Table 3. Distribution of the patients' economic demographic characteristics – total and by medical group practices (Pearson chi-square), percentage by columns

Almost two-thirds (73.6%) have mobile phone; every second person (53.5%) has own source of income, every third (31.1%) reported having own or family car and every fifth respondent (21.2%) have some money problems. Mobile phone possession, car and own source of income differ between the group practices: more people in the first one reported having the values, whilst their proportion in the third is the least ($p < 0.05$). The third practice's patients more often have money problems, but the difference is not significant at 95% degree of certainty ($0.1 < p < 0.05$). Less cell phone possession among the third group practice patients could be explained with their higher age and possible insufficient network coverage in the border area, whilst less frequency of cars indicates their poverty, Table 3, Fig. 2.

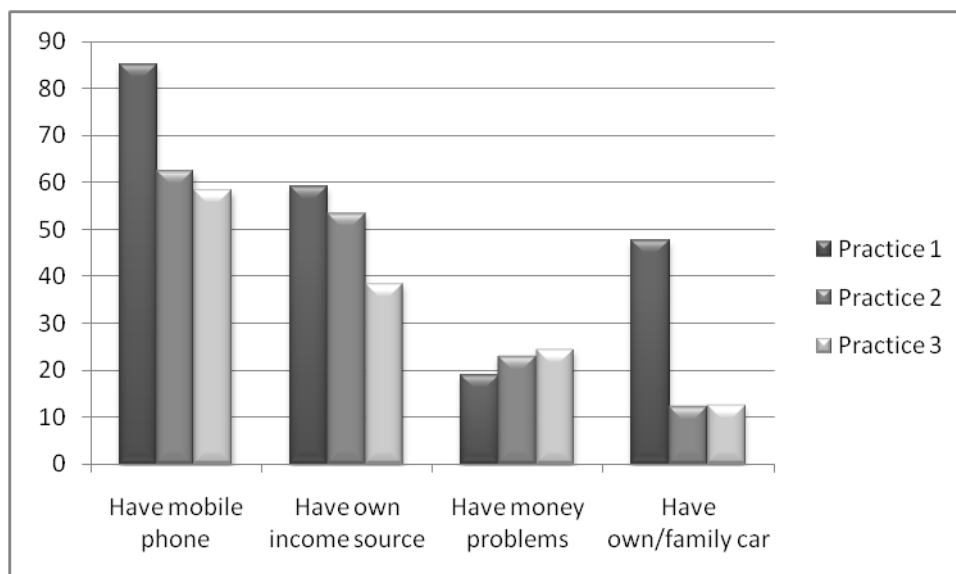


Fig. 2. Distribution of patients' possessions by medical group practice

A third of the respondents (34.6%) reported their monthly income is up to 240 BGN. Another 34.9% earn between 240 and 500 BGN, 17.9% reported having between 500 and 1000 BGN per month and only 5.7% have more than 1000 BGN. Non responders are 6.8%. The income distribution shows the same: the patients from the first practice have better economical status, compared to the second and especially the third practice, which patients are the poorest ($p < 0.05$), Table 3, Fig. 3.

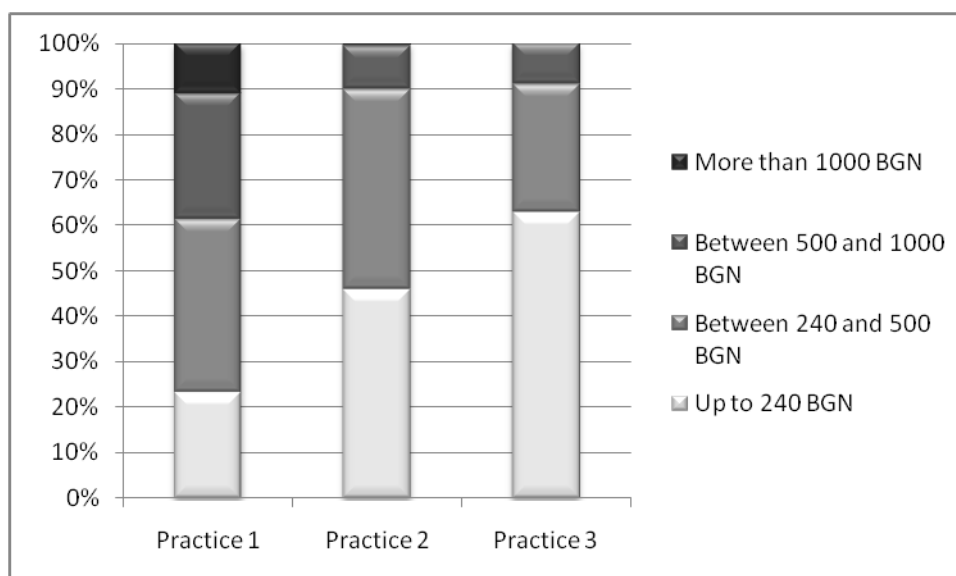


Fig. 3. Distribution of patients' monthly income by medical group practice

1.2. Health status of the respondents

The patients are asked what acute diseases they have had during the last 12 months. The biggest proportion of them (36.2%) reported having headache, followed by fatigue (34.9%), sleep disorders (23.5%), severe cold or flu (21.6%). The respondents more rarely mention diseases and conditions like sore throat (17.6%), chest pain (17.3%), trauma (5.7%) or something else (4.2%). Most commonly

reported diseases under the category "Others" are pneumonia, shortness of breath, disc disease, kidney pain etc. Less than one fifth of respondents (18.1%) don't report having any acute diseases last year, while the remaining 81.9% had at least one disease. The total exceeds 100% because the respondents pointed more than one answer. The presence of an acute disease in the past 12 months is significantly different in the medical group practices – people visiting the third practice more often suffered from acute illnesses, compared to the others ($p < 0.05$), Table 4, Fig. 4.

Variable	Total	Practice 1	Practice 2	Practice 3	p
Have had acute disease during the last 12 months	81.9	81.0	77.0	91.3	0.005
Have a chronic disease	75	83.4	69.7	86.6	0.002
Visited doctor's office during the last 12 months	77.4	82.6	90.1	87.9	0.071
Visited emergency unit during the last 12 months	16.7	22.8	18.4	17.2	0.739
Visited hospital during the last 12 months	23.2	30.6	26.1	21.7	0.215
Self-perceived health – Perfect	12.1	12.6	18.2	3.4	<0.001
Self-perceived health – Very good	17.0	20.7	18.8	6.7	
Self-perceived health – Good	35.2	41.1	34.1	26.1	
Self-perceived health – Satisfactory	27.4	21.9	19.3	58.8	
Self-perceived health – Bad	5.4	3.6	9.7	5.0	

Table 4. Distribution of patients' health – total and by medical group practices (Pearson chi-square), percentage by columns

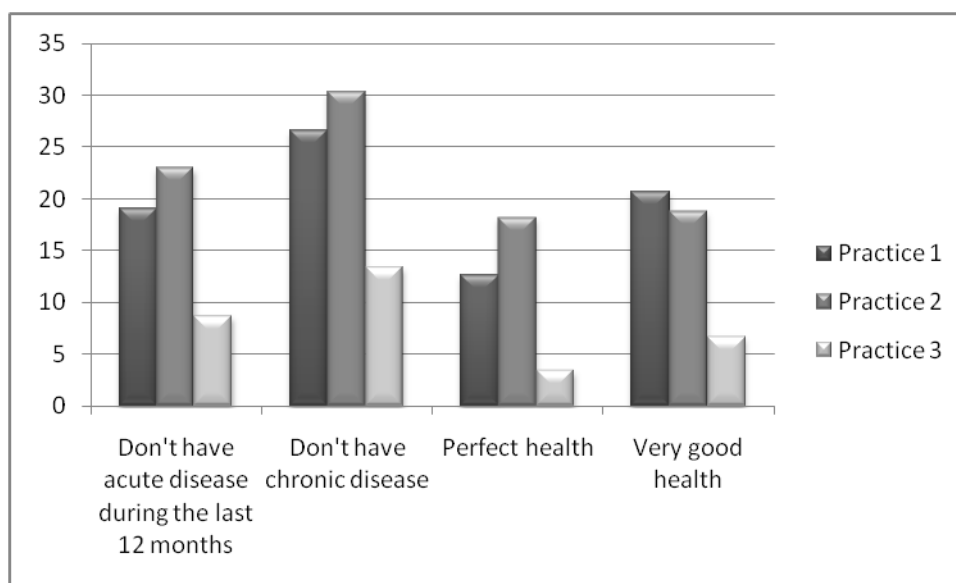


Fig. 4. Distribution of patients' self-reported health by medical group practice

Regarding their chronic diseases, more than a third of the respondents (36.9%) reported having high blood pressure; one in four participants (26.3%) have back pain or sciatica; the same proportion (24.6%) suffer from arthritis; also one in four (24.3%) complained of cardio vascular diseases. The diseases associated with the gastrointestinal tract are mentioned by 14.7%; 13.8% have diabetes; asthma, chronic bronchitis and other tobacco-related diseases are problem for 13.6%; another 11.9% mentioned fear, depression or just nervous strain. Other chronic diseases are pointed by 6.3% of the participants (most often referred to allergies, anaemia, ankylosing spondylitis, thyroiditis, epilepsy, osteoporosis, etc.). The total exceeds 100% because respondents pointed more than one answer. In total only a quarter (25%) of the respondents does not have any chronic disease, while remaining $\frac{3}{4}$ (75%) report at least one. The presence of chronic disease also differs significantly among the three group practices' patients and again the third one's patients more often have chronic diseases, whilst the second practice's patients have the least ($p < 0.05$), Table 4, Fig. 4.

Every third respondent (35.2%) defines his/hers own health as good, one in four (27.4%) – as satisfactory and 17% believe that their health is very good. Only 12.1% point that their health is excellent and 5.4% – bad. No responders are 2.9%. High levels of self-assessed health are more common in practice 1 and 2, while in the third one the negative self-assessments prevails ($p < 0.05$), Table 4, Fig. 4.

The respondents are asked how many times they visited doctor's office during the last 12 months. 13% responded that have not even one visit (0 times) and every tenth (9.6%) did not answer this question. The average number of visits was 6.15 (median is 4, mode is 2 and range is 0-50). The most frequent visiting to the doctor's are patients in the second practice, followed by the third and the first ($p < 0.05$). The frequency of visiting doctor's office is not significantly different among the medical group practices ($p > 0.05$), Table 2 and 4, Fig. 5.

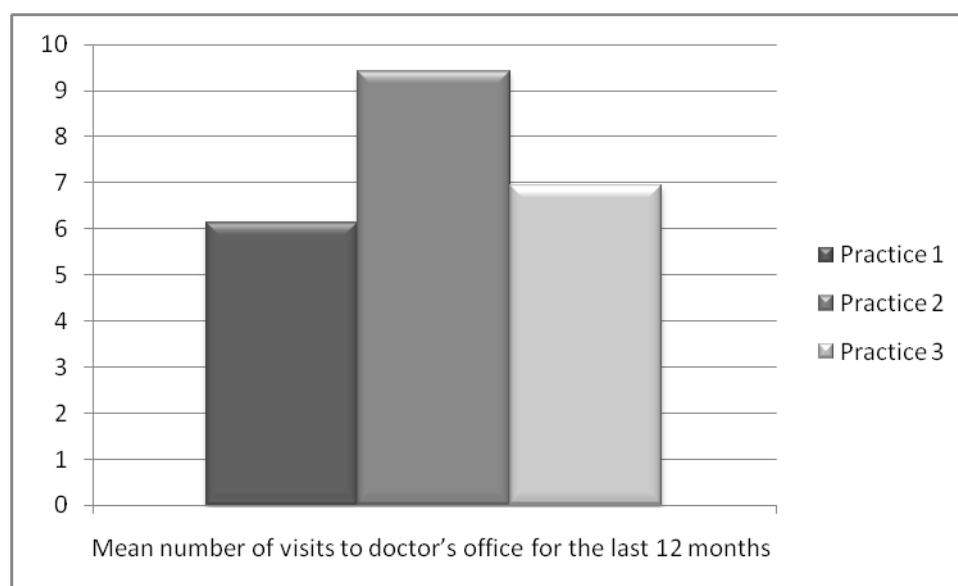


Figure 5. Mean number of visits to doctor's office for the last 12 months by medical group practice

Mean number of visits in an emergency unit during the last year is 0.44 (median is 0, mode is 0 and range is 0-10), most of the patients (64.1%) did not visit such a healthcare facility. The differences between the medical group practice's patients are not significant ($p > 0.05$), Table 2 and 4.

Almost two thirds of the patients (60%) have not been in a hospital for the last 12 months. The mean number of visits is 0.53 (median is 0, mode is 0, range is 0-9). The differences between medical group practice's patients are not significant ($p > 0.05$), Table 2 and 4.

More than a half of the participants (60.9%) reported that they have no problem with mobility, while one in three (34.9%) experienced some difficulties in walking. Only 1% of the patients are confined to bed. No responders are 3.2%. Mobility problems occur significantly more often in the third practice ($p < 0.05$), Table 5, Fig. 6.

Variable	Total	Practice 1	Practice 2	Practice 3	p
I have no problems in walking about	60.9	68.3	61.3	50.8	0.007
I have some problems in walking about	34.9	31.4	37.0	47.5	
I am confined to bed	1.0	0.3	1.7	1.6	
I have no problems with self-care	85.8	91.2	95.3	76.7	<0.001
I have some problems washing or dressing myself	9.0	8.2	3.5	20.8	
I am unable to wash or dress myself	1.1	0.6	1.2	2.5	
I have no problems with performing my usual activities	74.5	80.1	81.8	67.5	0.001
I have some problems with performing my usual activities	18.2	18.7	12.7	29.2	
I am unable to perform my usual activities	2.6	1.2	5.5	3.3	
I have no pain or discomfort	40.3	41.9	48.9	30.6	0.007
I have moderate pain or discomfort	46.2	49.1	37.9	57.9	
I have extreme pain or discomfort	10.4	9.0	13.2	11.6	
I am not anxious or depressed	59.4	60.7	65.5	64.5	0.021
I am moderately anxious or depressed	31.4	36.8	26.7	30.6	
I am extremely anxious or depressed	4.2	2.5	7.9	5.0	

Table 5. Distribution of patients' health status (EQ-5D questions) – total and by medical group practices (Pearson chi-square), percentage by columns

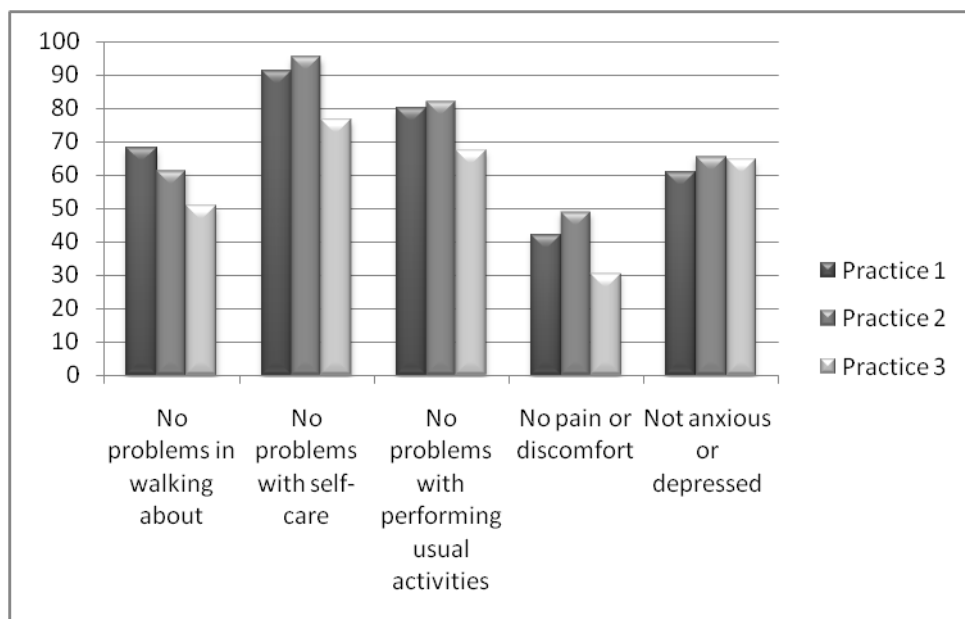


Fig. 6. Distribution of patients' answers (no problems only) to EQ-5D questions by medical group practice

Over 4/5 of respondents (85.8%) reported no problems with taking care of themselves. Every tenth participant (9%) pointed that experience some self-care related difficulties, and 1.1% were unable to dress and wash themselves. No responders are 4.2%. Patients reported having problems with taking care of themselves are more frequent in the third practice ($p < 0.05$), Table 5, Fig. 6.

Around $\frac{3}{4}$ of the surveyed persons (74.5%) reported having no problems in performing their normal activities, but one in five (18.2%) experienced some difficulties, and 2.6% are not at all able to perform their usual activities. No responders are 4.6%. Problems with the performance of everyday activities occur more often in the third practice ($p < 0.05$), Table 5, Fig. 6.

The largest proportion of respondents (46.2%) reported that they feel moderate pain or discomfort, while only 40.3% don't have such problems at all. Every tenth (10.4%) has extreme pain or discomfort. No responders are 3.1%. Pain as a symptom is more common in the third practice ($p < 0.05$), Table 5, Fig. 6.

More than half of respondents (59.4%) claim they do not have anxiety or depression, whilst almost one third (31.1%) who have moderate anxiety or depression. Every twentieth participant (4.2%) suffers from extreme anxiety or depression. No responders are 5.4%. Anxiety or depression is more frequent in the second and third group medical practices ($p < 0.05$), Table 5, Fig. 6.

The mean of calculated EuroQol index is 0.8 (median 0.83, mode is 1, range is -0.04-1). As expected, the differences between the medical group practices are significant ($p < 0.05$), and the lowest level of health is observed in the third practice followed by the second, and the highest level of health is the first practice, Table 2, Fig. 7.

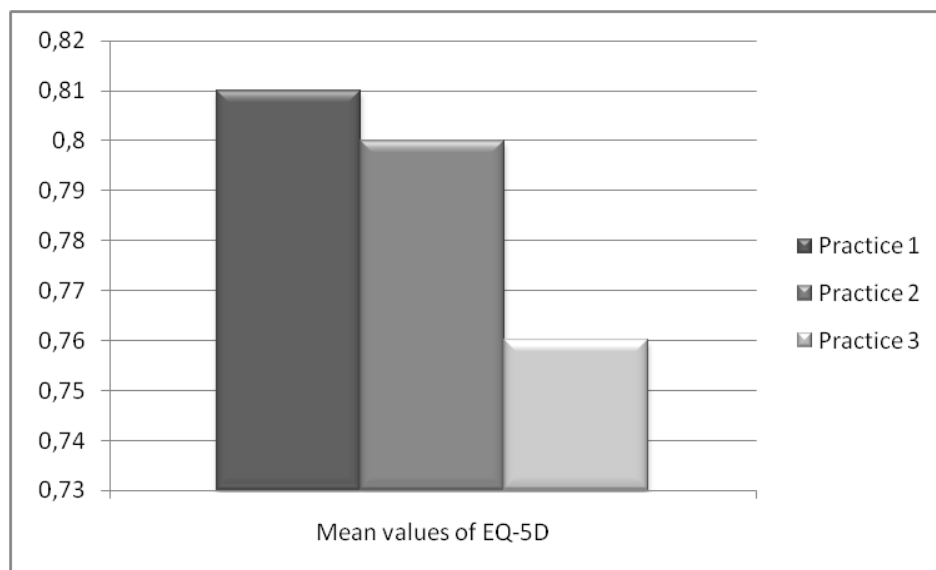


Figure 7. Mean values of EQ-5D by medical group practice

CONCLUSIONS

Every three out of four of the surveyed population (75%) suffer from a chronic disease, but only 23.5% of the respondents have monthly income higher than 500 BGN. Health status in the border area is significantly worse than municipality and regional centres. This is not only due to elder population in this sub-region and their different marital and educational status. Their worse economic condition together with their higher age causes aggravation of their health. In order to overcome the negative trends of the combination of aging population with low incomes and poor health, an intervention by the state is required towards improving healthcare (including via telemedicine and e-health) and economical status of the population (also by using modern economical methods in the agriculture, where most of the people in the third practice work). This will result in better public health in the region. The interventions must be focused not only to border areas, but also to be pointed at all people with low income, especially widowed retired persons, who are vulnerable to poverty and worsening of health.

REFERENCES

- Angelova, S 2012, 'Smoking and lung diseases', *Medinfo*, no. 12, pp. 46-49.
- Avramov, T, Vetckova, E, Nikolova, M, Valev, D, Manolova, A, Tafradgiiska, M, Kostadinov, D & Tchalacov, I 2014, 'Therapeutic approaches to the treatment of recurrent respiratory papillomatosis of the aerodigestive tract (clinical study)', *Biotechnology & Biotechnological Equipment*, vol. 28, no. 4, pp. 668-673.
- Asada, Y 2005, 'Assessment of the health of Americans: the average health-related quality of life and its inequality across individuals and groups', *Population Health Metrics*, vol. 3, no. 7, viewed 21 March 2015, <<http://www.ncbi.nlm.nih.gov/pmc/>>.
- Babones, SJ 2008, 'Income inequality and population health: correlation and causality'. *Social Science & Medicine*, volume 66, no. 7, pp. 1614-26.
- Backfield, J & Krieger, N 2009, 'Epi + demos + cracy: Linking Political Systems and Priorities to the Magnitude of Health Inequities – Evidence, Gaps, and a Research Agenda', *Epidemiologic Reviews*, vol. 31, no. 1, pp. 152-177.

- Borisov, P & Dintcheva, Ts 2014, 'Comparative economic evaluation of bioproducts for fertilization for late field production of broccoli', *Plant Science*, no. 4-5, pp. 49-55.
- Davidov, B 2011, *Measuring health: theories, practices, discussions*, Academic Publishing "Marin Drinov", Sofia.
- Dimitrova, D, Todorova, D, Mihaylova, I & Zahariev, V 2008, 'The new flu virus – reality and danger', *Social Medicine and Health Management*, no. 4, pp. 63-71.
- Goranova, R 2013 'Practices and attitudes of health professionals regarding global breastfeeding recommendations' *Asklepios*, vol. 7, no. 2, pp. 112-116.
- Grigorov, E & Getov, I 2011, 'The social choice theory and its application in healthcare for measurement of the social welfare', *Asklepios*, vol. 5, no. 24, pp. 24-26.
- Manov, A 2005, *Statistics with SPSS*, Trakia-M, Sofia.
- McDowell, I 2006, *Measuring health. A guide to rating scales and questionnaires*. 3rd edition, Oxford University Press, Oxford.
- Minkov, M 1994, *Demography*, Albatros, Sofia.
- Naseva, E & Gardeva, M 2013, 'Methodological approach for conducting a medical social inquiry among patients'. *General medicine*, no. 1, pp. 11-13.
- Naseva, E, Shtereva, D, Gardeva, M & Bratovanova, S 2014, 'Study of the relationship between public health and economic status (at individual level) in Bulgaria', in *Full text discourses of International scientific conference "Economics and management in a turbulent environment"*, Sofia, Academic Publishing, pp. 206-218.
- Navarro, V 2011, 'Why we don't spend enough on public health: an alternative view'. *International Journal of Health Services*, vol. 41, no. 1, pp. 117-20.
- Petkov, A, Yanchev, G, Vasseva, V & Krusteva, A 2005, 'Telemedicine – possibilities and development in Bulgaria', *Military Medicine*, no. 2, pp. 51-53.
- Vodenicharov, T & Popova, S 2009, *Social Medicine*, Ecoprint, Sofia.
- EQ-5D-3L User Guide, v. 5.0, viewed 21 March 2015, <<http://www.euroqol.org/>>.