

Differences that Hurt: Self-perceived Health Inequalities in Croatia and European Union

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Aim To investigate the differences in self-reported health status and access to health care according to different income groups, urbanization level, and regional distribution in Croatia and European Union (EU) countries.

Method Data for the EU countries were taken from the European Quality of Life Survey database, which examines different aspects of quality of life including health and health care. The survey was conducted in 2003 and covered 28 countries, although not Croatia. The survey in Croatia was conducted in 2006 by the United Nations Development Program Croatia. EU countries were divided into two groups – 15 “old” EU member states which joined the EU before May 2004 (EU15) and 10 new member states which joined the EU in May 2004 (NMS). The samples were representative and comprised persons aged 18 and over. Statistical differences in health status and access to health care between categories and groups (income groups, urban-rural divide, and analytical regions in case of Croatia) were tested by χ^2 test or analysis of variance.

Results Significant differences were found among 4 income quartiles in Croatia and two EU country groups in all indicators: self-perceived health status, satisfaction with health, having long-standing illness or disability, access to health care according to four indicators (distance to the nearest medical facility, delay in getting an appointment, waiting time to see the doctor on the day of the appointment, and the cost of seeing the doctor), and the quality of health services. Higher proportion of the Croatian citizens in the lowest income quartile reported poor health (27.8%) than their counterparts in the EU15 (9.2%) or NMS (18.6%). In Croatia, 26% respondents in the lowest quartile perceived the distance to the nearest medical facility as a very serious problem, compared with 5.4% in the EU15 and 9.4% in the NMS. Rural urban proportion ratio of those who reported poor health was about 80% higher in Croatia than in both EU country groups. Rural-urban proportion ratio of those who reported the cost of seeing the doctor as a very serious problem was almost 2-fold higher than in the two EU country groups.

Conclusion Health inequalities were more marked in Croatia than in EU countries, which should be taken into serious consideration in shaping health care reforms in Croatia.

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The issue of health inequalities is certainly among widely researched areas in a number of European countries. Health inequalities are defined as differences in health and health care among different social groups as a result of their different social positions (1). They are mainly associated with socio-economic inequalities, but can also be related to ethnic and gender inequalities (2). Health inequalities attract an increasing interest not only from researchers but also from politicians and the general public, since health care is considered to be a social benefit that should be equally accessed by anyone. Accordingly, the social policy approach to the health area cannot ignore the issue of health inequalities (3,4). Obviously, health inequalities persist, but it remains to be answered which inequalities are perceived as inevitable or normal and which as unjust or immoral.

The issue of health inequalities is of great interest for transitional countries, including Croatia, which has undergone deep changes in all aspects of health care system (5). In addition, transitional countries have faced challenges typical for the developed countries: rising costs connected with demographic aging, rising expectations concerning health care rights, as well as constraints in financing health care (6). It seems that in transition period health inequalities rise with rising social inequalities (7). Contrary to this, scientific research and articles about health inequalities in Croatia are very limited. The study conducted in 1994 confirmed that the burden of increasing out-of-pocket expenditures was not equally distributed among income groups, as low income groups were paying six times larger share of their income than high income groups (8). The existence of inequalities in different social groups was also confirmed by the studies from 1999/2000 and 2003 (9,10). However, health inequalities and rising dissatisfaction with the health care system are

not taken seriously in designing reforms. Although these issues are indeed a subject of public discussion, the process of designing reforms is still excessively under the influence of financial difficulties and conflicting interests (11). In addition, health inequalities between different minorities or genders have not been investigated enough. The notable exception is the Human Development Report (UNDP) – Croatia 2006, which partly focuses on the access to health care of different groups at the risk of social exclusion (12).

The aim of this report was to examine the self-reported health status and access to health services in Croatia and the European Union (EU). Countries of the EU were divided into the group of old member states (EU15) and the group of new member states (NMS). We wanted to assess the health status, prevalence of chronic illness and disability, as well as satisfaction with health in and between the above-mentioned countries. In addition, the intention was to assess some aspects of access to and quality of health services, as well as distrust in the health care system. The primary aim was to analyze self-reported health status and different aspects of access to health services by income groups. Health inequalities were also analyzed according to the urbanization level, and in the case of Croatia according to analytical regions.

Participants and methods

Data sources and samples

Data on views on health status and health services were taken from a database formed by the European Quality of Life Survey (EQLS), which was launched by the European Foundation for the Improvement of Living and Working Conditions in the summer of 2003 (www.eurofound.eu.int). In the first wave it covered 28 countries – 15 EU member states

at that time, 10 acceding countries, and 3 candidate countries (Bulgaria, Romania, and Turkey). As Croatia was not covered by the 2003 EQLS, the same survey with small modifications was carried out by the United Nations Development Program (UNDP) Croatia in the first quarter of 2006. For the purpose of comparability, we divided 25 EU countries (excluding Bulgaria and Romania) in two groups. The first group comprised 15 states (Austria, Germany, Italy, Netherlands, United Kingdom, Sweden, Finland, Denmark, Luxembourg, Belgium, Spain, Greece, Portugal, Ireland, and France) which were EU members before May 2004 (EU15). The second group comprised 10 new member states (NMS: Malta, Cyprus, Slovenia, Czech Republic, Slovakia, Hungary, Poland, Lithuania, Latvia, and Estonia) which joined the European Union in May 2004.

The samples in all EU countries were representative, but with large differences in the national response rates, ranging from 30.3% in Spain to 91.2% in Germany. In all countries, including Croatia, the respondents were persons aged 18 and over who were randomly selected in their households (13). Weighing variables were created in order to adapt the sample size of every country to the proportion of the country's population within the two groups of countries (EU15 and NMS).

The size of the sample in all countries was approximately 1000 respondents, with the exception of Cyprus, Estonia, Luxembourg, Malta, and Slovenia, where the samples had about 600 respondents. The sample in Croatia was much larger than in the other countries because it was representative not only at the national but also at the county level. The level of urbanization was the same in Croatia and the EU15 (Table 1). It is possible that such a result is in part a consequence of different definitions of rural and urban areas. In both EU country groups, information about the lev-

Table 1. General characteristics of samples in two European Union (EU) country groups and Croatia (persons aged 18 and over)

Parameter	Country group		
	EU15* (n = 14 759)	new member states† (n = 8465)	Croatia (n = 8114)
Sex (%):			
female	51.5	52.6	53.1
male	48.5	47.4	46.9
Mean age (±standard deviation)	47 ± 18.0	45 ± 17.5	47 ± 17.7
Marital status (%):			
married/living with partner	57.8	60.2	60.9
divorced/separated	9.7	8.0	3.7
widowed	10.4	11.7	13.1
single	22.0	20.1	21.9
Mean number of household members (±standard deviation)	2.4 ± 1.3	3.2 ± 1.6	3.3 ± 1.6
Mean age at completing education (±standard deviation)	18.4 ± 5.0	18.5 ± 3.7	17.6 ± 4.9
Economic status (%):			
working	49.2	48.0	40.7
unemployed	5.8	11.3	13.8
retired	25.1	23.9	29.3
homemaker	10.7	3.0	7.7
in school	6.5	7.3	7.0
Urbanization level (%):			
rural	42.4	47.6	42.8
urban	57.6	52.4	57.2

*EU15: Austria, Germany, Italy, Netherlands, United Kingdom, Sweden, Finland, Denmark, Luxembourg, Belgium, Spain, Greece, Portugal, Ireland, France.

†New Member States (entering the EU in May 2004): Malta, Cyprus, Slovenia, Czech Republic, Slovakia, Hungary, Poland, Lithuania, Latvia, Estonia.

el of urbanization was given by the respondents. They were asked to categorize the area in which they live as “open countryside,” “village/small town,” “medium to large town,” or “city or city suburb.” Then, the first two categories were labeled as rural areas and the other two as urban areas. In Croatia, a statistical criterion (the size of a settlement) was used in determining urban or rural areas. Thus, settlements up to 2000 residents were labeled as rural areas, and other settlements over 2000 as urban areas.

Questionnaire

The EQLS (14) examines many different aspects of quality of life, like poverty and social exclusion, employment and training, housing, family relationships, social participation, as well as health and health care. In doing so, it applies both the objective and subjective approach. All data on health status and access to health services were obtained through self-re-

port method. As regards health status, the respondents were asked to rate their health on a five degree scale (excellent, very good, good, fair, and poor), to express their satisfaction with health on a 10 point scale (from 1 – very dissatisfied to 10 – very satisfied), and to indicate whether they have any long-term illness or disability. To make the analysis simpler, we merged “excellent” with “very good,” and “good” with “fair.” Access to health services was assessed by a three-degree scale: “very difficult,” “a little difficult,” and “not difficult at all.”

Statistical analysis

Data on self-reported health status and access to health services were analyzed by income (quartile) groups, urbanization level, and analytical regions. To analyze differences in health status and access to health services between income groups, the sample of each country was divided into quartile income groups based on the household equivalent income and not on per capita household income. The household equivalent income was calculated as the ratio of the total net household income and the number of equivalent adults, using the modified Organization for Economic Cooperation and Development (OECD) equivalence scale (15) which takes into consideration the composition of the household and economies of scale (this scale assigns the coefficient 1 to the first adult household member, 0.5 to other adult members, and 0.3 to children under 15). This means that the household equalized income was not obtained by dividing the total net income by the number of family members, but by “an equalized number of household members.” For example, if the total income of a household consisting of a married couple with two children amounts to 1000 kuna, the equalized household income is not 250 kuna (1000/4), but 476.19 kunas (1000/2.1). In this way, the same equivalent income has been assigned to each household member, but dif-

ferent demographics of household members were taken into account. Income quartiles in the EU15 or NMS were not obtained on the basis of the income distribution which would aggregate income distributions of the countries from a certain country group, but were made for each country separately. The first and fourth quartile can be accepted as labels for poor and rich people, respectively.

Data analysis by analytical regions was possible only for Croatia. Although the sample in Croatia was representative at the county level and health indicators examined in this study were available at that level, we performed the analysis by analytical regions because of a relatively large number of counties (Table 2). Our classification of analytical regions was based on the 5-region classification of the World Bank (16,17), except that we divided Central Croatia (which is a large and very heterogeneous area) into two regions, Central and North Croatia. Each region contains two or more counties. This classification takes into consideration geographical and historical criteria, although it is to some extent arbitrary. Information on EU countries on regions was not available in the EQLS.

Table 2. Analytical regions in Croatia

Region	Counties included in the region
Adriatic South	Zadarska, Šibensko-kninska, Splitsko-dalmatinska, Dubrovačko-neretvanska
Adriatic North	Primorsko-goranska, Ličko-senjska, Istarska
Central Croatia	Sisačko-moslavačka, Karlovačka, Bjelovarsko-bilogorska
Zagreb Region	City of Zagreb, Zagrebačka county
North Croatia	Krapinsko-zagorska, Varaždinska, Međimurska, Koprivničko-križevačka
Eastern Croatia	Virovitičko-podravska, Požeško-slavonska, Brodsko-posavska, Osiječko-baranjska, Vukovarsko-srijemska

The statistical significance of the differences between the categories and groups was tested by χ^2 test or analysis of variance (ANOVA). All statistical procedures were performed with Statistical Package for the Social Sciences, version 13.0 for Windows (SPSS Inc., Chicago, IL, USA).

Results

Self-reported health status

In Croatia, 14.6% of the population rated their health as poor, compared with 5.8% in the EU15 and 15.8% in the NMS ($P < 0.001$, χ^2 test). There were statistically significant differences in self-reported health status between income quartiles in Croatia and EU (Table 3). In all countries, respondents in higher income quartiles assessed their health status as more favorable than those in lower income quartiles. When we restricted our analysis only to those reporting poor health, the proportion ratio between the extreme quartiles in Croatia was twice the ratio in the EU15 or NMS. The NMS country group differed from Croatia and the EU15 not only in the gap between the extreme quartiles; this group of countries had much smaller differences in self-rated health among the first three quartiles. On the other hand, Croatia had a smaller proportion of respondents with poor health status than the NMS countries in all quartiles, except in the first one where the situation was reverse. Hav-

ing in mind the poverty rates in Croatia and EU countries (in general, they are lower than 20%), it means that all the poor were in the first income quartile and that the poor in Croatia rated their health as poor more frequently than the poor in EU countries.

Similar results were obtained when the respondents were asked to rate their satisfaction with health on a 10-point scale (Table 4). Again, the satisfaction with health was higher in the EU15 than in the NMS and Croatia. Mean score in the EU15 was higher than 7 in all income quartiles, while in Croatia and the NMS it was this high only in the highest quartile. Interestingly, self-perceived health status and satisfaction with health in the NMS were rated higher in the first than in the second quartile. Mean satisfaction score in Croatia was higher than in the NMS in the second, third, and fourth quartile. In the lowest quartile, the mean score for Croatia was a little higher than 5 (1.19 and 1.66 points lower than in the NMS and the EU15, respectively). When looking at the difference of means in the extreme quartiles, it was almost three times greater in Croatia than in the EU countries.

Table 3. Proportions of respondents rating their health as "excellent or very good," "good or fair," and "poor" (%)

Country group*	Total	Income quartiles				Q1:Q4 proportion ratio for poor	P†
		1st quartile (Q1)	2nd quartile (Q2)	3rd quartile (Q3)	4th quartile (Q4)		
EU15:							
excellent or very good	37.2	28.8	33.2	37.7	45.9		<0.001
good or fair	56.9	62.0	59.3	58.4	50.6		
poor	5.8	9.2	7.4	3.9	3.5	2.6	
New member states:							
excellent or very good	24.7	20.0	17.7	23.0	30.3		<0.001
good or fair	59.5	61.4	61.0	57.6	59.8		
poor	15.8	18.6	21.3	19.4	9.9	1.9	
Croatia:							
excellent or very good	37.5	19.7	35.0	38.0	53.7		<0.001
good or fair	47.9	52.5	49.8	50.6	41.0		
poor	14.6	27.8	15.2	11.4	5.3	5.2	

*EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.
† χ^2 test.

Table 4. Satisfaction with health (mean score \pm standard deviation) on the scale from 1 – very dissatisfied to 10 – very satisfied

Country group*	Total	Income quartiles				Means' difference (Q1-Q4)	ANOVA
		1st quartile (Q1)	2nd quartile (Q2)	3rd quartile (Q3)	4th quartile (Q4)		
EU15	7.53 \pm 2.0	7.07 \pm 2.2	7.30 \pm 2.2	7.71 \pm 1.9	7.89 \pm 1.8	-0.82	F = 90.5, P < 0.001
New member states	6.85 \pm 2.7	6.60 \pm 2.8	6.27 \pm 2.8	6.63 \pm 2.7	7.36 \pm 2.4	-0.76	F = 49.5, P < 0.001
Croatia	6.65 \pm 2.7	5.41 \pm 2.9	6.53 \pm 2.8	6.79 \pm 2.7	7.67 \pm 2.2	-2.26	F = 216.5, P < 0.001

*EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.

Table 5. Proportion of respondents having any long-standing illness or disability that limits their activities in any way (%)*

Country group [†]	Total	Income quartiles				Q1:Q4 proportion ratio for "yes"	P [‡]
		1st quartile (Q1)	2nd quartile (Q2)	3rd quartile (Q3)	4th quartile (Q4)		
EU15:							
yes	20.2	25.0	24.8	17.5	14.7	1.7	<0.001
no	79.8	75.0	75.2	82.5	85.3		
New member states:							
yes	32.0	37.1	39.8	37.1	24.0	1.5	<0.001
no	68.0	62.9	60.2	62.9	76.0		
Croatia:							
yes	28.5	40.7	31.0	25.3	19.3	2.1	<0.001
no	71.5	59.3	69.0	74.7	80.7		

*By long-standing illness, we mean anything that has troubled him/her over a period of time or that is likely to affect him/her for a period of time.

[†]EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.

[‡] χ^2 test.

The respondents were also asked whether they had had any long-standing illness or disability that limited their daily activities or troubled them. The proportion reporting long-standing illness was larger in the NMS and Croatia than in the EU15 (Table 5). The extent of reported illness or disability in income quartiles ranged from 15% to 25% in the EU15, while it was much wider in Croatia and the NMS (from about 20% to 41%). However, the proportion ratio between the extreme quartiles was smallest in the NMS and largest in Croatia. Besides, the prevalence of the reported illness was very similar in the first three quartiles in the NMS and in the first two quartiles in the EU15. Contrary to that, the difference between the first two quartiles in Croatia was higher than the difference between any other two quartiles.

Access to health services

Access to health services was examined on the basis of four indicators as follows: distance to the nearest medical facility, delay in getting an appointment, waiting time to see the doctor on the day of the appointment, and the cost of seeing the doctor (Table 6).

Distance to the nearest medical facility was reported as a difficulty by a half of the respondents in the lowest quartile and by only 16% in the highest quartile in Croatia. A very difficult access was reported by a quarter of re-

spondents in the lowest quartile and 4% in the highest quartile. Although a share of a quarter of respondents in the lowest quartile cannot be viewed as a serious problem in access to health care, it should be noted that this share was much higher than in the EU15 (5.4%) and NMS (9.4%). This lowest quartile was of a particular interest, as already in the second quartile the share of respondents who reported a very difficult access was two times lower. The proportion ratio between the lowest and the highest quartile is 6.7, which is extremely higher than in EU15 (2.3) and NMS (1.5).

Delay in getting an appointment was a serious difficulty for 20.3% of Croatian respondents, in comparison with 14.3% of respondents from the NMS and only 11.1% from the EU15 ($P < 0.001$, χ^2 test). The greatest difference in Croatia was between the lowest quartile and all others in which similar difficulties were reported. The difference between the extreme quartiles was somewhat greater between those reporting no difficulty, with 38.4% of respondents in the lowest quartile and as much as 60.3% in the highest quartile. Here, the proportion ratio between the extreme quartiles was 1.6, which is very similar to the EU15 and the NMS.

Waiting time to see the doctor on the day of the appointment was a serious difficulty for 25.6% and a little difficulty for 30.1% of Croatian respondents in the lowest quar-

tile. Again, differences were not so big in all other quartiles, although in the highest quartile the share of those who did not experience difficulty was a little higher than in the second and third quartiles. The proportion ratio between the highest and lowest quartile was

1.7, a bit higher than in both the EU15 and the NMS (1.4).

The cost of seeing the doctor was a significant difficulty for 20.3% of Croatian citizens, in comparison with only 8.2% in the EU15 ($P < 0.001$, χ^2 test). This was also a problem

Table 6. Perceived difficulty of certain problems in access to health services

Response according to country group*	Income quartiles					Q1:Q4 proportion ratio for very difficult	P†
	Total	1st quartile (Q1)	2nd quartile (Q2)	3rd quartile (Q3)	4th quartile (Q4)		
On the last occasion you needed to see a doctor or medical specialist, to what extent did the distance to the nearest medical facility make it difficult for you to do so (%)							
EU15:							
very difficult	4.1	5.4	5.4	3.3	2.3	2.3	<0.001
a little difficult	16.3	17.4	18.0	14.7	13.4		
not difficult at all	79.5	77.3	76.6	82.0	84.3		
New member states:							
very difficult	6.5	9.4	7.0	6.4	3.8	1.5	<0.001
a little difficult	19.0	23.8	21.7	17.2	13.7		
not difficult at all	74.5	66.8	71.3	76.4	82.5		
Croatia:							
very difficult	12.8	26.0	12.9	8.2	3.9	6.7	<0.001
a little difficult	20.7	25.8	21.0	19.1	11.9		
not difficult at all	66.5	48.2	66.1	72.7	84.2		
On the last occasion you needed to see a doctor or medical specialist, to what extent did delay in getting an appointment make it difficult for you to do so (%)							
EU15:							
very difficult	11.1	12.0	13.0	10.9	7.9	1.5	<0.001
a little difficult	24.9	25.8	24.6	23.6	22.2		
not difficult at all	64.0	62.1	62.3	65.5	69.9		
New member states:							
very difficult	14.3	16.4	13.7	14.6	12.1	1.4	<0.001
a little difficult	23.0	22.5	24.7	23.8	20.1		
not difficult at all	62.7	61.1	61.6	61.5	67.8		
Croatia:							
very difficult	23.3	32.8	20.6	22.3	20.0	1.6	<0.001
a little difficult	27.0	28.9	29.4	26.0	19.6		
not difficult at all	49.7	38.4	50.0	51.7	60.3		
On the last occasion you needed to see a doctor or medical specialist, to what extent did waiting time to see a doctor on the day of appointment make it difficult for you to do so (%)							
EU15:							
very difficult	11.3	11.9	12.0	11.3	8.7	1.4	<0.001
a little difficult	29.1	29.0	28.8	29.6	28.4		
not difficult at all	59.6	59.0	59.2	59.2	63.0		
New member states:							
very difficult	14.7	18.4	13.6	13.9	12.9	1.4	<0.001
a little difficult	28.7	29.9	28.5	28.4	26.3		
not difficult at all	56.6	51.7	57.8	57.7	60.8		
Croatia:							
very difficult	18.3	25.6	15.9	18.2	15.5	1.7	<0.001
a little difficult	27.1	30.1	28.6	25.9	21.2		
not difficult at all	54.6	44.3	55.5	55.9	63.3		
On the last occasion you needed to see a doctor or medical specialist, to what extent did cost of seeing the doctor make it difficult for you to do so (%)							
EU15:							
Very difficult	8.2	9.9	8.1	8.3	4.5	2.2	<0.001
A little difficult	16.8	17.0	18.8	16.3	13.2		
Not difficult at all	75.0	73.1	73.0	75.4	82.4		
New member states:							
very difficult	15.4	22.1	14.8	16.6	10.3	2.1	<0.001
a little difficult	21.9	23.3	23.9	23.3	18.2		
not difficult at all	62.7	54.6	61.2	60.0	71.5		
Croatia:							
very difficult	20.3	38.1	19.8	17.6	8.7	4.4	<0.001
a little difficult	26.7	29.2	29.9	26.3	19.0		
not difficult at all	53.0	32.7	50.4	56.1	72.3		

*EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.
† χ^2 test.

for all other new EU countries, but in a lower proportion (15.4%). The lowest quartile was mostly hit by additional costs, majority of respondents (67.3%) considered this a difficult (very or little). The proportion ratio between the extreme quartiles was two times higher in Croatia than in all other countries.

Quality of health services

Although they reported serious problems, the Croatian citizens were not so critical in the overall grading of the quality of health services (Table 7). Mean score \pm standard deviation (SD) was 5.01 ± 2.2 for the lowest and 5.48 ± 2.2 for the highest quartile on the scale from 1 (very poor quality) to 10 (very high quality). This was lower than in the EU15, but higher than in the NMS. The difference between the lowest and the highest quartile was, however, much higher in Croatia than in all other EU countries.

Rural/urban divide and health inequalities

Living in rural or urban areas was in all countries related to self-reported health, although not in the same way (Table 8). Urban residents in Croatia and both EU country groups more frequently described their health as excellent or very good. On the other hand, there were more rural than urban residents who rat-

ed their health as poor. The proportion of rural residents who reported this was 19.5% in Croatia, 16.1% in the NMS, and 6.2% in the EU15 ($P < 0.001$, χ^2 test). It is important to note that the rural-urban proportion ratio for those reporting poor health was much higher in Croatia (1.8) than in two EU country groups (a little higher than 1).

However, the difference in satisfaction with health between rural and urban residents was significant only in Croatia ($F = 137.8$, $P < 0.001$). Means difference in both EU country groups was almost non-existent, while in Croatia mean satisfaction score for urban residents (6.5) was about 0.7 points higher than for rural residents (7.2).

Significant difference in long-term illness or disability between rural and urban residents did not exist only in the NMS ($P = 0.773$, χ^2 test) (Table 8). Residents in rural areas were more likely to have a long-term illness than those living in urban areas both in Croatia ($P = 0.018$, χ^2 test) and the EU15 ($P < 0.001$, χ^2 test). Thus, almost 30% of the rural population in Croatia had a long-term illness, vs 22.5% in the EU15. Although the difference between rural and urban population was significant in Croatia and the EU15, the rural/urban proportion ratio was not so large (1.2 in the EU15 and 1.1 in Croatia).

Table 7. Quality of health services (mean score \pm standard deviation) on the scale from 1 – very poor quality to 10 – very high quality

Country group*	Total	Income quartiles				Means difference (Q1-Q4)	ANOVA
		1st quartile (Q1)	2nd quartile (Q2)	3rd quartile (Q3)	4th quartile (Q4)		
EU15	6.45 \pm 2.0	6.43 \pm 2.1	6.41 \pm 2.1	6.51 \pm 1.9	6.54 \pm 1.9	-0.11	F = 2.9 P = 0.033
New member states	4.98 \pm 2.3	4.86 \pm 2.3	5.08 \pm 2.2	4.95 \pm 2.2	4.95 \pm 2.2	-0.09	F = 2.5 P = 0.048
Croatia	5.15 \pm 2.1	5.01 \pm 2.2	5.14 \pm 2.1	5.04 \pm 2.2	5.48 \pm 2.2	-0.47	F = 17.4 P < 0.001

*EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.

Table 8. Differences in self reported health status by area of residence (rural/urban)

Country group*	Health status		Satisfaction with health (scale 1-10)		Long-standing illness or disability	
	rural:urban proportion ratio (only those reporting "poor" health)	P†	means difference (rural-urban)	ANOVA	rural:urban proportion ratio (those reporting "yes")	P†
EU15	1.1	<0.001	-0.01	F = 0.1 P = 0.754	1.2	<0.001
New member states	1.0	<0.001	0.03	F = 0.2 P = 0.689	1.0	0.773
Croatia	1.8	<0.001	-0.71	F = 137.8 P < 0.001	1.1	0.018

*EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.

† χ^2 test (χ^2 test does not refer to proportion ratio, but to all categories of the variables).

Table 9. Differences in access to health services by area of residence (rural/urban)

Country group*	Distance to the nearest medical facility		Delay in getting appointment		Waiting time to see doctor		Cost of seeing the doctor		Quality of health services	
	rural: urban ratio†	P‡	rural: urban ratio†	P‡	rural: urban ratio†	P‡	rural: urban ratio†	P‡	means difference (rural: urban)	ANOVA
EU15	1.2	0.046	1.0	0.075	1.1	0.064	1.1	0.001	0.07	F = 4.6 P = 0.003
New member states	1.8	<0.001	0.8	0.009	1.1	0.166	1.1	<0.001	0.15	F = 8.2 P = 0.004
Croatia	2.8	<0.001	1.3	<0.001	1.3	<0.001	2.0	<0.001	0.21	F = 19.0 P < 0.001

*EU15 – 15 European Union (EU) member states by May 2004; new member states – states that entered the EU in May 2004.

†Rural:urban proportion ratio refers only to the category “very difficult.”

‡χ² test (χ² test does not refer to proportion ratio, but to all categories of the variables).

Urbanization level influenced views on the access to and the perceived quality of health services (Table 9), although it did not influence equally all the aspects of access to health services. Distance to the nearest medical facility was in all countries a problem faced more frequently by the rural population. Unlike Croatia and the NMS, in the EU15 the difference between rural and urban population in perceiving distance to the nearest medical facility as a problem was marginally statistically significant ($P=0.046$, χ^2 test). Rural-urban proportion ratio of those who reported distance to the nearest medical facility as a “very serious” problem was largest in Croatia (2.3 times larger than in the EU15 and 1.5 than in the NMS). In Croatia 20.3% of the rural population perceived distance to the nearest medical facility as a serious problem, in comparison with 7.2% of the urban population ($P<0.001$, χ^2 test).

In the EU15 there were no significant rural-urban differences in getting an appointment and waiting time to see the doctor (Table 9). In both EU country groups, unlike Croatia, waiting time to see the doctor was not perceived as a factor that would significantly differentiate rural and urban residents. In the NMS, a delay in getting an appointment was an even more serious problem in urban than in rural areas. Rural residents in Croatia perceived getting an appointment or waiting time to see the doctor as a greater difficulty.

Rural-urban differences in the perception of the cost of seeing the doctor were found in all countries (Table 9). In this respect, the rural-urban gap was almost twice as wide in Croatia as in EU country groups. Undoubtedly, this difference was related to the difference regarding the distance to the nearest medical facility, where Croatia had a much higher rural-urban proportion ratio. In Croatia, less than half of rural population (47.9%) reported that the cost of seeing a doctor was not a problem at all, compared with 66.3% of urban residents ($P<0.001$, χ^2 test). In the EU15 and the NMS these proportions of rural and urban residents were over 73% and over 60%, respectively.

Notwithstanding, rural-urban differences in the perception of quality of health services were not high, although significant. As in the case of access to health services, these differences were more pronounced in Croatia than in the EU15 or the NMS.

Regional differences in Croatia, health inequalities, and trust in health insurance system

To analyze health status and access to health services from a regional point of view, we constructed 6 analytical regions consisting of two or more counties, since because of a relatively large number of counties, it would be too complicated to analyze health inequalities at the county level. People living in Central Croatia reported most health disadvantages and most difficulties in the access to health services. Their ranking was worst on 5 out of

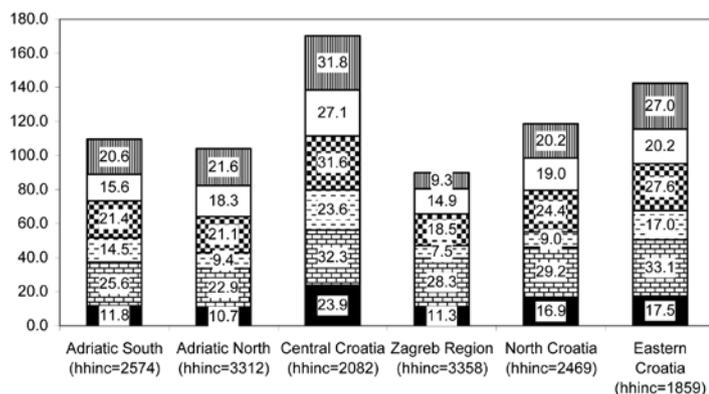


Figure 1. Differences in self-reported health status and in access to health services in Croatia by analytical regions (%). Closed bars – reporting “poor” health; horizontal brick bars – having long-standing illness or disability; dashed horizontal bars – distance to the nearest medical facility (“very difficult problem”); large checker board bars – delay in getting appointment (“very difficult problem”); open bars – waiting time to see doctor (“very difficult problem”); dark vertical bars – cost of seeing the doctor (“very difficult problem”). Hhinc – mean household monthly equivalized income in kunas (modified OECD equivalence scale).

6 health dimensions (Figure 1). Eastern Croatia followed Central Croatia in terms of negative perception of health and access to health services. The most favorable situation was in the Zagreb Region and North Adriatic. These differences in the perceived health status and access to health services were consistent with mean household income in the regions. The Zagreb and North Adriatic region had the highest mean household equivalent income and consequently, more positive perceptions of health indicators. However, Central Croa-

tia had a higher mean household income than Eastern Croatia but generally worse self-perceived health status and more difficulties in the access to health services.

A significant share of Croatian citizens did not trust the health insurance system. More than 45% had hardly any trust or no trust at all (Table 10). Trust in the health care system was differentiated by income quartiles, urbanization level, and analytical regions. Trust was lower in lower income quartiles, although the relationship between trust and income distribution was not so strong. Thus, the proportion of those having hardly any trust or no trust was almost the same in the third as in the first quartile and higher than in the second quartile. Further, rural residents had more trust in the health care system than urban residents in spite of the fact that rural respondents reported less favorable health status and more difficulties in the access to health services. Surprisingly, trust in the health insurance system was highest in North and Eastern Croatia and South Adriatic, while the highest distrust was found in the North Adriatic. Similar to the results for rural and urban areas, respondents living in the regions with best self-reported health indicators expressed the highest level of distrust in the health insurance system.

Table 10. Trust in health insurance system in Croatia by income quartiles, urbanization level, and analytical regions (%)

	A great deal of trust	Some trust	Hardly any trust	No trust at all	P*
Income quartiles:					
1st quartile	16.3	35.7	27.0	21.1	<0.001
2nd quartile	16.9	37.2	24.3	21.6	
3rd quartile	14.6	37.6	28.4	19.4	
4th quartile	16.5	42.4	25.1	16.1	
Urbanization level:					
rural	17.8	38.6	24.5	19.1	<0.001
urban	14.3	39.0	26.7	19.9	
Analytical regions:					
Adriatic South	15.7	40.3	26.7	17.2	<0.001
Adriatic North	13.1	35.8	26.6	24.5	
Central Croatia	15.3	34.8	27.5	22.4	
Zagreb Region	14.7	41.6	23.7	20.0	
North Croatia	18.2	38.6	27.3	15.9	
Eastern Croatia	18.0	38.1	25.0	18.9	
Total	15.8	38.8	25.8	19.6	

* χ^2 test.

Discussion

Our study showed significant differences in all aspects of perception of health care among different income groups and a distinct Croatian position in comparison to the EU15 and NMS. Significantly more Croatian than EU15 citizens described their health as poor, although Croatia was in this respect similar to the NMS country group. However, the gap between the extreme quartiles was much more evident in Croatia than in all other countries. The overall satisfaction with health in the highest quartile was similar in all coun-

tries, but the lowest quartile in Croatia expressed lower level of satisfaction than in the EU15 and NMS. Concerning the long standing illness or disability, 40.7% of respondents in the lowest quartile declared that it seriously limited their daily activities, while in Croatia the difference between the first two quartiles was higher than the difference between any other two quartiles. Access to health care was the problem in all studied aspects, particularly for the poorest. Much higher difference between the extreme quartiles in Croatia than in the EU15 and NMS proved the disadvantaged position of the poor, especially in regard to the distance to the nearest medical facility and the cost of seeing the doctor. In other countries rural/urban divide was a problem in health care status and access to health care, but these differences were more marked in Croatia. In Croatia much more rural residents rated their health as poor, the difference in satisfaction with health between rural and urban residents was significant only in Croatia, distance to the nearest medical facility and the related costs were serious problems for rural respondents, and the ratio between rural and urban areas was almost twice as high than in the EU15 and the NMS.

This study confirmed a relatively strong relationship between household income and self-perceived health status, meaning that household income is a good predictor of one's health. It is consistent with "materialist perspective" and the concept of relative deprivation (18), which says that being poor is not only associated with scarce resources and low income, but also with unsatisfied working or housing conditions, poor education, and poor health. To put it simply, poverty is a significant cause of illness and poor health. However, poverty is a social phenomenon not adequately researched in Croatia. It was almost completely neglected in the communist period, and only in the beginning of 2000s the Croatian

Bureau of Statistics started to regularly collect data on poverty and income distribution. This was a precondition for further research, which should focus on different aspects of poverty, including those in connection with the health status. A recent study on unemployed persons in Croatia found a connection between mental and physical health on the one hand and objective and subjective financial deprivation on the other hand. Low income and subjective financial deprivation led to poor health for unemployed persons (19).

What is the background of the fact that Croatia had much higher proportion of people reporting poor health and much wider gap in this respect between the extreme income quartiles than the majority of EU countries? First, we should be careful when explaining differences in self-perceived health. Objective and subjective indicators of health are not always consistent. This is because the health assessment process is partly unconscious. Also, self-reported health status as a measure of health is associated with response instability. In an Australian survey, a random sub-sample of respondents rated their health twice, before and after they were given an additional set of health related questions, and the distribution of their responses to two identical questions was statistically different (20). Responses can depend on what people mean by health, which is not a quite clear concept. Some studies identified different concepts of health depending on social class (21). Thus, middle class respondents are more likely to view "health as well-being," while working-class respondents define it as "absence of illness." In spite of these weaknesses, subjective health indicators are necessary for several reasons. First, information on some aspects of health (in particular, psychological or social) can be obtained only by asking people. In addition, it is important to find out how people view the functioning of the health system and what they want. Public support is

substantial especially when health services or the health care system are to be reformed.

It seems that the striking differences in self-perceived health status in Croatia should be analyzed in the context of other inequalities in the society. Many studies on poverty found a substantial discrepancy between the objective and subjective indicators of poverty (22,23). The subjective poverty rates were much higher than those of objective poverty. There was also a widespread opinion that income inequality in Croatia was much higher than in European countries, more similar to that in developing countries than in developed economies. According to the EQLS, the proportion of respondents who considered that there was a lot of tension between poor and rich people was significantly larger in Croatia (62.5%) than in any EU country (31.5% in the EU15 and 51.5% in the NMS). Here, we can mention "income inequality hypothesis," according to which income inequality or income disparity between the poor and the rich influences health (24). Inequality is supposed to cause psycho-social stress which is detrimental to health. However, evidence about the relationship between income inequality and health is contradictory (25-28). In this study, we did not use objective indicators of income inequality at the macro level (eg, the Gini coefficient), but data on subjective perceptions of income inequality. Therefore, we can hypothesize that the perception of income inequality is associated with self-reported health status. We can even argue that the perception of income inequality is as important as income inequality in the objective sense. Of course, this is a thesis that must be tested in future studies. Also, the problems of a large proportion of respondents reporting poor health or illness/disability in the lowest quartile in Croatia could have partly been caused by the war.

Results showed that the distrust in the health insurance system was widespread in

Croatia (more than 45% had very little trust or no trust at all) and associated with worse self-reported health. It is in line with similar results obtained in other countries (29). Distrust in health care system is important if it is linked to the health service utilization. However, reporting poor health or difficulties in the access to health services is not completely associated with trust in the health care system. For example, the least trust in the health insurance system was found in the North Adriatic, where self-reported health indicators were better than in other regions (except the Zagreb Region). It seems that trust in the health care system depends on the level of expectations that people have of that system. People with good health expect more effective and faster health treatment and services (30).

The status of health care in Croatia can in some aspects be compared to Southern European countries (Portugal, Spain, Italy, and Greece). Namely, the health care systems in these countries were one of the main reasons why Southern European countries were not included in the Continental Welfare model, according to the well-known Esping-Andersen's regimes typology, but in the Southern European Welfare model (31). In the 1970s and 1980s, they all made unsuccessful or only partly successful reforms of the health care systems, creating a complex and hardly regulated public-private mix, which resulted in the overall public dissatisfaction with the health care system. In line with that, the Quality of Life in Europe 2003 Report performed separate analyses for these countries only in the field of the health care, pointing out that in the Mediterranean countries difficulties in access to services were most often reported (14). The fact that Croatia also has a public-private health care system, which makes the access more difficult for citizens who cannot pay additional costs, can be another interpretation of the Croatian results.

Previous studies in Croatia already showed that the public had a negative perception of the health care reform in Croatia (9,10), but these findings were not taken into account in the context of the reforms. The crucial fact was that reforms were mainly designed by international agencies (the World Bank and the International Monetary Fund) and domestic institutions, such as the Ministry of Health, and were mostly focused on financial aspects, while other social aspects of the health care system were not adequately addressed. Our study demonstrated the importance of social aspects of health care. It also showed how the Croatian case was distinct among European countries concerning the position of the poorest, which should be of great interest for politicians. Moreover, the Croatian Parliament passed amendments to health care and health insurance laws in 2006, which increased the participation fee for users in order to financially stabilize the health care system (11). Although the law envisaged some exceptions for those with very low income, the implementation of this law is still unclear and there is a possibility that the reform will further deteriorate the position of the poorest.

Future studies should also address the question of different factors influencing the self-reported health across countries (from socio-economic to psychological or cultural). It would be important to examine the relationship between material resources and socio-behavioral patterns or cultural mind-sets conducive to good health (30).

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