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## Use of Preventive Health Care Services among Unemployed in Croatia

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**Aim** To analyze the association between unemployment and the use of preventive health care services in Croatia.

**Methods** Data on the use of preventive health care services and employment status were taken from the 2003 Croatia Adult Health Survey. A multistage stratified sample design was used to define a representative sample (n = 9070 individuals) of the Croatian general adult population. Binary logistic regression was used for analysis. Odds ratios were estimated for the association between employment status and preventive health care services, controlling for age, sex, region, marital status, level of education, occupation, and distance from general practitioner (GP) facilities.

**Results** Our sample comprised 1356 men and 1932 women. Out of them, 382 men (28.2%) and 472 women (24.4%) were unemployed. Unemployment was negatively associated with the use of some preventive health care services in the year before the study among healthy individuals (regular blood pressure control odds ratio [OR], 0.738, 95% CI, 0.576-0.945; blood glucose control OR, 0.751, 95% CI, 0.565-0.999; attending general preventive examinations OR, 0.563, 95% CI, 0.410-0.772) as well as among individuals who reported cardiovascular and/or metabolic diseases (attending general preventive examinations OR, 0.661, 95% CI, 0.456-0.959; receiving doctor's advice for food habit change and influenza immunizations OR, 0.627, 95% CI, 0.424-0.928).

**Conclusion** Both the unemployed who had cardiovascular and metabolic diseases and those who did not, used less preventive health services than respective subgroups of the employed. In order to achieve a more equitable distribution of preventive health care services, the Croatian health care system should provide additional attention to the unemployed; for instance by developing a program of preventive health examinations targeting this vulnerable population.

Equity in the health sector is one of the central aims of public health policy. In literature there is distinction between horizontal equity, which is a measure of equal treatment for those with equal needs, and vertical equity, which is the extent to which individuals with unequal needs receive different levels of care (1).

In most of the developed countries, the access to publicly provided health care is granted on the basis of need, rather than on the basis of the ability of the individual to afford it. Concordantly, the Croatian constitution defines Croatia as a social state, proclaims social justice to be one of the highest values of the country's constitutional order, and that all Croatian citizens have the right to health care (2). The Croatian Health Care Act states that all citizens of the Republic of Croatia have the right to health care services throughout their entire lives (3). The Croatian state-administered mandatory health insurance scheme has near universal coverage (4) and is provided free of charge to unemployed individuals by the Croatian Institute for Health Insurance.

Use and access are closely related concepts, as access can be defined as the use of health care, conditional on the need for care (5). According to the definition, equality of access can be used as an operable definition of equity, with access defined as the use of health care conditional on the need for care. The effectiveness of and thus the need for preventive programs have been long well established.

It has been well established that the unemployed suffer from worse health than the employed, both internationally (6-11) and in Croatia (12,13), and a number of studies have shown that a positive association exists between unemployment and higher health care consumption (14-16). However, discussions about equity and health care consumption among the unemployed are far from be-

ing conclusive, as other studies argue that the unemployed and other groups associated with extensive use of health care more often have unmet care needs (17,18). The effects of unemployment on the use of preventive services have so far not adequately caught the attention of researchers, neither internationally, nor in Croatia. Our hypothesis was that employment status was associated with the consumption of preventive health services among Croatian citizens. As the unemployed in Croatia receive free mandatory health insurance and as they are relieved of all out-of-pocket expenses related to publicly provided health care services, our hypothesis reflected the influence of psychosocial mechanisms but also the effects of the provision of preventive services in the private market, which the unemployed were less likely to use due to their worse financial status.

### Participants and methods

Data on the use of preventive health care services and employment status were taken from the 2003 Croatia Adult Health Survey (CAHS), which covered a wide range of health-related variables (19). A multistage stratified sample design was used to draw a representative sample of general adult population. The survey targeted persons aged  $\geq 18$  years living in private households in the Republic of Croatia. Persons living in non-conventional households and institutions, full-time serving members of the Croatian Armed Forces, and the residents of certain remote regions were excluded from the survey. The 2001 Croatian Census was used to select a representative sample of households to be included in this survey (20). The Croatian Bureau of Statistics provided the health survey team with 11 345 randomly selected household addresses from 6 officially defined regions of Croatia (ie, Northern, Eastern, Southern,

Western, Central, and the City of Zagreb). No other individual data were used for the sample definition. In total, 10766 households were selected to participate in the 2003 CAHS. Response was obtained from 9070 individuals, which gave the overall response rate of 84.3%. The questionnaire was administered by trained public health nurses in face-to-face interviews (21). Data were collected over three months, from April to June 2003.

**Outcome measures**

Utilization of preventive services was considered in both healthy and unhealthy individuals in the period of 12 months before the survey. The use of blood pressure control, blood glucose control, general preventive examination and doctor’s advice for food habits changes, was considered in those individuals that did not report cardiovascular (hypertension, stroke, heart attack, varicose veins, renal diseases) or metabolic (hyperglycemia, hypercholesterolemia) diseases in their medical history. On the other hand, utilization of preventive health services by individuals that reported cardiovascular and/or metabolic diseases in their medical history was considered for the same activities as for primary prevention and additionally for influenza immunizations. Influenza immunizations are recommended for all chronic patients in Croatia and administered free of charge in order to prevent influenza complications that can sometimes be fatal in that group.

**Statistical analysis**

Variables included in the analysis were: age (18-29, 30-64, and 65+), sex, region (Southern, Eastern, Northern, Western, Central, and the City of Zagreb), marital status (married or living with a partner, single, separated or divorced, widowed), education (unfinished primary school, primary school, high school, college, university), self perceived economic

status in comparison with average economic status (1 – much worse, 2 – somewhat worse than average, 3 – average, 4 – much better, and 5 – much better than average), aggravating effect of distance from general practitioner’s (GP) facilities for the use of health services (answered as no, moderate, extreme), employment (employed and unemployed among capable to work, except students and house-

**Table 1.** Distribution of “employable individuals” from the population by self perceived economic status and need for secondary prevention and distance from general practitioner’s (GP) office (n=3290)

Parameter	No. (%) of	
	men	women
Age group:		
18-29	163 (12.0)	327 (16.9)
30-64	1130 (83.3)	1565 (81.0)
65 and more	64 (4.7)	41 (2.1)
Region:		
Zagreb City	187 (13.8)	379 (19.6)
East	261 (19.2)	295 (15.3)
South	197 (14.5)	337 (17.4)
West	205 (15.1)	298 (15.4)
Central	282 (20.8)	318 (16.5)
North	225 (16.6)	306 (15.8)
Marital status:		
married or living with a partner	947 (69.8)	1427 (73.9)
single	311 (22.9)	270 (14.0)
separated or divorced	63 (4.6)	128 (6.6)
widowed	35 (2.6)	106 (5.5)
Education:		
unfinished primary school	78 (5.7)	64 (3.3)
primary school	234 (17.2)	260 (13.5)
high school or similar school	811 (59.8)	1177 (60.9)
college	100 (7.4)	173 (9.0)
university	131 (9.7)	256 (13.3)
unknown	3 (0.2)	2 (0.1)
Economic status:		
much worse than average	271 (20.0)	262 (13.6)
somewhat worse than average	250 (18.4)	333 (17.2)
average	649 (47.9)	1042 (53.9)
somewhat better than average	150 (11.1)	250 (12.9)
much better than average	36 (2.7)	46 (2.4)
Aggravating effect of distance for use of health services:		
no	796 (59.2)	1321 (68.7)
moderate	119 (8.9)	191 (9.9)
great	26 (1.9)	32 (1.7)
not applicable	403 (30.0)	379 (19.7)
BMI-group:		
<18.5	9 (0.7)	58 (3.0)
18.5 to 25	449 (33.2)	1043 (54.1)
25 to 30	613 (45.4)	583 (30.2)
30 to 35	222 (16.4)	191 (9.9)
35 to 40	41 (3.0)	44 (2.3)
>40	17 (1.3)	9 (0.5)
Need for secondary prevention:		
no	833 (61.4)	1150 (59.5)
yes	524 (38.6)	783 (40.5)
Employment status:		
employed	974 (71.8)	1460 (75.6)
unemployed	382 (28.2)	472 (24.4)

wives). For analytical purposes we used binary logistic regression. Adjusted odds ratios (OR) were estimated for the presence of association between employment status and preventive health services use, controlling for age, sex, region, marital status, education, self perceived economic status, and distance from GP facilities. All confidence intervals (CI) that were estimated for adjusted odds ratios were calculated with 95% probability levels. Software SAS V8.02 (SAS Institute Inc., Cary, NC, USA) was used for analysis.

## Results

We started the statistical analysis by dividing the population into subgroups of 974 (71.8%) and 1460 (75.6%) employed, and 382 (28.2%) and 472 (24.4%) unemployed men and women, respectively (excluding 230 students, 3229 retired, 1970 housewives, and 351 person with unspecified employment status) (Table 1). The majority of the employable population (83.3% men and 81.0% women) was in the 30-64 age group. They were evenly distributed over the country regions (from 13% to 21% for each region). Most respondents (69.8% men and 73.9% women) were married or living with a

partner. The majority had high school or vocational school education (59.8% men and 60.9% women). Most of them (47.9% men and 53.9% women) were in the group that had "average" self-perceived economic status.

Among the individuals who did not report having cardiovascular or metabolic diseases (Table 2), unemployed persons used significantly less primary prevention services than the employed, after controlling for age, sex, region, marital status, education, self perceived economic status, body mass index (BMI), and distance from GP facilities. The negative association with the unemployment status was strongest with general preventive examinations attendance (OR, 0.563; 95% CI, 0.410-0.772;  $P=0.001$ ), blood pressure control (OR, 0.738; 95% CI, 0.576-0.945;  $P=0.016$ ), and blood glucose control (OR, 0.751; 95% CI, 0.565-0.999;  $P=0.049$ ). The association with receiving doctor's advice for food habits changes, was not statistically significant ( $P=0.564$ ).

Among individuals who reported having cardiovascular and metabolic diseases (Table 3), unemployed persons used some of the analyzed preventive services significantly less than employed individuals. After controlling

**Table 2.** Utilization of preventive services in healthy individuals in the 12 months preceding 2003 Croatia Adult Health Survey\*

Parameter	P	Adjusted OR (unemployed)	95% CI	No. (%) of	
				employed	unemployed
Blood pressure control	0.016	0.738	0.576-0.945	481 (32.2)	117 (23.9)
Blood glucose control	0.049	0.751	0.565-0.999	336 (22.5)	80 (16.4)
General preventive examination	<0.001	0.563	0.410-0.772	301 (20.2)	59 (12.1)
Doctor's advice for food habits change	0.564	0.890	0.600-1.321	140 (9.4)	39 (8.0)

\*Variables included in the models were sex, age, region, distance from facilities, marital status, educational status, economic status, and body mass index.

**Table 3.** Individuals who reported cardiovascular and/or metabolic diseases; utilization of preventive services in the 12 months preceding 2003 Croatia Adult Health Survey\*

Parameter	P	Adjusted OR (unemployed)	95% CI	No. (%) of	
				employed	unemployed
Blood pressure control	0.268	0.863	0.666-1.120	557 (59.2)	198 (54.2)
Blood glucose control	0.396	1.129	0.854-1.492	537 (42.9)	217 (40.5)
General preventive examination	0.029	0.661	0.456-0.959	240 (25.5)	57 (15.6)
Doctor's advice for food habits change	0.349	1.154	0.856-1.555	319 (34.0)	131 (35.9)
Influenza immunization	0.020	0.627	0.424-0.928	145 (15.4)	41 (11.2)

\*Variables included in the models: sex, age, region, distance from facilities, marital status, educational status, economic status, and body mass index.

for age, sex, region, marital status, education, self perceived economic status, BMI, and distance from facilities the negative association with the unemployment status was strongest for influenza immunization (OR, 0.627; 95% CI, 0.424-0.928;  $P=0.020$ ) and with general preventive examinations attendance (OR, 0.661; 95% CI, 0.456-0.959;  $P=0.029$ ). The associations with blood pressure control, blood glucose control, and doctor's advice for food habits changes were not statistically significant ( $P=0.268$ ,  $P=0.396$ , and  $P=0.349$ , respectively).

### Discussion

Our study found that both the unemployed with cardiovascular and metabolic diseases in Croatia and those without it used less preventive health services than the respective subgroups of the employed. Most of the studies suggest that the unemployed use health care services more frequently than the employed (13-16). Others found that the number of primary health care visits increased from a low to a normal level when a person was re-employed after a period of unemployment, and decreased during re-unemployment (22), and that a lack of employment may be related to unmet care needs, especially among the unemployed who are experiencing psychological symptoms (23). However, the issue of use of preventive health care programs among the unemployed has so far been largely neglected. Similar to our study, Australian authors reported that examinees of low socioeconomic status (including the unemployed) received less preventive care (6).

Due to the cross-sectional design of our study, we cannot discuss causation between unemployment and lower preventive health care use in Croatia. However, information provided by this research may provide useful

information that might shed additional light on what is already known. Furthermore, arguments presented by other researchers may be relevant to Croatian circumstances, particularly in the light of the results obtained by this study. While it might be argued that the unemployed are generally of lower socioeconomic status than the employed, several factors that explain the relationship between socioeconomic status and abstaining from care are usually discussed in literature. The association between economic costs of care and under provision has been thoroughly researched in lower socioeconomic groups. It has been shown that even with insurance coverage, cost sharing in terms of co-payments, co-insurance, and deductibles in general exert a negative impact on receipt of preventive services and counseling (24). However, socioeconomic disparities remain high even in countries such as Croatia that have universal health insurance coverage (25), ie where the unemployed are entitled to free health insurance. The strong effects of poverty status and education remain even after controlling for access to care; this may reflect an influence of unmeasured effects of socio-economic status on the receipt of preventive services and counseling (26).

In our study, utilization of preventive services was analyzed after controlling for economic status, thus reinforcing the arguments that associate underutilization and unemployment itself as a variable. This might reflect the results of current Croatian practice, where companies often organize preventive examinations for their employees and is in accord with our findings, as the greatest difference in use was discovered in attending general preventive examinations.

Waters reports that most of the theoretical and empirical discussions published so far analyzed horizontal equity (27). Our study also analyzed horizontal equity and found that



equals (the employed and unemployed) do not use preventive services equally. However, we would also like to pay attention to issues pertaining to vertical equity as we argue that the unemployed should be positively discriminated with regards to the provision of preventive health services. If we accept the propositions that preventive health care services are beneficial to health and that unemployment negatively affects utilization, it might be argued that unemployment negatively influences health. While societies may produce inequalities and inequities by themselves or by the way in which they function, health care systems should not follow the same pattern. On the contrary, health care systems of most developed countries are meant to protect the vulnerable and provide services for all, irrespective of their socio-economic status. Data presented by this study suggest that the Croatian health care system does not entirely succeed in accomplishing this, and that it may actually be contributing to the growth of the health gap between the employed and the unemployed. Negative discrimination in the provision of preventive health care services based on the criterion of employment status is contradictory to the health care system's core social concepts. On the contrary, due to their documented worse health status (or higher chance of being in ill health), it might be argued that the unemployed are in greater need of preventive health care services than the employed.

Furthermore, it has been suggested that unemployed persons who have developed health related difficulties and chronic health problems have difficulties in returning to work (28,29). The possible inequity in health care utilization in the unemployed groups may thereby influence not only health, but also the ability of these groups to return to employment. This argument might be of special relevance to transition

economies such as Croatia, suffering from high unemployment rates.

The conclusions of our study need to be considered in the light of a number of limitations to this research. First, the cross-sectional nature of CAHS does not allow us to conclude on causation. Second, results may be subject to recall bias as CAHS recorded self reported use and health status. Third, due to the wording of the questions, CAHS only recorded events in the 12 months previous to its administration. Fourthly, although the interviewed individuals were selected randomly among household members and the overall response rate was quite high, it may be argued that the unemployed were less likely to decline participation due to working obligations as opposed the employed. Finally, CAHS was undertaken in 2003 and, although we are not aware of any organized efforts targeted at the health of the unemployed in the meantime, 4 years have passed between the survey and the publication of our result.

However, we believe that the policy implications of arguments presented by this paper are clear. In order to achieve equal access for equal needs, health care systems should provide additional attention to vulnerable groups such as the unemployed. In terms of practical steps, variables, such as economic costs, that have been found to influence under-utilization should be adequately addressed. In times of, internationally omnipresent, cost containment measures heavily relying on interventions on demand side ie, patient cost sharing, this argument is of particular importance. Furthermore, to better and more cost efficiently meet the needs of the unemployed, it is essential to heighten awareness of psychological problems, such as depression and anxiety, that are more common in this group (30-32), and which prevent the population from seeking care and

make them especially vulnerable to unmet health care needs (23).

Finally, we argue that in order to achieve equal access for equal needs for both the employed and the unemployed, health care systems might have to pay more attention on the unemployed who are less likely to use the benefits that they offer. Thus, in order to be truly equitable, in some aspects they might reorient their development toward providing equal utilization for equal needs, rather than just offering equal access to everybody as the more privileged take better use of it than the underprivileged. This course of action would be in line with the vertical equity criterion, as it would ensure that the unemployed, who are in greater need of both curative and preventive health care, receive proportionally more services. In the light of the finding of this study, this may imply organizing preventive examinations targeted specifically at the unemployed.

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