

## LIFE SATISFACTION, OPTIMISM AND SOCIAL CAPITAL AS PREDICTORS OF MENTAL HEALTH OF THE RECIPIENTS OF FINANCIAL WELFARE FROM THE STATE

Lovorka Bilajac<sup>1,2</sup>, Vanja Vasiljev Marchesi<sup>1</sup>, Vanja Tešić<sup>1,3</sup> & Tomislav Rukavina<sup>1,4</sup>

<sup>1</sup>University of Rijeka, Faculty of Medicine, Department of Social Medicine and Epidemiology, Rijeka, Croatia

<sup>2</sup>Teching Institute of Public Health of Primorsko-Goranska County, Branch Office Opatija, Opatija, Croatia

<sup>3</sup>Andrija Stampar Teaching Institute of Public Health, Zagreb, Croatia

<sup>4</sup>Teching Institute of Public Health of Primorsko-Goranska County, Department of Microbiology, Rijeka, Croatia

### SUMMARY

**Background:** Health is largely influenced by the subjective well-being, optimism, social inclusion and satisfaction with life as well as usually defined variables. The aim of this study was to determine the relationship of dimensions of personality (optimism, control over life), social involvement (social capital) and socio-economic status with health and inequalities in health.

**Subjects and methods:** This study was performed on 1017 respondents which were chosen according to set criteria: middle age, working capability, and, according to the documentation of the Centres for social welfare, the recipients of financial welfare from the state. A questionnaire was created from several existing questionnaires with validated indicators.

**Results:** The results show that 78.1% of respondents were unemployed. Regarding the health males express a higher level of health than female. The presence of a chronic disease was found in 56.6% women and 43.4% men. The predictors of health such as optimism, life satisfaction and locus of control showed that satisfaction with life was expressed by 39.7% respondents. Greater satisfaction with life was seen in females (59.6%). Surprisingly, 47.7% of respondents said they thought they had control over their lives and decisions. Women are statistically more optimistic. Almost 60% of respondents were not satisfied with their lives.

**Conclusions:** Socially deprived population is mainly unemployed with insufficient resources for living. More burdened and higher risk for future development of the disease was found within this population. Optimism, social inclusion and life satisfaction play a large role, as protective factors in health. The interventions demand a multi disciplinary approach, and, with regard to the sensitivity of the population, the best solution is in their own empowerment, as a protective factor for mental health.

**Key words:** optimism - life satisfaction - socioeconomic status - mental health - health inequalities

\* \* \* \* \*

### INTRODUCTION

Pursuant to the definition of health of the World Health Organization, psychological health and social wellbeing are equally important as physical health (OECD 2012). Health is actually a dynamical process throughout man's life which can be influenced upon through individual, social, local, regional and national political involvement. Apart from the already defined variables, health is largely the outcome of the subjective feelings of wellbeing, life optimism, social inclusion and satisfaction with life. One of the unavoidable components included in the definition of health is the subjective well-being which is a predictor of mental health. Mental health has been under intensive scrutiny in the past several decades, with regard to the important role which it plays in the health of an individual and the nation as a whole. According to the Ottawa Charter for Health Promotion the basic preconditions for health are peace, a roof above one's head, education, food, income, stable eco-system, sustainable resources, social justice and equality in health (WHO 1986). According to the WHO strategy "Health for all 2020" it is defined that inequalities in health are the consequence of disparate living possibilities. Although personal responsibility which includes nutrition, physical activity, non-

smoking, responsible sexual behaviour is indispensable for health, literature shows that social determinants of health are necessary for making the right decisions and right choices in life, and, consequently they are the determinants of health. Studies show that population that is low on the social ladder has twice the risk of disease and premature death (Gwatkin et al. 2007). It often causes feelings like permanent anxiety, insecurity, low self-esteem, social isolation, loss of control over life and work, long-term stress and has an important impact on health (Poortinga 2006). The impact on health is not only the consequence of material impoverishment, but also of social and psychological problems caused by life in poverty. Researches have shown that unemployment and job insecurity carries an even greater health risk, mental as well as physical (Herbig et al. 2013). The strategy "Health for all 2020" defines justice and solidarity as a basis of a healthy population. The strategy stresses that the greatest attention must be devoted to those who have the greatest needs. Researches have shown that lifestyle is a key factor in the development of a disease in as much as 50% of cases, whereas genetic factors are responsible for 20%, additional 20% are attributable to the environment which includes the complex of social and cultural conditions and physical environment, while the last 10%

cover the factor of health care (Frank WJ et al. 1994). The above determinants of disease point to a broad spectrum of possibilities of impacting the health of the population, whereby the inequalities in health can be reduced. The paradox of contemporary medicine is the choice of disease instead of health. Curative medicine, including high technology consumes 90.6% of the overall health expenses, 6.9% are devoted to the control of biological factors of health, 1.5% to the advancement of natural and social environment, and only 1.2% to the promotion of healthy lifestyles and behaviours (Bank 2013, Berkman 1995). It is known which diseases are attributable to specific factors and that lifestyle plays a large role in the morbidity of the population, as well as the living conditions of the population, and with statistical indicators we can obtain the probability of appearance of certain diseases which do not affect all persons equally. Health, except the already defined variables, is largely influenced by the subjective well-being, optimism, social inclusion and satisfaction with life. Social interconnectedness, i.e. social capital, in the researches of Michael Marmot has been emphasized as a factor equally important as is the level of control over life, and education (Marmot 2010, Marmot 2005). The relationship of life satisfaction and optimism in health was significant when mental and physical health status, social involvement, and socio-demographic characteristics were controlled for. This suggests a protective relationship between aspects of psychological well-being and physical decline in later life. The above determinants are being studied in terms of protective factors for health, as well as recovery from certain diseases. In this view, this study encompasses several dimensions which explain the determinants of inequality in health with the aim of outlining the areas which can be impacted upon in terms of reduction of the same. The dimension of the personality (optimism, control over life) and social involvement (social capital) are being looked upon in relationship with health, together with socio-economic status and inequalities (Chan et al. 2011).

## **SUBJECTS AND METHODS**

### **Respondents**

A total of 1017 respondents in the Republic of Croatia took part in the study. They were selected according to the following criteria: middle age, working capability, and, according to the documentation of the Centres for social welfare, the recipients of financial welfare from the state.

The target population is stratified into homogeneous groups according to predefined characteristics in order to achieve a greater efficacy in the design of the sample. The total planned number of respondents in the sample is stratified by six regions, proportionately to the square root of the number of population in each region, the size of the settlement (<2,000; 2,001-10,000; 10,001-100,000; >100,000) age and gender of the respondent. In such a

way, a representative sample is ensured at the regional and national level. The source of data is the census in Croatia from 2001. The basic unit for the study was the household, and the persons who live in apartments and houses in Croatia were included into the study.

### **Methods-questionnaire**

A questionnaire was created for the needs of the investigation. The items in the questionnaire were taken over from several existing questionnaires with validated indicators. Items connected with individual health, self-assessment of health, lifestyle, indicators of the utilization of health services and related obstacles were taken over from the Croatian Health Care Survey (HZA 2003, Ivičević Uhernik et al. 2012). The dimensions of physical functioning and limitations due to physical causes, as well as vitality, energy, changes in health and a general perception of health is based on SF 36 (Jureša et al. 2000, Ware et al. 2003). The personality dimensions were taken over from Scheier's scale of life orientation, and optimism in life from the research on life orientation (LOT - The Life Orientation Test) (Scheier et al. 1994). The items relating to measuring social interconnectedness and social inclusion were taken over from an instrument developed by Secker et al (Secker et al. 2009).

### **Data collection**

The collection of data was carried out by means of field research in cooperation with Primary health centres, more specifically patronage nurses. Due to sensitivity, the social deprived population were interviewed by patronage nurses from their area who visit them regularly and are acquainted with the issues in the household. A total of 105 patronage nurses interviewed the respondents in their homes. On the first contact, the purpose of the study was explained to the respondents, along with the way of filling in the questionnaire and their verbal consent for participation was sought. The participation was voluntary and anonymous. A full assurance of anonymity was obtained by sending the filled questionnaires to another project team who created the database, so that the identity of the respondents cannot be connected to the questionnaire. In such a way, we ensured the respect of privacy of the respondents and bioethical standards, i.e. four basic bioethical principles (personal integrity – autonomy, justice, well-meaning and harmlessness), as well as those derived from the above (e.g. privacy, secrecy, trust and the like). All of this was in accordance with the Nuremberg Codex, the most recent revision of the Helsinki Declaration and other relevant documents.

The investigation has the approval of the Ethical Commission of the Department of Psychology at the School of Humanities and Social Sciences of the University of Zagreb and the permission of the Ministry of Social Politics and Youth.

## The dependent variable

Health is the central dependent variable in this study. Bearing in mind the complexity of this phenomenon, we set out from the supposition that health is chiefly determined by the absence of chronic diseases (dimension 1), and perceived physical limitations (dimension 2), as well as the feeling of vitality (dimension 3).

## Statistical analysis

For the comparison of study groups with nominal data a non-parametric and Chi-square test, i.e. the Fisher's exact test was used. The connection of nominal variables was tested by multiple logistical regression. Between the samples with ordinal data the comparison was tested with a non-parametric Mann-Whitney U-test. The level of statistical significance was set at  $p \leq 0.05$ . Statistical elaboration of data was done by using the STATISTICA programme (StatSoft, Inc., Tulsa, USA).

## RESULTS

The study encompassed 1017 respondents who, according to the data of the Centres for social welfare are the recipients of financial welfare due to insufficient resources for living. The sample consisted of respondents of both genders; 58.1% were female (N=591) and 41.9% males (N=426), middle aged (mean 47.2, SD 11.36), of which 43.8% were married or in a relationship (N=443); 29.9% were singles (N=305). The level of education was low: 22.9% do not have a completed elementary education, and 40.7% have only elementary school (N=414). They are mostly unemployed (78.1%, N=794). The distribution according to urban (48.3%) and rural (51.7%) areas was equal (Table 1).

Table 2 shows the differences in the average result of investigated dimensions. The results show that males express a statistically significantly higher level of health than female, although the magnitude of this difference is practically negligible. The presence of a chronic disease was seen in 56.6% women and 43.4% men in the sample. As expected, age is adversely related to health so that age groups differ between them according to the average level of health; the youngest age group (25-35) has the highest, and the oldest group (50-65) the lowest values.

Individual features of the respondents (happiness, contentment, locus of control and the level of optimism) were investigated as predictors of health. In general, satisfaction with life was expressed by 39.7% respondents; statistically, greater satisfaction with life was seen in women (59.6%,  $p < 0.05$ ). Furthermore, 47.7% of respondents said they thought they had control over their lives and decisions, and here also a statistically significant difference in favour of women was seen ( $p < 0.05$ ).

**Table 1.** Descriptive statistics for analysing variables

	N	%	mean±SD
Gender			
Male	426	41.9	
Female	591	58.1	
Age distribution			47.26 ±11.36
25-34	153	15.0	
35-44	231	22.7	
45-54	272	26.7	
55-65	361	35.5	
Place fo living			
Rural	526	51.7	
Urban	491	48.3	
Settlement size			
Up to 2,000 habitants	430	42.3	
2,001-10,000 habitants	217	21.3	
10,001-100,000 habitants	261	25.6	
More than 100,001	109	10.7	
Education			
Without ES	233	22.9	
Elementary school	414	40.7	
Secondary school	345	34.0	
High school/Faculty	24	2.4	
Employment			
Employed full time	14	1.4	
Employed part time	12	1.2	
Unemployed to a year	42	4.1	
Unemployed over a year	794	78.1	
Retired	151	14.8	
Student	4	0.4	

The influence of health on the usual daily activities was determined by statements such as: "Did your health state cause some of the following changes in work or other daily activities in the past four weeks?" 40.1% respondents confirmed that their health had a moderate to severe influence, and the statistical calculation shows that women perceive the negative influence of health less ( $p < 0.05$ ). A personal feeling of satisfaction with life as well as the subjective feeling of control over life are, and in the assessment of health, equal in comparison with the social interconnectedness and education. The assessment of satisfaction with life was measured with the item: "When you take everything into account, how much are you satisfied with your life these days?" 59.9% of responded said they were not satisfied with their lives, and the results obtained show that women (59.6%) are more satisfied than men (40.4%) (OR=0.61; 95% CI 0.49-0.76). As regards the perception of control over life and life decisions, 47.7% of respondents said they thought they have control over their lives, and a statistically greater proportion of women said they had control over the life decisions. Personal indicators of optimism\*\* were measured in three dimensions in which the respondents had to agree with a certain statement. The statements which point to optimism are: "In uncertain times I usually expect the best.", "I am

**Table 2.** Individual characteristics and personal attitudes of examinees

	Total		Males		Female		OR	95% CI
	N=1017	%	N=426	%	N=591	%		
Presence of health chronic conditions	751	73.8	326	43.4	425	56.6	0.65*	0.54-0.78
Impact of health on daily activities								
No influence	610	59.9	260	42.6	350	57.3	0.65*	0.54-0.79
Strong influence	407	40.1	166	40.7	241	59.3	0.62	0.50-0.78
Life satisfaction								
Dissatisfied	610	59.9	261	42.7	349	57.3	0.66*	0.54-0.80
Satisfied	406	39.7	164	40.4	242	59.6	0.61*	0.49-0.76
Opinion on the control of life								
In most have no	531	52.2	226	53.2	305	51.6	0.66	0.54-0.81
Have control	485	47.7	198	46.8	287	48.5	0.61*	0.5-0.75
Optimism 1**								
Agree	418	41.1	167	39.2	251	42.7	0.59*	0.48-0.74
Can't decide	271	26.6	112	26.3	159	26.8	0.66	0.51-0.86
Disagree	328	32.3	147	34.5	181	30.6	0.78	0.61-0.98
Optimism 2**								
Agree	504	49.6	200	46.9	304	51.4	0.57*	0.46-0.70
Can't decide	193	18.9	87	20.4	106	17.9	0.80	0.59-1.08
Disagree	320	31.5	139	32.7	181	30.6	0.73	0.57-0.93
Optimism2**								
Agree	602	59.2	247	57.9	355	60.1	0.59*	0.49-0.72
Can't decide	181	17.8	78	18.3	103	17.9	0.73	0.51-1.01
Disagree	233	22.9	101	23.7	132	22.4	0.73	0.56-0.97
Social capital***								
Agree	628	61.7	281	65.9	347	58.7	0.73	0.61-0.89
Can't decide	83	8.2	29	6.8	54	9.1	0.52	0.33-0.83
Disagree	306	30.1	116	27.3	190	32.2	0.56*	0.43-0.71
Social capital***								
Agree	547	53.8	230	53.9	317	53.6	0.64*	0.52-0.78
Can't decide	259	25.5	114	26.8	145	24.5	0.75	0.58-0.98
Disagree	211	20.7	82	19.3	126	21.3	0.60	0.45-0.80

\* p<0.05; \*\* Optimism include three different state described in result; \*\*\* Social capital: two different states described in results

always optimistic about the future.” and “I expect that more good than bad things will happen to me.” According to results obtained, 41.4%, 49.6% and 59.2% of respondents agreed with the statement and express optimism looking at their lives. In the breakdown according to gender it is again visible that women are statistically more optimistic (p<0.05). Social interconnectedness\*\*\*, i.e. social capital was measured by positive, affirmative statements and the respondents had to judge whether these statements fully relate to them, or do not relate at all. According to obtained results, in the context “I have friends whom I see every week”, 61.7% respondents agreed with that statement, although a statistically greater proportion of women disagree. On acceptance by friends, women are statistically more convinced that they are accepted by friends than men.

The utilization of health care includes visits to the family practitioner and specialist visits. The health system in Croatia is based on the principles of equality

and justice, and the system of financing is based on the social model which presumes equal access for all citizens. 1% of the respondents do not have their family physician, 27.9% of respondents visited their physician more than ten times in the past year, and 18.3% not even once. The location of living has no influence on the use of the health services. Men visit the physician more often than women, and more than 50% of women don't remember when they were last on a preventive examination with the gynaecologist (not shown).

Table 3 shows the interrelationship of examined dimensions. According to obtained results, the strongest predictors of health are individual features: optimism, social interconnectedness and satisfaction with life, which are all in a significant correlation and mutually dependent (0.23; 0.36). Socio-economic status which is very low in this study group, is not a predictor of personal attitudes towards life, but is one of the predictors of the use of health care services and the perception of health services.

**Table 3.** The correlations between examined dimensions- results of the factor analysis

	Health	Optimism	Social capital	Life satisfaction	SES
Health	1	0.14	0.11	0.19	0.08
Optimism	0.14	1	0.23*	0.36*	0.06
Social capital	0.11	0.23*	1	0.21	0.07
Life satisfaction	0.19	0.36*	0.21	1	0.10
SES	0.08	0.06	0.07	0.10	1

\*p<0.05

## DISCUSSION

Starting out from previously stated factors of health inequalities, with this study we created an integrated description in which health (i.e. the social determination of health) is linked to the level of individual characteristics (personality), social interconnectedness (social capital) and resources (socio-economic status). The fragments of this concept and various combinations of subjective and objective variables which impact on health, were described at length in the literature about inequalities in health and health services (Judge et al. 2006, Kaplan 2007, Murray et al. 1999). The social interconnectedness, i.e. social capital has been emphasized in Michael Marmot's investigations as equally important to the level of control over life and equally important as education (Marmot 2010).

The educational status was also proved to be a significant predictor of health. Persons without completed secondary education expressed significantly lower level of health compared to those with secondary, college or university education (Eikemo et al. 2008). Bearing in mind the age differences between various groups, we may assume that age is a factor which intervenes on the above finding. Bi-variant analysis which, by contrast to multi-variant techniques, does not control the influence of age, pointed out that the employed are significantly "healthier" from unemployed and the retirees. Respondents attending school (the youngest participants in the sample), as expected, showed the highest level of health. Employment is one of the predictors of health. Long-term unemployment has a multiple influence on health. It has been established that the long-term unemployed have twice the risk of mental conditions and anxiety compared to the employed. Unemployment increases stress, and consequently the risk of a heart attack, chronic non-infectious diseases and suicide (Blakely et al. 2003). Chronic diseases are the main cause of the increase in mortality, and they are the product of socio-economic inequalities. The influence of health on usual daily activities shows the existing quality of life of a respondent. The obtained results are as expected with respect to the burden presented by health problems, and they are in accordance with previous studies.

The income of a respondent's household (divided by the number of household members) is significantly

related with the expressed level of health. The examined group in this study falls into the category of socially deprived, their income is in the lowest quartiles and by that very fact they express a poorer level of health. Persons with lowest income are marked with a significantly lower level of health compared to those with higher income (Corrieri et al. 2010, Wilkinson et al. 2006). The relation between income and health is not linear, i.e. above a certain mark the growth of income stops influencing the level of health (Starfield et al. 2007). Financial status sheds light on the indirect influence of optimism and the satisfaction of life. The health status is conditioned by optimism, but it is not a precondition for satisfaction with life. Optimism is a key factor for subjective benefit, because it promotes self-esteem, harmony and a positive perception of financial conditions (Leung et al. 2005).

Social inequalities in health have been studied for a number of years and social deprivation is one of the predictors of inequality. However, in the socially deprived population too, not everyone has equal chances for the manifestation or prevention of a disease. Taking into account that various measures of the socio-economic status (SES) roughly reflect the picture of health inequalities, and that the SES gradient in health is consistent and broadly distributed, we can say that there is a number of explanatory mechanisms for the concept of influence of SES on health inequalities. Stressors and ways of coping with stress – in our concept the responses to stress correspond with the personality, and support on the part of the family and friends (social capital), lifestyle and behaviour (smoking, alcohol, physical activity and again personality). A positive attitude on life can influence health primarily by curbing negative influences of stressful life events (Ostir et al. 2001). On the other hand, researches point to a direct connection of satisfaction with life and the appearance of injuries (Koivumaa-Honkanen et al. 2000). A positive outlook on life is a protective factor in the development of the disease, such as a common cold. Cohen et al. concluded that persons with a positive outlook on life have fewer viral colds (OR=2.9, comparing bottom to top tertile). People who are optimists, have a tendency of active problem solving and facing stressful life events, while the pessimists are more prone to denial and lack of confrontation, which accumulates stress and health issues (Scheier et al.

1994). Cavelaars et al. concluded in their work that a high degree of satisfaction with life can also be an indicator how simply an individual adapts to a newly emerged situation and defines his/her achievable aims in accordance with this situation (Cavelaars et al. 1998). Research suggests that optimism is related to several health outcomes, and may improve the chances of a recovery (Matthews et al. 2004). The notion of mental welfare relates to more frequent positive experiences which include feelings such as happiness, joy, excitement, enthusiasm and satisfaction (Pressman et al. 2005).

## CONCLUSION

The paper examines the level of personal capital of socially deprived population, both in relation to health and the utilization of health services. Socially deprived population is mainly unemployed, with a larger number of persons per household and insufficient means of livelihood. For this reason, they receive support from the state but, in spite of this their income is in the lower quartile of income in the country. The level of education is also low, and the possibility of finding a job in times of economic crisis is very slim. In accordance with the above, they have a very low socio-economic status. Consequently, they are more burdened with health issues and carry a greater risk for the emergence of new health issues. On the other hand, optimism, social inclusion and satisfaction with life, as protective factors in health, play a large role and are connected with one another. Socio-economic status has no impact on the personal outlook on life. However, it has an impact on the satisfaction with life and the health state load. Social inclusion is also a protective factor, but only in cases where the socio-economic conditions are acceptable. In socially deprived population, the interventions demand a multi-disciplinary approach, and, with regard to the sensitivity of the population, the best solution is in their own empowerment, as a protective factor in mental health.

**Acknowledgements:** None.

**Conflict of interest :** None to declare.

## References

1. Bank TW: *World development indicators*. 2013.
2. Berkman LF: *The role of social relations in health promotion*. *Psychosomatic Medicine* 1995; 57:245-54.
3. Blakely TA, Collings SCD, and Atkinson J: *Unemployment and suicide. Evidence for a causal association?* *J Epidemiol Community Health* 2003; 57:594-600.
4. Cavelaars A, Kunst A, Geurts J et al.: *Differences in self reported morbidity by educational level: a comparison of 11 western European countries*. *J Epidemiol Community Health* 1998; 52:219-27.
5. Chan WS, Whitford DL, Conroy R et al.: *A multidisciplinary primary care team consultation in a socio-economically deprived community: An exploratory randomised controlled trial*. *BMC Health Serv Res* 2011; 11:1-8.
6. Corrieri S, Heider D, Matschinger H et al.: *Income-, education- and gender-related inequalities in out-of-pocket health-care payments for 65+ patients- a systematic review*. *Int J Equity Health* 2010; 9.
7. Eikemo TA, Huisman M, Bambra C et al.: *Health inequalities according to educational level in different welfare regimes: a comparison of 23 European countries*. *Social Health Illn* 2008; 30:565-82.
8. Frank WJ, and Mustard JF: *The Determinants of Health from a Historical Perspective*. *Health and Wealth* 1994; 123:1-19.
9. Gwatkin DR, Rutstein S, Johnson K et al.: *Socio-economic differences in health, nutrition, and population within developing countries: an overview*. *JAMA* 2007; 298:1943-44.
10. Herbig B, Dragano N, and Angerer P: *Health in the long-term unemployed*. *Dtsch Arztebl Int* 2013; 110:413-9.
11. Ivičević Uhernik A, Vuletić S, Kern J et al.: *The Croatian Adult Health Cohort Study (CroHort) -background, methodology & perspectives*. *Collegium Antropologicum* 2012; 36:3-7.
12. Judge K, Platt S, Costongs C et al. *Health Inequalities: a Challenge for Europe, Discussion Paper*. UK Presidency of the EU, 2006.
13. Jureša V, Ivanković D, and Vuletić G: *The Croatian Health Survey- SF-36: General Quality of Life Assessment*. *Collegium Antropologicum* 2000; 24:69-78.
14. Kaplan GA: *Health inequalities and the welfare state: perspectives from social epidemiology*. *Norsk Epidemiologi* 2007; 17:9-20.
15. Koivumaa-Honkanen H, Honkanen R, Viinamaeki H et al.: *Self-reported life satisfaction and 20-year mortality in healthy Finnish adults*. *American Journal of Epidemiology* 2000; 152:981-91.
16. Leung B, Moneta G, and McBride-Chang C: *Think positively and feel positively: optimism and life satisfaction in late life*. *Int J Aging Hum Dev* 2005; 61:335-65.
17. Marmot M: *Social determinants of health inequalities*. *Lancet* 2005; 365:1099-104.
18. Marmot M: *Fair society, healthy Lives. The Marmot Review. A strategic review of health inequalities in England post-2010.*, 2010.
19. Matthews K, Räikkönen K, Sutton-Tyrrell K et al.: *Optimistic attitudes protect against progression of carotid atherosclerosis in healthy middle-aged women*. *Psychosom Med* 2004; 66:640-4.
20. Murray CJL, Gakidou E, and Frenk J: *Health Inequalities and Social Group Differences: What Should We Measure?* *Bull World Health Organ* 1999; 77:537-43.
21. OECD: *Health at the Glance:Europe 2012*. OECD Publishing, 2012.
22. Ostir GV, Markides KS, Peek MK et al.: *The association between emotional well-being and the incidence of stroke in older adults*. *Psychosomatic Medicine* 2001; 63:210-15.
23. Poortinga W: *Social capital: An individual or collective resource for health?* *Soc Sci Med* 2006; 62:292-302.

24. Pressman SD, and Cohen S: Does Positive Affect Influence Health? *Psychological Bulletin* 2005; 131:925–71.
25. Scheier MF, Carver CS, and Bridges MW: Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *J Pers and Soc Psy* 1994; 67:1063-78.
26. Secker J, Hacking S, Kent L et al.: Development of a measure of social inclusion for arts and mental health project participants. *J Mental Health* 2009; 18:65-72.
27. Starfield B, and Birn AE: Income redistribution is not enough: income inequality, social welfare programs, and achieving equity in health. *J Epidemiol Community Health* 2007; 61:1038-41.
28. Ware JE, Kosinski M, and Gandek B. SF-36 Health Survey/Manual and Interpretation Guide. Lincoln: Quality Metric Incorporated, 2003.
29. WHO. Ottawa Charter for Health Promotion. Presented at conference, "First International Conference on Health Promotion." Ottawa, 1986.
30. Wilkinson RG, and Pickett KE: Income inequality and population health: a review and explanation of the evidence. *Soc Sci Med* 2006; 62:1768-84.

Correspondence:

Assist. Prof. Vanja Tešić, MD, PhD  
Andrija Stampar Teaching Institute of Public Health  
Mirogojska cesta 16, HR-10 000 Zagreb, Croatia  
E-mail: vanja.tesic@stampar.hr