“Social Inequalities in Self-Reported Health in the Ukrainian Working-age Population: Finding from the ESS”

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Abstract. The purpose of this paper is to identify the possible social inequalities in self-reported health among the Ukrainian working-age population by exploring the associations of the social determinants of health with poor self-reported health. Data for this study is derived from the European Social Survey. 4,195 Ukrainian respondents from five collected rounds (from 2004 to 2012) were included in the research. The study is limited to the working-age population from 18 to 65 year old males and from 18 to 60 for females. The data was analyzed using IBM SPSS 24. The results of this research show the existence of some socio-economic, employment-related inequalities, and others in self-reported health among the Ukrainian working-age population.

Keywords: self-reported health, health inequalities, social determinants of health, Ukraine

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Introduction. Social inequalities in health are one of the main challenges for public health policy. According to the World Health Organization, monitoring of health inequality is an essential step for achieving health equity (WHO, 2014). To reduce and eliminate health inequalities, we need to conduct an initial assessment of health inequalities, using appropriate indicators and conduct systematic and long-term monitoring of health inequalities. It is time for Ukraine to change the situation which Sir Michael Marmot, a prominent researcher of health inequalities, describes as: “No data, no problem. No problem, no action.”
Health Inequalities and Social Determinants of Health (SDH) are very well developed interdisciplinary topics in social and public health sciences. The United Nations agencies identified SDH in Post-Millennium Development Goals 2015 as a key priority. Furthermore, the World Health Organization and its Commission on Social Determinants of Health have developed recommendations to governments to address health inequalities through policies. Many countries around the world, including EU-countries, have made significant progress to track health inequalities, using evidence-based monitoring, conduct research, and develop policies to reduce health inequalities.

However, literature on SDH and health inequalities in Ukraine is scarce, and evidence of related social/policy action on this problem is largely absent. British researchers (A. Gilmore, M. McKee, R. Rose, 2002) investigated socio-economic and psychosocial determinants of self-estimated health in Ukraine through a national survey (n = 1600). Results showed that a quarter of men and 43% of women estimate their health as poor or very poor, and socio-economic factors, including bad material conditions and psycho-social factors like poor control over their lives, have been identified as independent determinants of health. The results of this research show that the reduction of control, arising from a more indeterminate political and economic environment, lower wealth and the impact of change potentially contribute to the decrease in life expectancy.

Also, Ukraine in 2010 took part in an international survey entitled “Social determinants of health and well-being among young people: Health Behavior in School-Aged Children study” (Inequalities in young people's health: HBSC international report from the 2009/2010 Survey, 2012). According to this report inequalities related to family affluence in Ukraine are evident across a range of health outcomes.

Ukraine was also included in an international report, “Social security for all: Addressing inequities in access to health care for vulnerable groups in countries of Europe and Central Asia” (ILO, 2011) which used population-level data from the State Statistical Service of Ukraine (2009) about rural and urban households experiencing gaps in financial protection against health expenditures (more than 20%) as well as experiencing the absence of health-care facilities close to home (29.9% - rural households and 7.2% - urban households).

There are some Ukrainian inputs in studying health inequalities, for example, the Institute for Demography and Social Studies and UNICEF have collaborated on an investigation, “Unequal
opportunities of children in Ukraine: analysis and policy”. This report examined issues about limited access to health services for children (5.4% of households with children in cities, 7.3% - in towns, and 28% - in rural areas) and lack of funds to pay for medical services (in the case of lack or difficulty of obtaining such services for free). Another report of the Institute entitled “Inequality in Ukraine: the scope and ability to influence” includes a brief analysis regarding self-reported health in the context of age, gender, urban and rural neighborhood and quantity of children in the family. This research found no statistically significant relationship between the level of income and self-perceived health. Also, some Ukrainian economists’ have examined the relationship between income and health. For instance, O. Marets and O. Vilehynska (2008) findings show the negative impact of low income on population health and high-income differentials contributes to unequal access to high-quality healthcare. A Ukrainian researcher N. Ryngach (2013) has identified social inequalities in environmental risks and health.

This summary of the literature indicates that we have limited knowledge of health inequalities within the Ukrainian population. The purpose of this paper is to identify the possible social inequalities in self-reported health among the Ukrainian working-age population by exploring the associations of the determinants of health (the socio-economic, the employment-related, the individual social capital factors) with poor self-reported health (SRH).

**Research questions:** 1) Do we have the social inequalities in self-reported health among the Ukrainian working-age population? 2) What is the effect of the possible social determinants of health on poor SRH?

**Data and methods.** In the case of Ukraine, one of the best and most accessible databases for investigating an association between subjective health status (self-reported health) and social inequalities in health is the European Social Survey (ESS) because Ukraine has participated in this survey during five rounds from 2004 to 2012. The study is limited to the working-age population because of the health inequalities of children and youth, as well as older adults, which are different from the health inequalities among the working-age population. Moreover, the health of the working-age population is crucial for the economic development of the country, and this population’s health issues have to be addressed in the public health policy.
The target dataset was derived from the 2\textsuperscript{nd} to 6\textsuperscript{th} round ESS data, which includes 4,195 Ukrainian respondents at the working-age from 18 to 65 year old males and from 18 to 60 for females and used to examine which social determinants of health influence the self-reported poor health of Ukrainian working-age respondents. According to the ESS instructions I used the post-stratification weight including design weight.

The dependent variable in this study is a created dichotomous self-reported poor health (Poor SRH) variable. To create it I used a question relating to self-reported subjective health status, which is included in the ESS as: “How is your health in general? Would you say it is ...” with five possible options as “very bad,” “bad,” “fair,” “good”, and “very good.” The dependent variable “poor SRH” includes all categories less than “good”.

The 10 independent predictor variables include the social determinants of health such as:

- the socio-economic factors: the highest level of education (which is expressed in terms of the International Standard Classification of Education (ISCED) and has five categories), occupation (using the International Standard Classification of Occupations (ISCO88)), and subjective income (using questions about how respondents feel about household income);

- the employment-related factors: main activity during the last seven days (paid work; unemployed, actively looking for a job; unemployed, not actively looking for a job; housework, looking after children, others);

- the individual level social capital factors: social meeting with friends/relatives/colleagues, taking part in social activities, having someone to discuss intimate/personal problems.

Moreover, all models were adjusted for gender and age of respondents. Ages reported by respondents were categorized into four groups (18-30, 31-40, 41-50, 51-60(65)).

The data was analyzed using the IBM SPSS 24. Significance tests (Pearson Chi-Square) were used to test the association between poor SRH and all variables. Binary logistic regression analysis was performed to evaluate the influence of the possible social determinants of health on poor SRH. Odds ratios (OR) were calculated as a measure of association.

**Results.** Poor SRH was reported by 59 % of the Ukrainian working-age respondents. Females, those with lower secondary education, those with agriculture jobs, those who have very difficult
feelings about their situation with a household income, and those without paid job as well as lower social activity levels estimated their health as being worse.

The demographic statistics in Table 1 show that more women than men estimate their health as poor (more than a 13 % difference), which is exactly what we were expecting according to the “gender paradox.” The descriptive statistic also shows a strong relationship between the prevalence of poor SRH and levels of education. The lowest proportion of poor SRH is in the higher professional occupational status group because of better working conditions and more prestigious work. Also, we can see the high prevalence of poor SRH among respondents with higher managerial occupational status, most likely this is due to more stressful and demanding work conditions. We can see a strong relationship between the prevalence of poor SRH and feelings about household income, the worse the situation with household income the higher the proportion of poor SRH for both genders.

In Table 1 we have the chi-square tests results for association that were conducted between the possible social determinants of health and poor SRH. There were statistically significant associations between all the social determinants of health and poor SRH.

During the logistic regression analysis four models were created and adjusted for gender and age groups, the first included socio-economic status variables, the second - the employment-related variables, the third - the individual level social capital variables and the last full model - all variables (the social determinants of health) from above models.

**Table 1. Descriptive statistics for all variables**
### Variables:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Poor SRH, %</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>56.8</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>70.7</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age groups</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>40.8</td>
</tr>
<tr>
<td>31-40</td>
<td>57.2</td>
</tr>
<tr>
<td>41-50</td>
<td>71.3</td>
</tr>
<tr>
<td>50-60(65)</td>
<td>86.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupational status</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>67.7</td>
</tr>
<tr>
<td>Professional</td>
<td>58.1</td>
</tr>
<tr>
<td>Technical</td>
<td>62.5</td>
</tr>
<tr>
<td>Clerical</td>
<td>66.7</td>
</tr>
<tr>
<td>Sales &amp; Service</td>
<td>61.4</td>
</tr>
<tr>
<td>Agricultural</td>
<td>86.8</td>
</tr>
<tr>
<td>Mechanical</td>
<td>63.0</td>
</tr>
<tr>
<td>Operator</td>
<td>66.9</td>
</tr>
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<tr>
<th>Educational level</th>
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<td>Less than lower secondary education</td>
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</tr>
<tr>
<td>Lower secondary education completed</td>
<td>72.8</td>
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<tr>
<td>Upper secondary education completed</td>
<td>65.9</td>
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<tr>
<td>Post-secondary non-tertiary education completed</td>
<td>62.0</td>
</tr>
<tr>
<td>Tertiary education completed</td>
<td>62.3</td>
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<table>
<thead>
<tr>
<th>Feeling about household’s income</th>
<th>p&lt;0.001</th>
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</thead>
<tbody>
<tr>
<td>Comfortably</td>
<td>35.3</td>
</tr>
<tr>
<td>Coping</td>
<td>50.7</td>
</tr>
<tr>
<td>Difficult</td>
<td>64.7</td>
</tr>
<tr>
<td>Very difficult</td>
<td>75.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paid work</th>
<th>p&lt;0.001</th>
</tr>
</thead>
</table>

| Yes | 58.9 |
| No  | 73.7 |

<table>
<thead>
<tr>
<th>Unemployed, actively looking for job</th>
<th>p=0.040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>58.4</td>
</tr>
<tr>
<td>No</td>
<td>64.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unemployed, not actively looking for job</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>81.1</td>
</tr>
<tr>
<td>No</td>
<td>63.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housework, looking after children, others</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>69.0</td>
</tr>
<tr>
<td>No</td>
<td>62.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Take part in social activities</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much less than most</td>
<td>76.3</td>
</tr>
<tr>
<td>Less than most</td>
<td>71.9</td>
</tr>
<tr>
<td>About the same</td>
<td>60.4</td>
</tr>
<tr>
<td>More than most</td>
<td>63.1</td>
</tr>
<tr>
<td>Much more than most</td>
<td>59.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Someone to discuss intimate and personal matters with</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>62.4</td>
</tr>
<tr>
<td>No</td>
<td>75.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Socially meet with friends/relatives/colleagues</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>76.3</td>
</tr>
<tr>
<td>Less than once a month</td>
<td>75.3</td>
</tr>
<tr>
<td>Once a month</td>
<td>73.7</td>
</tr>
<tr>
<td>Several times a month</td>
<td>64.2</td>
</tr>
<tr>
<td>Once a week</td>
<td>65.0</td>
</tr>
<tr>
<td>Several times a week</td>
<td>56.2</td>
</tr>
<tr>
<td>Every day</td>
<td>54.3</td>
</tr>
</tbody>
</table>

### Table 2. Binary Logistic Regressions Analysis

<table>
<thead>
<tr>
<th>Poor SRH</th>
<th>Model 1 (OR CI 95%)</th>
<th>Model 2 (OR Employment factors)</th>
<th>Model 3 (OR Social capital factors)</th>
<th>Model 4 (OR Full)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Male</td>
<td>ref</td>
<td>1.92 (1.71;2.15)</td>
<td>ref</td>
<td>ref</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>1.71 (1.50;1.97)</td>
<td>1.91 (1.67;2.18)</td>
<td>1.86 (1.59;2.17)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age groups</th>
<th>p&lt;0.001</th>
<th>p&lt;0.001</th>
<th>p&lt;0.001</th>
<th>p&lt;0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-30</td>
<td>ref</td>
<td>1.81(1.56;2.09)</td>
<td>1.98(1.67;2.36)</td>
<td>1.81(1.52;2.15)</td>
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<tr>
<td>31-40</td>
<td></td>
<td>3.61(3.12;4.18)</td>
<td>3.68(3.10;4.37)</td>
<td>3.25(2.74;3.87)</td>
</tr>
<tr>
<td>41-50</td>
<td></td>
<td>7.87(6.67;9.30)</td>
<td>8.70(7.07;10.70)</td>
<td>8.63(7.01;10.62)</td>
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<tr>
<th>Occupational status</th>
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<td>Managerial</td>
<td>1.29(1.03;1.62)</td>
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<td>0.85(0.70;1.04)*</td>
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<tr>
<td>Technical</td>
<td>0.88(0.73;1.07)*</td>
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<td>Clerical</td>
<td>1.02(0.78;1.34)*</td>
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<td>Sales &amp; Service</td>
<td>0.89(0.74;1.06)*</td>
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<td>Agricultural</td>
<td>1.06(0.68;1.66)*</td>
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<tr>
<td>Mechanical</td>
<td>1.03(0.86;1.24)*</td>
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<tr>
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<tr>
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<td>76.3</td>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>62.4</td>
</tr>
<tr>
<td>No</td>
<td>75.9</td>
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</tbody>
</table>

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<thead>
<tr>
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<th>p&lt;0.001</th>
</tr>
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<tbody>
<tr>
<td>Never</td>
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<td>73.7</td>
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<tr>
<td>Once a week</td>
<td>65.0</td>
</tr>
<tr>
<td>Several times a week</td>
<td>56.2</td>
</tr>
<tr>
<td>Every day</td>
<td>54.3</td>
</tr>
<tr>
<td>Operator</td>
<td>ref</td>
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<tr>
<td>----------</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling about household’s income</td>
<td>( p &lt; 0.001 )</td>
</tr>
<tr>
<td>Comfortably Coping</td>
<td>ref</td>
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<tr>
<td>Difficult</td>
<td>1.32(0.87;2.02)*</td>
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<tr>
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<tr>
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<td>( p &lt; 0.001 )</td>
</tr>
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<td>ref</td>
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<tr>
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<td>1.61(1.34;1.94)</td>
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<td>( p = 0.015 )</td>
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<td>ref</td>
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<tr>
<td>No</td>
<td>1.44(1.07;1.93)</td>
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<td>( p = 0.008 )</td>
</tr>
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<td>ref</td>
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<tr>
<td>No</td>
<td>0.52(0.32;0.85)</td>
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<tr>
<td>Housework, looking after children, others</td>
<td>( p = 0.564 )*</td>
</tr>
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<td>0.95(0.81;1.12)*</td>
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<td>Several times a month</td>
<td>1.09(0.87;1.37)*</td>
</tr>
<tr>
<td>Once a week</td>
<td>1.19(0.93;1.52)*</td>
</tr>
<tr>
<td>Several times a week</td>
<td>0.98(0.78;1.22)*</td>
</tr>
<tr>
<td>Every day</td>
<td>ref</td>
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<tr>
<td>Someone to discuss intimate and personal matters with</td>
<td>( p = 0.001 )</td>
</tr>
<tr>
<td>Yes</td>
<td>ref</td>
</tr>
<tr>
<td>No</td>
<td>1.48(1.17;1.87)</td>
</tr>
<tr>
<td>Take part in social activities</td>
<td>( p &lt; 0.001 )</td>
</tr>
<tr>
<td>Much less than most</td>
<td>ref</td>
</tr>
<tr>
<td>Less than most</td>
<td>0.82(0.59;1.14)*</td>
</tr>
<tr>
<td>About the same</td>
<td>0.56(0.41;0.75)</td>
</tr>
<tr>
<td>More than most</td>
<td>0.70(0.51;0.98)</td>
</tr>
<tr>
<td>Much more than most</td>
<td>0.56(0.37;0.84)</td>
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</tbody>
</table>
A full binary logistic regression was performed to ascertain the effects of the social determinants of health (the independent variables) on self-reported poor health (a dichotomous dependent variable), where all predictors were entered into the model in one step. The full logistic regression model was statistically significant $\chi^2(33) = 967.556$, $p < .0005$. The model explained 25.8% (Nagelkerke R2) of the variance in poor SRH and correctly classified 72.4% of cases. Of the 10 predictor variables three were not statistically significant, such as levels of education ($p = .080$), being unemployed and not actively looking for a job ($p = .134$) as well as doing housework, looking after children ($p = .730$).

Table 2 shows that there are several evident associations between self-reported poor health and the social determinants of health. The study proved that social differences in SRH vary between males and females. Women estimate their health significantly lower than men do. The odds ratios of poor SRH is increasing with age. The OR of poor SRH in the oldest group is more than seven times that of the youngest one.

Regarding the socio-economic factors, we can see a strong association between the SRH and subjective feelings of respondents about household income, participants who have “very difficult” and “difficult” feelings about household income were more likely to report their health as poor compared to people who are comfortable with their household income.

With respect to the employment factors, conditions such as having paid work and being unemployed and actively looking for a job have significant association with poor SRH. We can see that respondents without paid work more likely to report their health as poor (OR=1.5) in the full model. The same is true for those being unemployed and actively looking for a job (OR=1.8).

According to the individual social capital factors, the study shows that factors such as taking part in social activities, socially meeting with friends and having someone to discuss intimate and personal matters with have significant association with poor SRH. We can see that respondents with lower levels of social activity more likely to estimate their health as poor.

**Conclusion.** The results of this research shows the existence of some socio-demographic, socio-economic, and employment-related inequalities in self-reported health among the Ukrainian working-age population. Women estimate their health significantly lower than men do and the oldest
groups reported their health as being the worst. Participants with higher education levels estimate their health as being better than those with primary education.

As well as in previous studies it was determined that there is a strong relationship between the SRH and income because participants who have “very difficult” and “difficult” feelings about household income reported their health as poor. Also, respondents with higher educational levels reported their health as being better. The results have shown an association between individual level social capital as well as employment-related and reported poor health. Those participants who are not economically active estimate their health as being worse.

The study may provide some thoughts about reducing health inequalities in public health policies. It is obvious that more studies are needed to explain social inequalities health among the Ukrainian working-age population.

References.


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