HEALTH SELF-EVALUATION: ARE THERE DIFFERENCES IN RURAL AND URBAN TERRITORIES IN LATVIA

*Biruta Sloka (ID)**, Ginta Tora** (ID)**, Lilita Seimuškāne** (ID)**, Anna Angena** (ID)

University of Latvia, Latvia
*Corresponding author's e-mail: Biruta.Sloka@lu.lv

Abstract
Recent developments in politics and economy has created additional challenges for medical institutions with lack of medical personnel, transportation from rural areas to medical institutions. Very often, there is a difference between medical services in urban and rural areas. In research is often mentioned that male and female persons have different evaluations on their health situation. The aim of the paper is to prepare research based recommendations for possible steps for public administrators to support availability of medical services in urban and rural areas. Tasks of the current research: analysis of theoretical findings reflected in scientific publications and discussion of research results, analysis of tendencies of self-perceived health status of population in Latvia, analysis on possible differences between gender as in scientific publications is often mentioned that female and male persons have different evaluations, analysis of health self-evaluations between inhabitants in rural and urban territories and possible differences in evaluations for persons with different employment status. Representative data from EU-SILC, different statistical analysis methods and statistical indicators are used: indicators of descriptive statistics, cross-tabulations, testing of statistical hypotheses with t-test and analysis of variance – ANOVA, chi-square test, as well as correlation analysis. Research results confirm that self-perceived health status in Latvia are higher in rural areas and higher health self-esteem evaluations were made by female persons.
Key words: health self-evaluation, rural territories, well-being, employment, municipalities, public administration.

Introduction
Recent pandemic has caused many challenges and serious influences which have reflections also after the pandemic. Besides, there are increasing problems and challenges with administrative reform in Latvia. In many cases it results in lack of medical personnel especially in rural areas as well as in lack of availability to access medical doctors. In this paper, there are analysed tendencies of self-perceived health status for inhabitants in rural areas and conducted comparisons on self-perceived health status by male and female persons, by inhabitants in rural and urban areas. In research results, it is often noted that those evaluations differ by gender. Academic researchers world-wide have paid attention to self-perceived health status influence on different society reactions (Callard & Friedli, 2005; Wang & Lu, 2017; Reisinezhad & Fakhrahmad, 2023) with research based suggestions for possible practical use in decision making. Researchers have noted that several generations and age groups of inhabitants need special attitude and attention with specific solutions and approaches (Manthorpe & Cornes, 2004; Léveillé & Chamberland, 2010; Lin & Chou, 2022; Chen *et al.*, 2022). Researchers have noted that arts and other aspects have influence of self-perceived health status (Secker *et al.*, 2007; Seimuskane, Vilka, & Brekis, 2017; Gordon *et al.*, 2018). Technology and information technologies development influence several health service providers (Yusif, Hafeez-Baig, & Soar, 2020: Daugėlienė, 2020; Šimanskienė, Labanauskaitė, & Montvydaitė, 2022; Salkovska *et al.*, 2023; Danusevics *et al.*, 2023; Sergejeva & Zeidmane, 2023; Zhang *et al.*, 2023). Researchers suggest paying certain attention to several important aspects: religion (Jiang & Zheng, 2015) and other aspects (Romanova *et al.*, 2018; Solin *et al.*, 2019; Muravska & Dyomkin, 2020). Several aspects are for attention (Andersone *et al.*, 2019; Behmane, Rutitis, & Batraga, 2021; Chan & Chen, 2023). Several advanced methods and approaches are used to find deeper analysis results (Braslina *et al.*, 2020; Zhang *et al.*, 2021; Sun & Li, 2022; YahiaMarzouk & Jin, 2023) with interesting and innovative solutions and research-based suggestions which could be practically used for decision-making and best solution finding also in other countries.

Materials and Methods
For empirical data analysis, there were used data files of EU-SILC survey data which are collected annually in all European Union countries and EU candidate countries by the same methodology prepared by Eurostat. Obtained data are for representative sample and could be used for deeper analysis. Authors have used this opportunity to examine differences about health esteem by urban and rural inhabitants, by male and female persons. The health self-esteem was evaluated in scale 1-5, where 1 – very good; 2- good; 3 – fair; 4 – bad; 5 – very bad. Statistical data analysis was carried out using SPSS software which allow many important analysis realization and a lot of calculations in foreseen aspects: by gender, by territory (rural or urban) and other selected analysis using descriptive statistics: indicators of central tendency or location: arithmetic mean, mode, median of the evaluations by respondents; indicators of variability: range, standard deviation and standard error of mean. For data analysis, cross-tabulation to find distributions of evaluations by gender, by territories (urban and rural) and by other indicators was used. For data analysis, correlation analysis to find relationships among analysed aspects was used too.

Results and Discussion
Main statistical indicators of descriptive statistics of self-perceived health status are reflected in Table 1.

Table 1

Main statistical indicators of self-perceived health status in Latvia in 2022

Statistical indicator		Value
N	Valid	9564
	Missing	0
Mean		2.68
Standard Error of Mean		0.009
Median		3
Mode		2
Standard Deviation		0.853
Range		4
Minimum		1
Maximum		5

Source: Authors' calculations based on EU-SILC data.

Data indicate that in Latvia most of inhabitants have evaluated their health as good (characterized by mode with value 2); half of inhabitants have evaluated their health as fair or better and half of inhabitants have evaluated it as fair or worse, characterized by median with its value 3. Arithmetic mean of the evaluations on health self-esteem was 2.68. All range of the scale was used for evaluations. Distribution of evaluations on

health self-esteems is reflected in Table 2.

Table 2

Distribution of evaluations on self-perceived health status in Latvia in 2022

Evaluations	Frequency	Percent	Valid Percent	Cumulative Percent
1- Very good	367	3.8	3.8	3.8
2 - Good	4140	43.3	43.3	47.1
3 - Fair	3587	37.5	37.5	84.6
4 - Bad	1173	12.3	12.3	96.9
5 - Very bad	297	3.1	3.1	100.0
Total	9564	100.0	100.0	

Source: Authors' calculations based on EU-SILC data.

Data indicate that 43.3% of inhabitants have evaluated their health as good, 47.1% of inhabitants have evaluated their health as very good or good, and only 3.1% of inhabitants in Latvia have evaluated health as very bad. Distribution (cross-tabulations by urban and rural areas and by gender) of evaluations of health self-esteems of inhabitants of Latvia in 2022 are included in Table 3.

Table 3

Distribution of evaluations on self-perceived health status by territories in Latvia in 2022

Gender	Evaluations		TERRITORY		Total
			Urban	Rural	
Male	1-Very good	Count	149	54	203
		% within TERRITORY	5.8%	3.6%	5.0%
	2-Good	Count	1257	695	1952
		% within TERRITORY	48.8%	45.9%	47.7%
	3-Fair	Count	866	544	1410
		% within TERRITORY	33.6%	36.0%	34.5%
	4-Bad	Count	242	182	424
		% within TERRITORY	9.4%	12.0%	10.4%
	5-Very bad	Count	63	38	101
		% within TERRITORY	2.4%	2.5%	2.5%
	Total	Count	2577	1513	4090
		% within TERRITORY	100.0%	100.0%	100.0%
Female	1-Very good	Count	125	39	164
		% within TERRITORY	3.4%	2.1%	3.0%
	2-Good	Count	1473	715	2188
		% within TERRITORY	40.3%	39.4%	40.0%
	3-Fair	Count	1430	747	2177
		% within TERRITORY	39.1%	41.1%	39.8%
	4-Bad	Count	497	252	749
		% within TERRITORY	13.6%	13.9%	13.7%
	5-Very bad	Count	132	64	196
		% within TERRITORY	3.6%	3.5%	3.6%
	Total	Count	3657	1817	5474
		% within TERRITORY	100.0%	100.0%	100.0%

Source: Authors' calculations based on EU-SILC data.

Data indicate that the shares of evaluations of *good* and *very good* are higher in evaluations by urban persons in comparison with rural persons; other evaluations are alike for urban and rural persons and by gender. The question is - does the shares of evaluations for each gradation differ statistically significantly – this aspect is evaluated by chi-square. Results of chi-square tests are included in Table 4.

Table 4

Main statistical indicators testing differences on evaluations by chi-square in urban and rural territories of self-perceived health status in Latvia in 2022

Statistical indicators	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.242[a]	4	0.000
Likelihood Ratio	20.982	4	0.000
Linear-by-Linear Association	9.702	1	0.002
N of Valid Cases	9564		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 103.41			

Source: Authors' calculations based on EU-SILC data.

Data indicate that the shares in those groups do not differ statistically significantly. Results on correlation analysis are reflected in Table 5.

Table 5

Main statistical indicators of correlation analysis on evaluations of self-perceived health status in Latvia in 2022

		GENERAL HEALTH	Gender	TERRITORY
GENERAL HEALTH	Pearson Correlation	1	0.100**	0.032**
	Sig. (2-tailed)		0.000	0.002
	N	9564	9564	9564
Gender	Pearson Correlation	0.100**	1	-0.039**
	Sig. (2-tailed)	0.000		0.000
	N	9564	9564	9564
TERRITORY	Pearson Correlation	0.032**	-0.039**	1
	Sig. (2-tailed)	0.002	0.000	
	N	9564	9564	9564
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Authors' calculations based on EU-SILC data.

Data indicate that correlation coefficients are statistically significant with high probability for all analysed aspects. Next step for analysis it was to investigate – what are the health self-esteem evaluations by persons in rural areas in Latvia. The results of evaluations by descriptive statistics are included in Table 6.
Data indicate that the evaluations of health esteem by rural persons are lower than in Latvia.

Table 6

Main statistical indicators descriptive statistics on self-perceived health status rural areas in Latvia in 2022

Statistical indicators		Values
N	Valid	3330
	Missing	0
Mean		2.71
Standard Error of Mean		0.015
Median		3
Mode		2
Standard Deviation		0.840
Range		4
Minimum		1
Maximum		5

Source: Authors' calculations based on EU-SILC data.

Data indicate that in Latvia 42.3% of inhabitants in rural territories in Latvia have evaluated their health as good, 45.1% of inhabitants have evaluated their health as very good or good, only 3.1% of inhabitants in rural territories have evaluated health as very bad.

Table 7

Distribution of evaluations on self-perceived health status in rural territories of Latvia in 2022

Evaluations	Frequency	Percent	Valid Percent	Cumulative Percent
1-Very good	93	2.8	2.8	2.8
2-Good	1410	42.3	42.3	45.1
3-Fair	1291	38.8	38.8	83.9
4-Bad	434	13.0	13.0	96.9
5-Very bad	102	3.1	3.1	100.0
Total	3330	100.0	100.0	

Source: Authors' calculations based on EU-SILC data.

Main statistical indicators on self-perceived health status in rural areas of Latvia by gender are included in Table 8.

Table 8

Main statistical indicators of descriptive statistics on self-perceived health status in rural areas by gender in Latvia in 2022

Gender	N	Mean	Standard Deviation	Standard Error Mean
Male	1513	2.64	0.833	0.021
Female	1817	2.77	0.841	0.020

Source: Authors' calculations based on EU-SILC data.

Data indicate that in rural territories male persons evaluate their health as better, but whether those evaluations are statistically different is analysed by t-test, see Table 9.

Table 9

Main statistical indicators of t-test differences in average evaluations on self-perceived health status in rural areas by gender in Latvia in 2022

Variances	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Equal variances assumed	1.594	0.207	-4.560	3328	0.000	-0.133	0.029
Equal variances not assumed			-4.565	3230.879	0.000	-0.133	0.029

Source: Authors' calculations based on EU-SILC data.

Data of results of t-test indicate that there are differences in averages of evaluations of self-esteem by male and female persons in rural territories in Latvia, but the differences in evaluations do not differ statistically significantly.

Conclusions

1. Persons' feeling about their health situation is important to keep well-being of persons and make them socially active participants of society.

2. Academic research results reflected and scientific publications indicate that there is different self-perceived health status by male and female persons as well as that they are different in rural and urban territories.

3. Data analysis results indicate that in Latvia evaluations of self-esteem in rural and urban areas do not differ statistically significantly.

4. Female and male inhabitants in rural territories in Latvia evaluations of self-perceived health status do not differ statistically significantly.

References

Andersone, L., Stacenko, S., Imasheva, B., & Muravska, T. (2021). EU – Central Asia Partnership for Conducive Business Environment and Decent Work. *European Studies: The Review of European Law, Economics and Politics*, 8(1), 83–103. Retrieved from https://econpapers.repec.org/article/vrseurstu/v_3a8_3ay_3a2021_3ai_3a1_3ap_3a83-103_3an_3a8.htm.

Behmane, D., Rutitis, D., & Batraga, A. (2021). Conceptual Framework for Attracting Foreign Patients to Health Care Services. *Eurasian Studies in Business and Economics*, 19, 259–275. DOI: 10.1007/978-3-030- 77438-7_16.

Braslina, L., Batraga, A., Legzdina, A., Salkovska, J., Kalkis, H., Skiltere, D., Braslins, G., & Bormane, S. (2020). Barriers to the Development of Regional Competitiveness in the Context of Regional Economies – EU, Latvia, Region Vidzeme Case Study. *Advances in Intelligent Systems and Computing*, 1209 AISC, 3–10. DOI: 10.1007/978-3-030-50791-6_1.

Callard, F. & Friedli, L. (2005). Imagine East Greenwich: evaluating the impact of the arts on health and well-being. *Journal of Public Mental Health*, 4(4), 29-41. DOI: 10.1108/17465729200500029.

Chan, I. Y. S. & Chen, H. (2023). Towards an integrative analysis of underground environment and human health: a survey and field measurement approach. *Engineering, Construction and Architectural Management*, DOI: 10.1108/ECAM-12-2021-1120.

Chen, X., Giles, J., Yao, Y., Yip, W., Meng, Q., Berkman, L., Chen, H., Chen, X., Feng, J., Feng, Z., Glinskaya, E., Gong, J., Hu, P., Kan, H., Lei, X., Liu, X., Steptoe, A., Wang, G., Wang, H., Wang, H., Wang, X., Wang, Y., Yang, L., Zhang, L., Zhang, Q., Wu, J., Wu, Z., Strauss, J., Smith, J., & Zhao, Y. (2022). The path to healthy ageing in China: a Peking University–Lancet Commission. *The Lancet*, 400, 10367, 1967-2006. DOI: 10.1016/S0140-6736(22)01546-X.

Danusevics, M., Braslina, L., Batraga, A., Salkovska, J., Skiltere, D., Braslins, G., & Saktina, D. (2023). Construction Challenges in Rural Areeas of Latvia: Costs, Financing and Housing Stock. *Research for Rural Development*, 38, 108–115. DOI: 10.22616/RRD.29.2023.016.

Daugėlienė, R. (2020). The Economic Specificity of US Foreign Direct Investments to Selected European Union Countries. *Eurasian Studies in Business and Economics*, 14(1), 329–348. DOI: 10.1007/978-3-030- 53536-0_22.

Gordon, K., Wilson, J., Tonner, A., & Shaw, E. (2018). How can social enterprises impact health and well-being? *International Journal of Entrepreneurial Behavior & Research*, 24(3), 697-713. DOI: 10.1108/IJEBR-01-2017-0022.

Jiang, J. & Zheng, F. (2015). Health risks, social security, and religious choice of rural residents. *China Agricultural Economic Review*, 7(3), 421-434. DOI: 10.1108/CAER-01-2013-0016.

Léveillé, S. & Chamberland, C. (2010). Toward a general model for child welfare and protection services: A meta-evaluation of international experiences regarding the adoption of the Framework for the Assessment of Children in Need and Their Families (FACNF). *Children and Youth Services Review*, 32(7), 929-944. DOI: 10.1016/j.childyouth.2010.03.009.

Lin, C.-Y. & Chou, E.-Y. (2022). Stepping up, stepping out: the elderly customer long-term health-care experience. *Journal of Services Marketing*, 36(8), 1076-1094. DOI: 10.1108/JSM-05-2021-0161.

Manthorpe, J. & Cornes, M. (2004). Intermediate Care: Older People's Involvement and Experiences. *Journal of Integrated Care*, 12(6), 43-48. DOI: 10.1108/14769018200400048.

Muravska, T. & Dyomkin, D. (2020). A tale of two recipes: Well-being policy comes to the western capitalism rescue in the (Post-) trump and (Post-) COVID-19 era. *European Studies: The Review of European Law, Economics and Politics*, 7, 19–44. Retrieved from https://science.rsu.lv/en/publications/a-tale-of-two-recipes-well-being-policy-comes-to-the-western-capi.

Reisinezhad, P. & Fakhrahmad, M. (2023). Induction of knowledge, attitude and practice of people toward a pandemic from Twitter: a comprehensive model based on opinion mining. *Kybernetes*, 52(7), 2507-2537. DOI: 10.1108/K-05-2022-0758.

Romanova, I., Grima, S., Spiteri, J., & Kudinska, M. (2018). The Payment Services Directive II and Competitiveness: The Perspective of European Fintech Companies. *European Research Studies Journal*, 21(2), 3–22. DOI: 10.35808/ersj/981.

Salkovska, J., Batraga, A., Kaibe, L., & Kellerte, K. (2023). Use of Artificial Intelligence in the Digital Marketing Strategy of Latvian Companies. *Lecture Notes in Networks and Systems*, 694, 785–797. DOI: 10.1007/978-981-99-3091-3_64.

Seimuskane, L., Vilka, I., & Brekis, E. (2017). *Assessment of Socio-Economic Status Relevance for Latvian Electoral Participation*. Local Government and Urban Governance in Europe, 209–232. DOI: 10.1007/978-3-319-43979-2_11.

Secker, J., Spandler, H., Hacking, S., Kent, L., & Shenton, J. (2007). Empowerment and arts participation for people with mental health needs. *Journal of Public Mental Health*, 6(4), 14-23. DOI: 10.1108/17465729200700024.

Sergejeva, N. & Zeidmane, A. (2023). Factors Influencing Student Initiative in Effective Mathematics Studies at Universities. *Research for Rural Development*, 38, 291–298. DOI: 10.22616/RRD.29.2023.041.

Solin, P. C. M., Reinikainen, J., Martelin, T., & Tamminen, N. (2019). Predicting high and low levels of positive mental health among people living alone in the Lapland region of Finland. *Journal of Public Mental Health*, 18(4), 214-223. DOI: 10.1108/JPMH-02-2019-0026.

Sun, F. & Li, C. (2022). A comprehensive evaluation method and application of shield tunnel structure health based on variable weight theory. *International Journal of Structural Integrity*, 13(3), 394-410. DOI: 10.1108/IJSI-12-2021-0128.

Šimanskienė, L., Labanauskaitė, D., & Montvydaitė, D. (2022). The Behaviour of Travellers in the Transition to Responsible Tourism: The Case of the Baltic Sea Region. *Business: Theory and Practice*, 23(1), 187–197. DOI: 10.3846/btp.2022.16151.

YahiaMarzouk, Y. & Jin, J. (2023). Renew or die amidst COVID-19: investigating the effect of organizational learning culture on strategic renewal through strategic reconfiguration and digital transformation. *Journal of Organizational Change Management*, 36(5), 777-811. DOI: 10.1108/JOCM-02-2023-0041.

Yusif, S., Hafeez-Baig, A., & Soar, J. (2020). A model for evaluating eHealth preparedness – a case study approach. *Transforming Government: People, Process and Policy*, 14(3), 561-587. DOI: 10.1108/TG-07-2019-0069.

Wang, X. & Lu, J. (2017). Health and health care disparities among women in mainland China. *Asian Education and Development Studies*, 6(2), 166-178. DOI: 10.1108/AEDS-01-2016-0003.

Zhang, M., Yang, H., Yan, Z., & Jia, L. (2023). Value creation for online collaboration between doctors and medical institutions: empirical evidence from online health communities. *Internet Research*, DOI: 10.1108/INTR-09-2022-0723.

Zhang, Z., Wang, M., Xu, Z., Ye, Y., Chen, S., Pan, Y., & Chen, J. (2021). The influence of Community Sports Parks on residents' subjective well-being: A case study of Zhuhai City, China. *Habitat International*, 117, 102439. DOI: 10.1016/j.habitatint.2021.102439.