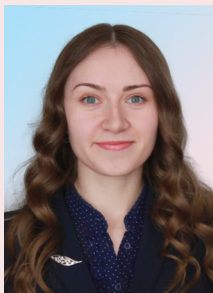


Personal Health Resources of the Population of a Russian Region: Impact Assessment and Typology



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Abstract. The lack of a well-established healthy lifestyle model among most Russians, combined with insufficient personal responsibility for one's own health, calls for a closer look at internal (protective) factors. This study seeks to assess the influence of salutogenic factors on health indicators and to identify population types according to the degree of their expression. The empirical base draws on the sociological monitoring of the physical health of the Vologda Region population conducted in 2026 (N = 1,500). A review of international and Russian research on the impact of salutogenic factors on health shows that their relationship with physical health and overall health remains underexplored. Using factor analysis of the survey data, we identify three salutogenic factors: "self-sufficiency and sociability", "striving for knowledge and development", and "passivity and externality". We then design logistic regression models in which the dependent variables are good self-rated health, the presence of chronic diseases, and sickness absence from work, while the independent variables include the salutogenic factors alongside socio-demographic, socio-economic, and behavioral indicators. To test the assumption that salutogenic factors affect health indirectly through health self-care, we also design a separate logistic model with health self-care as an independent variable. No statistically significant association is found between salutogenic factors and self-rated health; however, all three factors are associated with the presence of chronic diseases, self-sufficiency and sociability is associated with sickness absence from work, and striving for knowledge and development and passivity and externality are associated with health self-care. Three population

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types are identified according to the expression of salutogenic health factors: “cognitively deficient type”, “salutogenic-resource type”, and “socially inert type”. Their distinct profiles make it possible to treat them as new target groups for health protection policy.

Key words: salutogenic health factors, self-rated health, presence of chronic diseases, sickness absence from work, health self-care, sociological survey, Vologda Region.

Introduction

An important objective of state policy in the field of population preservation is to foster the active maintenance of health and raise health consciousness. This is reflected in the national project “Long and Active Life”, particularly in the federal project “Health for Everyone”, which includes an increase in the share of those maintaining a healthy lifestyle among its target indicators¹. However, the successful implementation of this objective is hindered by the underdeveloped responsibility toward health among Russians and low healthy lifestyle rates. Studies show that most citizens follow an “irresponsible” behavior pattern, giving up or reducing alcohol and tobacco consumption but not paying attention to a balanced diet, sufficient sleep, physical and medical activity (Aksenova et al., 2023), and such patterns are formed at a young age. A.A. Orekhov and A.B. Zakharov confirmed based on data from the longitudinal study “Educational and Professional Trajectories” that only 36% of Russian youth have adopted a healthy lifestyle, 27% of young respondents are prone to harmful habits, 37% are neutral (Orekhov, Zakharov, 2026). Also, there is a gap between the recognition of personal responsibility for health (and its declaration) by the majority and the relatively low rate of adoption of health-maintaining practices (Shabunova et al., 2021). This points up the issues of health consciousness (connected with the sense of agency), which is determined by the mature understanding of health phenomenology, a healthy

lifestyle, health-promoting behavior, and personality

traits (Poluektova, Smirnova, 2016). The sense of agency regarding health manifests in recognizing it as a supreme life value, understanding its role in ensuring life effectiveness, in being aware of health and a healthy lifestyle, in knowing threats to the health, in examining it regularly, in understanding the ways to recover and develop it, in choosing strategies to support and regulate it. (Poluektova, Smirnova, 2016). This position aligns with the principles of the increasingly popular salutogenesis and salutogenic design framework, which focuses on active attitude toward life and health, as well as on individual’s awareness of the importance of his or her own resources for maintaining health and the ability to manage them. This area of research is concerned with protective factors that determine physical and mental health under insufficiently favorable external conditions (Zhuravleva, 2025). Salutogenic factors may be psychological in nature (e.g., optimism as a personality trait), related to the social environment (social support), or even linked to the physical environment (lighting levels, green spaces, etc.) (Tville et al., 2025). This article puts emphasis on internal (personal) salutogenic factors.

The aim of the study was to assess the influence of salutogenic factors on health indicators and to classify population by them. To achieve this aim, the following objectives were set: 1) to analyze international and Russian research on the influence of salutogenic factors on health; 2) to identify

¹ Long and Active Life: National Project. Government of Russia. Available at: <http://government.ru/rugovclassifier/917/about>

key salutogenic health factors based on a survey; 3) to determine the influence of salutogenic factors, along with other factors, on health indicators; 4) to identify groups with varying degrees of salutogenic factor expression and their distinctive characteristics.

Theoretical and methodological aspects

The founder of the concept of salutogenesis and salutogenic (protective) factors is the medical sociologist A. Antonovsky. He considered the leading salutogenic factor to be the sense of coherence (SOC), which reflects an individual's resilience to psychological crises, social conflicts, and potential mechanisms of illness (Zhuravleva, 2025). A strong SOC helps mobilize resources to overcome stressors and successfully relieve tension. It manifests in one's confidence that the internal and external environment is predictable and that, with a high degree of probability, things will turn out as one might reasonably expect (Mittelmark et al., 2022). In Antonovsky's framework, the SOC is based on three components: comprehensibility (perceiving the world as structured and predictable), manageability (confidence that problems can be overcome using both internal and external resources), and meaning (viewing problems as challenges to be met rather than avoided; emotional engagement with what is happening around) (Osin, 2007; Zhuravleva, 2025). Antonovsky developed an original instrument – the 29-item SOC scale – that measures all three components (Antonovsky, 1988). This scale, in various modifications, is widely used in medico-sociological research. For instance, the scale has been found to show moderate to high correlations with various indicators of mental and somatic health; high negative correlations with anxiety; moderate correlations with depression, perceived stress, burnout, and neuroticism; high positive correlations with optimism, meaning in life, and life satisfaction; moderate positive correlations with positive affect, hardiness, internal locus of control, self-efficacy, and self-esteem (Osin, 2007).

Table 1 presents the results of contemporary empirical studies assessing the influence of salutogenic factors on the physical, mental, and public health. Most of these studies employ quantitative cross-sectional designs, while systematic reviews, longitudinal studies, and qualitative research are used less frequently. The relationship between salutogenic factors, psychological well-being and mental health is most commonly examined, whereas links to objective and subjective indicators of physical or overall health are less often investigated. Salutogenic factors are predominantly measured using questionnaires that assess the SOC, its key components, or related characteristics (authenticity, motives, trust, cohesion, etc.), while objective statistical indicators are used less often. Health outcomes include measures of mental health (overall state, stress and burnout levels, symptoms of anxiety and depression, etc.), physical health (physical functioning, disease symptoms, disability, sleep quality, etc.), and social health (quality of life and life satisfaction, social well-being), as well as behavioral indicators and self-rated health.

In general, findings show a direct relationship between salutogenic factors and health status, especially mental health: higher levels of sense of coherence are associated with better self-rated health, fewer symptoms of ill-health, higher psychological well-being, and consequently, better quality of life. However, some studies confirm a more complex nature of this relationship, including with physical outcomes, due to the mediating influence of other factors – socio-demographic (gender, age), socio-economic (income and inequality levels), behavioral, and others.

Despite increased attention to this issue, gaps remain due to the heterogeneity of the indicators used and insufficient study of mediating mechanisms, requiring further development, especially in the context of influence on health, including its subjective perception.

Table 1. Research on salutogenic health factors (mental, physical, social)

Reseachers	Salutogenic factors and health indicators	Method	Findings (relationship between salutogenic factors and health indicators)
K.A. Bochaver, A.B. Danilov, S.K. Nartova-Bochaver et al. (2019)	<u>Factors:</u> - personal authenticity (genuineness/realness); - moral motives (diligence, support, social justice, social order); <u>health indicator</u> – professional/emotional burnout, burnout index	Survey of physicians (N=700) in 10 Russian regions; questionnaires – “Model of Moral Motivations” scale, authenticity of personality scale, Maslach Burnout Inventory, biographical questionnaire	- Mutual influence of salutogenic factors and burnout indicators confirmed: on the one hand, burnout is detrimental to personal authenticity (the stronger the physician’s burnout, the more they are alienated from themselves and behave unnaturally and disharmoniously, and authenticity decreases); on the other hand, low authenticity, high self-alienation, and susceptibility to external influences are associated with signs of burnout; - relationship found between moral motives and burnout: self-restraint negatively associated with depersonalization (alienation from patients) and positively with reduction of accomplishments (anxious doubts about the professional path); diligence and non-maleficence negatively associated with depersonalization and burnout, and positively with reduction of accomplishments; helping and honesty positively associated with reduction of accomplishments, negatively with burnout; social justice negatively associated with depersonalization and burnout
Mana A., Super S., Sardu C. et al. (2021)	<u>Factors:</u> - individual resources (SOC); - social resources (social support); - national resources (sense of national coherence, or SONC, and trust in governmental institutions); <u>health indicators</u> – levels of mental health and anxiety during the COVID-19 pandemic	Survey of individuals aged 18–88 in Israel (N=640), Netherlands (N=622), Italy (N=924), Spain (N=489); questionnaires assessing anxiety disorder, mental health, SOC, SONC, trust in governmental institutions, social support; ANOVA, hierarchical regression	Individual and national coping resources influence levels of anxiety and mental health; the patterns of the coping resources in explaining anxiety and mental health were similar in the four samples, and SOC was the main predictor of these outcomes; different patterns and predictive values of coping resources were found for the two different reactions: anxiety vs. mental health; while SOC and situational factors (e.g., state of health and financial threat) were significant in explaining anxiety levels, the SOC and national resources were found as significant in explaining mental health levels
Pijpker R., van der Kamp D., Vader S., den Broeder L., Wagemakers A. (2022)	<u>Factors:</u> - SOC; - sense of community coherence (SOCC); - sense of national coherence (SONC); - social support; - demographic indicators (gender, age, religion, and COVID-19 experience); <u>health indicator</u> – mental health	Online survey (N=91); t-test for independent samples; multiple linear regression analysis	Both SOC and SOCC influenced mental health during the pandemic; people who perceived their community as comprehensible, manageable, and meaningful demonstrated higher mental health levels than those who did not; no difference in mental health, SOC, SOCC, SONC, and social support between low and high socio-economic status groups; SOC predicted good levels of mental health in both groups, and SOCC predicted mental health in the low socio-economic status group

Continuation of Table 1

Reseachers	Salutogenic factors and health indicators	Method	Findings (relationship between salutogenic factors and health indicators)
Tušl M., de Bloom J., Bauer G.F. (2022)	<u>Factors:</u> - SOC; - off-job crafting (OJC, activities during leisure time); <u>health indicator</u> – mental well-being (MWB)	Online questionnaire – three-wave longitudinal panel design (wave 1 N=2217, wave 2 N=1727, wave 3 N=1196); cross-lagged panel model	Confirmed that OJC partially mediates the relationship between SOC and MWB; a positive reciprocal relationship found between SOC and MWB, as well as between OJC and MWB; OJC is one mechanism underlying the recently postulated path of positive health development in the salutogenic model; promoting SOC and OJC may help to strengthen individual well-being and lead to positive feedback loops that foster personal development and thriving
Lv J., Qian M., Deng M., Yu M. (2023)	<u>Factors:</u> SOC; <u>health indicators:</u> - physical (number of symptoms, functional status, disability, daily activity ability, pain, sleep quality, oral health); - psychological (perceived stress, self-perception of aging, depression, posttraumatic stress reaction); - social (subjective well-being, life satisfaction, quality of life, adjustment to aging later in life, etc.)	Systematic review (29 studies – 1 longitudinal, 1 cohort, 27 cross-sectional)	- Higher SOC levels are associated with better physical health (less symptom reporting, better functional status, less disability, better daily activity ability, less pain, better sleep quality, and better oral health) and better psychological health (less perceived stress, more positive self-perception of aging, less depression, and less posttraumatic stress reaction) in older adults; - higher SOC levels are also correlated with greater preventive/self-management behaviors ability, subjective well-being, adjustment to aging later in life, cumulative survival, quality of life, life satisfaction, and self-perceived health
Lee H.-P., Hsu W.-Y., Liu Y.-H. et al. (2024)	<u>Factors:</u> SOC as a mediator between different functional status classes and health-related quality of life (HRQOL) in patients with heart failure (HF); <u>health indicators:</u> functional status classes of patients with HF (I–IV)	Cross-sectional study on patients with HF in April-September 2020 (N=295); questionnaires identifying SOC, functional classification of patients with HF	- SOC was found to mediate the effects of functional status on HRQOL more significantly in patients in Class II than those in Class III but not more significantly in patients in Class I than those in Class III; - a weaker mediating effect of SOC was noted on the relationship between functional status and HRQOL in patients with HF in Class II than those in Class III

End of Table 1

Reseachers	Salutogenic factors and health indicators	Method	Findings (relationship between salutogenic factors and health indicators)
Alkharafi N. (2025)	<u>Factors:</u> - comprehensibility indicator (percentage of the population using the internet); - manageability indicator (industry value added); - meaningfulness indicator (subjective well-being); - GDP; - regulatory quality of government; - income level; <u>health indicator</u> – life expectancy	Panel regression with fixed effects; dataset of 135 countries for the period 2017–2020 with 501 observations across all regions and income levels	- Sense of coherence affects population health worldwide, regardless of income level; - no evidence that comprehensibility is positively associated with life expectancy; - the relationship between manageability and meaningfulness with life expectancy varies by income level; upper-middle income countries need to focus on manageability and meaningfulness to improve population health, as industry and subjective well-being positively affect life expectancy; in low and lower-middle income countries, subjective well-being is particularly important; - in high income countries, policies aimed at increasing manageability are associated with increased life expectancy; - policies aimed at meaning in life are associated with life expectancy regardless of income level
Matić I., Vuletić G. (2025)	<u>Factors:</u> SOC; <u>health indicators:</u> general health status; functional physical status; mental health status; vitality (hardiness); social functioning; emotional functioning	Longitudinal cohort study – survey of adolescents aged 15 (N=441) and 17 (N=354); hierarchical regression	- Strong significant positive correlation found between SOC and mental health, and significant difference between adolescents with low and high SOC in physical functioning, general health, vitality, social functioning, emotional role functioning and mental health; - boys had higher SOC and most of the health dimensions; - having a stronger SOC, being male, and living with both parents were predictors of better mental health
Urzúa A., Henríquez D., Caqueo-Urizar A. et al. (2025)	<u>Factors:</u> SOC; <u>health indicators:</u> lifestyle, family and friends, physical and social activity, nutrition, smoking, alcohol/other drugs, sleep and stress, personality type and school/job satisfaction, self-image, health and sexuality management, order/other behaviors	Survey of migrants living in Chile (N=1844); SOC and FANTASTICO questionnaires.	SOC was positively correlated with lifestyle in the migrant population, with the meaning component having the strongest association; factors mediating the relationship between SOC and healthy lifestyle were identified: sex, age, years living in the country, country of origin, income, educational level and city of residence
Compiled based on: (Bochaver et al., 2019; Mana et al., 2021; Pijpker et al., 2022; Tušl et al., 2022; Lv et al., 2023; Lee et al., 2024; Alkharafi, 2025; Matić, Vuletić, 2025; Urzúa et al., 2025).			

I.V. Zhuravleva, summarizing research experience in salutogenesis, provides an expanded list of salutogenic (protective) personal factors that positively influence human health: sociability and willingness to cooperate; self-confidence; active attitude toward life and sense of responsibility; high level of intelligence and creativity; self-esteem; increased internal locus of control (internality), which is associated with a sense of responsibility for one's health (Zhuravleva, 2025). All of these correspond to the key components of the salutogenic model – comprehensibility, manageability, and meaning – and can be applied in national and regional studies.

This study examines several assumptions about the role of salutogenic factors in health: salutogenic factors contribute to improved self-rated health, reduced probability of chronic diseases and sickness absence from work; their impact on subjective health indicators is mediated by behavioral patterns, particularly care for health.

Materials and methods

The information base for this study was the results of sociological monitoring of the physical health in the Vologda Region². The 2026 monitoring questionnaire contained a question on the intensity of salutogenic factors. Its design was based on I.V. Zhuravleva's classification (*Tab. 2*). Respon-

Table 2. Distribution of responses to the question: "Please rate your agreement with the following statements. Select one option per line on a 5-point scale from 1 – completely disagree to 5 – completely agree", %

Factor	Statement for evaluation / Variable	Distribution of responses*		
		1, 2 points (disagree)	3 points	4, 5 points (agree)
Sociability and cooperative attitude	1. I get on well with new people	11.6	19.8	68.6
	2. I don't mix well	60.3	21.6	18.1
Self-confidence	3. I am capable of handling difficulties on my own	14.6	25.8	59.6
	4. I often rely on the help of others in difficult situations	47.0	29.0	23.9
Active attitude toward life	5. I always set new goals for myself	20.2	26.6	53.2
	6. I rarely use my initiative	51.0	26.1	22.8
Intelligence and creativity	7. I can easily analyze large amounts of information and draw logical conclusions	19.9	27.0	53.1
	8. I prefer not to "overload my head", to act out of habit	36.6	33.3	30.1
	9. I find it difficult to come up with something new, to find non-standard solutions	40.1	31.1	28.7
	10. I constantly strive for new knowledge and often find non-standard solutions	26.4	29.2	44.3
Self-respect	11. I respect myself regardless of circumstances	7.3	17.6	75.1
	12. I often find it difficult to assert my boundaries	41.4	32.0	26.7
Locus of control	13. I am responsible for my own life and health	5.4	18.5	76.2
	14. My life largely depends on external circumstances	25.8	41.1	33.2
* 100% is the sum in the row. Source: own compilation.				

² Survey method – handout questionnaire. Sample size – 1500 respondents. The survey was conducted in the cities of Vologda, Cherepovets, and 8 districts/okrugs of the Vologda Region (Babayevsky, Velikoustyugsky, Vozhegodsky, Gryazovetsky, Kirillovsky, Nikolsky, Tarnogsky, Sheksninsky). The sample was purposive, quota-based. Representativeness was ensured by maintaining proportions between urban and rural populations, proportions between residents of different settlement types (rural settlements, small and medium-sized cities), and proportions of the gender-age structure of the adult population of the region. The sampling error does not exceed 5%. Technical data processing was performed using SPSS and Excel.

dents were asked to rate their agreement with statements on a 5-point scale, which indirectly characterize the intensity of salutogenic factors. Table 2 shows the distribution of responses to this question.

The first stage of the study employed *factor analysis* to identify the main salutogenic factors by reducing the number of original variables. Principal component analysis was chosen as the dimensionality reduction method, Varimax with Kaiser normalization was used for rotation. The choice of principal component analysis was primarily driven by the need for variable reduction rather than the assessment of latent factors (e.g., in maximum likelihood estimation), as the original indicators were theoretically based on the concept of salutogenesis. In the second stage, binary logistic regression was used to study the influence of the identified salutogenic factors on health indicators. To characterize the health status, we used well-established subjective health indicators such as self-rated health, presence of chronic diseases, and sickness absence from work. Self-rated health is a generalized indicator of health status, reflecting various physical and mental components of well-being and providing an overall picture of current health (Kozyreva, Smirnov, 2020). However, self-rated health is subject to non-random measurement error and heterogeneity resulting from a range of indirect conditions and situational factors (Kuz'mich, Roshchin, 2008; Kaneva, Baidin, 2018). Indicators of chronic disease presence and sickness absence from work are more objective in this regard. Therefore, the *dependent variables* in this study were binary variables representing all three indicators: 1) *good self-rated health* (1 – very good, good; 0 – so-so, poor, very poor); 2) *presence of chronic diseases* (1 – have chronic diseases; 0 – do not have chronic diseases); 3) *sickness absence from work* (1 – missed workdays due to sickness during the year (with or without sick leave); 0 – did not miss workdays due to sickness).

Alongside the identified salutogenic factors, *independent variables* included socio-demographic and socio-economic indicators: age, gender, marital status (married/not married), income level (high/medium/low), education (incomplete and complete secondary/secondary technical or vocational/higher and postgraduate), accessibility of medical care in public and private healthcare facilities (high/medium/low/services unavailable), territory of residence (urban/rural), employment status (employed/unemployed), as well as behavioral factors: care for health (yes/ little or no care), smoking (yes/no), alcohol consumption (yes/no), refusal to do physical exercises (exercise/not exercise), non-adherence to a nutrition regimen (follow/not follow a nutrition regimen). Additionally, we constructed a separate logistic model with care for health as the dependent variable, keeping the same set of predictors. This decision was based on the assumption that care for health may mediate the relationship between salutogenic factors and health indicators. The presence of chronic diseases was additionally included as an independent variable in the models of good self-rated health, sickness absence from work, and care for health. The odds ratio (OR) with 95% confidence intervals (CI) was used as a measure of the influence of various factors on health indicators (Kislitsyna, 2023).

Cluster analysis was used to identify respondent groups based on the intensity of salutogenic factors. First, hierarchical clustering (Ward's method on a random sample of 50 observations; distance measure – squared Euclidean distance) was conducted to determine the number of clusters. Then, iterative k-means cluster analysis was carried out, and the resulting final cluster centers were used to interpret the identified groups and analyze descriptive statistics.

Data analysis and processing were carried out using IBM SPSS Statistics 22.

Findings

Factor analysis identified 3 components reflecting key salutogenic factors of health, which together explain 55% of the total variance. The obtained characteristics allowed interpreting them as follows: factor 1 “self-sufficiency and sociability”, factor 2 “striving for knowledge and development”, and factor 3 “passivity and externality”. The identified factors generally

align with Antonovsky’s components of sense of coherence: factor 1 corresponds to meaning, factor 2 to comprehensibility, and factor 3 represents a reverse version of manageability (*Tab. 3*).

Preliminary checks for multicollinearity among independent variables showed its absence³, allowing their inclusion in the regression models. The set of variables used for modeling and their prevalence in the sample are presented in the Appendix.

Table 3. Key salutogenic factors identified through factor analysis*

Statement	Component (factor) name		
	Factor 1 Self-sufficiency and sociability (meaning)	Factor 2 Striving for knowledge and development (comprehensibility)	Factor 3 Passivity and externality (reverse to manageability)
I am responsible for my own life and health	0.718		
I don't mix well	-0.671		
I respect myself regardless of circumstances	0.659		
I get on well with new people	0.610		
I am capable of handling difficulties on my own	0.584		
I constantly strive for new knowledge and often find non-standard solutions		0.838	
I always set new goals for myself		0.799	
I can easily analyze large amounts of information and draw logical conclusions		0.772	
I prefer not to “overload my head”, to act out of habit			0.662
My life largely depends on external circumstances			0.633
I often find it difficult to assert my boundaries			0.626
I rarely use my initiative			0.546
I often rely on the help of others in difficult situations	-0.523		0.526
I find it difficult to come up with something new, to find non-standard solutions			0.505
*Factor loadings > 0.5 are shown. Preliminary checks confirmed data suitability for factor analysis: the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.861, indicating a high degree of suitability for factor analysis. Bartlett’s test of sphericity confirmed the presence of substantial correlations between variables and justified factor analysis ($\chi^2 = 6984.462$; $df = 91$; $p < 0.001$). Source: own compilation.			

³ Correlations between independent variables < 0.5. Multicollinearity check within test linear regression: VIF < 5.

The logistic regression model on good self-rated health showed that age, high income level, territory of residence, smoking, refusal to do physical exercises, and the presence of chronic diseases are significantly associated with it (*Tab. 4*). The likelihood of good self-rated health increases with high income levels (3-fold) and urban residence (1.5-fold), while decreases with age (by 6% annually), the presence of chronic diseases

(by 82%), and behavioral risk factors – smoking (by 47%) and refusal to do physical exercises (by 30%).

Notably, the influence of all three salutogenic factors in this model was statistically insignificant. This could be due to issues of bias and heterogeneity in self-assessment, or to a more complex nature of their relationship (non-linear and/or mediated by other factors).

Table 4. Good self-rated health logistic regression model, accounting for salutogenic factors (dependent variable – good self-rated health: 1 – very good, good; 0 – so-so, poor, very poor)

Variable	B	p-value	OR	95% CI
Age	-0.062	0.000	0.940	[0.929–0.950]
Gender (male vs female)	-0.032	0.839	0.969	[0.717–1.314]
Marital status (married vs single)	0.243	0.127	1.275	[0.933–1.743]
Income level:				
high vs low	1.082	0.000	2.950	[1.780–4.888]
medium vs low	0.144	0.488	1.155	[0.768–1.737]
Education:				
secondary technical or vocational vs incomplete and complete secondary	0.001	0.996	1.001	[0.558–1.797]
higher and postgraduate vs incomplete and complete secondary	-0.005	0.988	0.995	[0.535–1.852]
Territory of residence (urban vs rural)	0.427	0.015	1.533	[1.088–2.161]
Employment (employed vs unemployed)	0.145	0.446	1.157	[0.796–1.681]
Accessibility of medical care in public healthcare facilities:				
high vs services unavailable	0.425	0.369	1.530	[0.605–3.867]
medium vs services unavailable	-0.309	0.491	0.734	[0.305–1.768]
low vs services unavailable	-0.543	0.237	0.581	[0.236–1.429]
Accessibility of medical care in private healthcare facilities:				
high vs services unavailable	0.018	0.958	1.018	[0.529–1.959]
medium vs services unavailable	0.179	0.583	1.196	[0.632–2.263]
low vs services unavailable	0.644	0.072	1.905	[0.944–3843]
Alcohol consumption (yes vs no)	0.179	0.284	1.196	[0.862–1.658]
Smoking currently (yes vs no)	-0.643	0.000	0.526	[0.368–0.752]
Refusal to do physical exercises (yes vs no)	-0.362	0.045	0.697	[0.489–0.992]
Non-adherence to a nutrition regimen	0.152	0.421	1.164	[0.804–1.686]
Care for health (yes vs little or no care)	0.313	0.053	1.368	[0.996–1.880]
Chronic disease presence (have vs do not have)	-1.688	0.000	0.185	[0.116–0.295]
Factor 1 “Self-sufficiency and sociability”	0.072	0.340	1.075	[0.927–1.247]
Factor 2 “Striving for knowledge and development”	-0.072	0.377	0.931	[0.793–1.092]
Factor 3 “Passivity and externality”	0.059	0.409	1.061	[0.922–1.221]

Note: The Hosmer – Lemeshow test indicated that the model fits the real data well ($\chi^2 = 4.838$; $df = 8$; $p = 0.775$). 77% of observations were correctly predicted.

Source: own calculation and compilation.

In the second model, with chronic disease presence as the dependent variable, significant associations were found for age, education, employment, care for health, and all three salutogenic factors (*Tab. 5*). The probability of chronic diseases increases with age (by 6% annually), secondary vocational/technical and higher education (2.2 and 3.9-fold respectively), and care for health (by 61%), while employment decreases it (by 33%).

All three salutogenic factors were found to be significantly associated with the presence of chronic diseases: factors 1 “self-sufficiency and sociability” and 2 “striving for knowledge and development” decrease the probability of developing them (by 18% and 30% respectively), whereas factor 3 “passivity and externality” increases it (by 21%).

According to the results of the third model on sickness absence from work, significant associations were found with gender, territory of residence,

Table 5. Chronic diseases logistic regression model, accounting for salutogenic factors
(dependent variable – chronic disease presence: 1 – have diseases, 0 – do not have diseases)

Variables	B	p-value	OR	95% CI
Age	0.056	0.000	1.058	[1.044–1.072]
Gender (male vs female)	-0.140	0.420	0.870	[0.619–1.221]
Marital status (married vs single)	-0.087	0.599	0.916	[0.662–1.269]
Income level:				
high vs low	0.090	0.735	1.094	[0.649–1.845]
medium vs low	0.052	0.796	1.053	[0.711–1.559]
Education:				
secondary technical or vocational vs incomplete and complete secondary	0.805	0.035	2.237	[1.059–4.724]
higher and postgraduate vs incomplete and complete secondary	1.371	0.001	3.939	[1.797–8.637]
Territory of residence (urban vs rural)	0.145	0.415	1.156	[0.816–1.638]
Employment (employed vs unemployed)	-0.398	0.041	0.672	[0.459–0.983]
Accessibility of medical care in public healthcare facilities:				
high vs services unavailable	-0.290	0.561	0.748	[0.281–1.990]
medium vs services unavailable	-0.463	0.325	0.630	[0.250–1.583]
low vs services unavailable	-0.094	0.845	0.911	[0.357–2.323]
Accessibility of medical care in private healthcare facilities:				
high vs services unavailable	-0.312	0.303	0.732	[0.404–1.326]
medium vs services unavailable	-0.048	0.870	0.953	[0.536–1.694]
low vs services unavailable	0.198	0.539	1.219	[0.648–2.296]
Alcohol consumption (yes vs no)	-0.184	0.286	0.832	[0.593–1.167]
Smoking currently (yes vs no)	0.152	0.471	1.164	[0.770–1.759]
Refusal to do physical exercises (yes vs no)	0.307	0.159	1.359	[0.886–2.084]
Non-adherence to a nutrition regimen (yes vs no)	0.364	0.086	1.440	[0.950–2.180]
Care for health (yes vs little or no care)	0.478	0.007	1.613	[1.140–2.282]
Factor 1 “Self-sufficiency and sociability”	-0.201	0.012	0.818	[0.699–0.957]
Factor 2 “Striving for knowledge and development”	-0.363	0.000	0.696	[0.590–0.821]
Factor 3 “Passivity and externality”	0.187	0.019	1.206	[1.031–1.411]
Note: The Hosmer – Lemeshow test indicated that the model fits the real data well ($\chi^2 = 11.425$; $df = 8$; $p = 0.179$). 80% of observations were correctly predicted.				
Source: own calculation and compilation.				

employment, accessibility of private medical services, care for health, and one of the three salutogenic factors (Tab. 6). The probability of sickness absence from work is higher (11-fold) for those who are employed, have chronic diseases (5.5-fold), and live in urban areas (2-fold). Additionally, medium accessibility of private medical services (2.4-fold) and care for health (1.4-fold) significantly increase this probability. Men are 33% less likely

to miss work due to illness compared to women. Self-sufficiency and sociability also decrease this probability (by 19%), while the influence of the other two salutogenic factors was not significant.

The additional model, with care for health as the dependent variable, showed statistically significant associations with gender, income level, education, accessibility of medical care, behavioral

Table 6. Sickness absence from work logistic regression model, accounting for salutogenic factors (dependent variable – sickness absence from work: 1 – missed workdays due to sickness; 0 – did not miss workdays due to sickness)

Variable	B	p-value	OR	95% CI
Age	-0.004	0.599	0.996	[0.982–1.010]
Gender (male vs female)	-0.415	0.016	0.661	[0.472–0.925]
Marital status (married vs single)	0.376	0.040	1.457	[1.018–2.085]
Income level:				
high vs low	-0.472	0.088	0.624	[0.362–1.073]
medium vs low	-0.379	0.098	0.685	[0.437–1.073]
Education:				
secondary technical or vocational vs incomplete and complete secondary	0.094	0.801	1.098	[0.529–2.278]
higher and postgraduate vs incomplete and complete secondary	-0.075	0.847	0.928	[0.434–1.983]
Territory of residence (urban vs rural)	0.681	0.001	1.975	[1.321–2.953]
Employment (employed vs unemployed)	2.426	0.000	11.310	[6.335–20.190]
Accessibility of medical care in public healthcare facilities:				
high vs services unavailable	-0.267	0.561	0.765	[0.310–1.877]
medium vs services unavailable	-0.382	0.377	0.682	[0.292–1.593]
low vs services unavailable	-0.549	0.217	0.577	[0.241–1.381]
Accessibility of medical care in private healthcare facilities:				
high vs services unavailable	0.547	0.191	1.727	[0.761–3.920]
medium vs services unavailable	0.896	0.026	2.449	[1.113–5.387]
low vs services unavailable	0.413	0.346	1.511	[0.641–3.566]
Alcohol consumption (yes vs no)	0.217	0.250	1.242	[0.859–1.795]
Smoking currently (yes vs no)	0.265	0.186	1.304	[0.880–1.931]
Refusal to do physical exercises (yes vs no)	-0.041	0.836	0.960	[0.651–1.415]
Non-adherence to a nutrition regimen (yes vs no)	-0.198	0.332	0.821	[0.550–1.224]
Care for health (yes vs little or no care)	0.363	0.047	1.438	[1.004–2.058]
Chronic disease presence (have vs do not have)	1.707	0.000	5.512	[3.597–8.446]
Factor 1 “Self-sufficiency and sociability”	-0.209	0.016	0.812	[0.685–0.961]
Factor 2 “Striving for knowledge and development”	-0.078	0.392	0.925	[0.775–1.105]
Factor 3 “Passivity and externality”	0.130	0.102	1.139	[0.975–1.332]
Note: The Hosmer – Lemeshow test indicated that the model fits the real data well ($\chi^2 = 5.490$; $df = 8$; $p = 0.704$). 80% of observations were correctly predicted.				
Source: own calculation and compilation.				

risk factors (alcohol consumption, smoking, refusal to do physical exercises, non-adherence to a nutrition regimen), presence of chronic diseases, and two salutogenic factors (Tab. 7). The likelihood of care for health is increased by the presence of chronic diseases (1.5-fold), high income compared to low (1.6-fold), secondary vocational/technical and higher education compared to incomplete/complete secondary (over 2-fold), high and medium accessibility of medical care in public facilities compared to complete unavailability (over 3-fold). Additionally, alcohol consumption is associated

with higher probability of care for health (1.4-fold), which could be related to concomitant health problems; however, this was not confirmed in the models on self-rated health or chronic disease presence, requiring further investigation. The probability of care for health is lower among men (by 42%) and those with behavioral risk factors – smokers (by 57%), those not adhering to a nutrition regimen (by 63%), and those not doing physical exercises (by 70%). Medium and low accessibility of private medical services reduces the likelihood of care for health more than 2-fold.

Table 7. Care for health logistic regression model, accounting for salutogenic factors
(dependent variable – care for health: 1 – yes; 0 – little or no care)

Variable	B	p-value	OR	95% CI
Age	0.008	0.097	1.008	[0.998–1.018]
Gender (male vs female)	-0.547	0.000	0.579	[0.437–0.767]
Marital status (married vs single)	0.284	0.051	1.328	[0.999–767]
Income level:				
high vs low	0.496	0.035	1.643	[1.035–2.608]
medium vs low	-0.210	0.241	0.810	[0.570–1.151]
Education:				
secondary technical or vocational vs incomplete and complete secondary	0.813	0.005	2.255	[1.285–3.960]
higher and postgraduate vs incomplete and complete secondary	0.782	0.009	2.186	[1.211–3.946]
Territory of residence (urban vs rural)	-0.171	0.273	0.843	[0.621–1.144]
Employment (employed vs unemployed)	-0.102	0.544	0.903	[0.648–1.257]
Accessibility of medical care in public healthcare facilities:				
high vs services unavailable	1.293	0.002	3.644	[1.589–8.357]
medium vs services unavailable	1.111	0.005	3.039	[1.394–6.625]
low vs services unavailable	0.630	0.120	1.877	[0.848–4.156]
Accessibility of medical care in private healthcare facilities:				
high vs services unavailable	0.287	0.310	1.332	[0.766–2.318]
medium vs services unavailable	-0.703	0.010	0.495	[0.290–0.845]
low vs services unavailable	-0.762	0.010	0.467	[0.262–0.832]
Alcohol consumption (yes vs no)	0.311	0.045	1.365	[1.007–1.849]
Smoking currently (yes vs no)	-0.841	0.000	0.431	[0.310–0.599]
Refusal to do physical exercises (yes vs no)	-1.215	0.000	0.297	[0.207–0.425]
Non-adherence to a nutrition regimen (yes vs no)	-0.991	0.000	0.371	[0.257–0.536]
Chronic disease presence (have vs do not have)	0.393	0.021	1.481	[1.062–2.066]
Factor 1 “Self-sufficiency and sociability”	-0.054	0.434	0.947	[0.827–1.085]
Factor 2 “Striving for knowledge and development”	0.304	0.000	1.356	[1.171–1.570]
Factor 3 “Passivity and externality”	0.159	0.021	1.172	[1.024–1.341]
Note: The Hosmer – Lemeshow test indicated that the model fits the real data well ($\chi^2 = 4.597$; df = 8; p = 0.800). 73% of observations were correctly predicted. Source: own calculation.				

Regarding the salutogenic factors, “striving for knowledge and development” had the strongest association with care for health (increases its probability by 36%). A somewhat unexpected result showed “passivity and externality” which also has a direct correlation with care for health (increases its probability by 17%). This is explained by the previously confirmed relationship between this salutogenic factor and chronic disease presence: the link between passivity/externality and care for health is mediated by long-term illnesses. People with such conditions, on the one hand, exhibit higher passivity and externality (which may have contributed to disease development), but on the other hand, they inevitably need to care more for their health due to their chronic diseases.

We carried out cluster analysis using the identified salutogenic factors and identified 3 population types (clusters) based on their characteristics⁴ (Tab. 8). The first type, comprising

26% of respondents, is characterized by significantly reduced striving for knowledge and development, moderately high self-sufficiency and sociability, and low passivity and externality. The second type, found among 35% of respondents, exhibits the most favorable characteristics of salutogenesis (“salutogenic-resource type”): increased sociability and self-sufficiency, striving for knowledge and development, and reduced externality and passivity. The third type, identified in 39% of the population, is distinguished by low self-sufficiency and sociability, moderately expressed striving for knowledge, and increased passivity and externality.

To understand the differences between these identified population types, we analyzed descriptive statistics, reflecting the profile of representatives of each cluster based on socio-demographic, socio-economic, behavioral characteristics, and health status assessments (Tab. 9).

Table 8. Types (clusters) of population in terms of salutogenic factor intensity

Cluster	Final cluster centers			Cluster characteristics	Prevalence	
	Factor 1	Factor 2	Factor 3		abs	%
1	0.315	-1.304	0.084	Sharply reduced orientation toward knowledge and development, moderately increased self-sufficiency and sociability, unobserved passivity and externality (“ cognitively deficient type ”)	383	26.0
2	0.663	0.620	-0.627	Increased sociability and self-sufficiency, orientation toward self-development and knowledge, but reduced externality and passivity (“ salutogenic-resource type ”)	520	35.4
3	-0.819	0.311	0.518	Reduced sociability and self-sufficiency, moderately increased striving for development and knowledge, notably increased passivity and externality (“ socially inert type ”)	568	38.6
Source: own calculation.						

⁴ Cluster analysis quality was assessed via internal (silhouette coefficient) and external (Kruskal – Wallis test) evaluation. The silhouette coefficient for 3 clusters ($k = 3$) was 0.30, indicating moderate cluster separation quality. For $k = 2$ it was 0.27, for $k = 4 - 0.31$, for $k = 5 - 0.31$, for $k = 6 - 0.30$, indicating that increasing number of clusters does not change the quality, allowing using three-cluster model. The Kruskal – Wallis test showed that the clusters differ significantly from each other in the original variables: for factor 1 $\chi^2 = 685.673$; $df = 2$; $p < 0.001$, for factor 2 $\chi^2 = 843.723$; $df = 2$; $p < 0.001$, for factor 3 $\chi^2 = 401.262$; $df = 2$; $p < 0.001$. ANOVA also confirmed that all original variables significantly distinguish the clusters: factor 1 ($F = 578.045$, $p < 0.001$), factor 2 ($F = 1181.454$, $p < 0.001$), and factor 3 ($F = 237.521$, $p < 0.001$).

Table 9. Characteristics of population types (clusters) in terms of salutogenic factor intensity, %

Indicator		Type 1 “Cognitively deficient”	Type 2 “Salutogenic- resource”	Type 3 “Socially inert”
Socio-demographic and socio-economic characteristics				
Gender ^{NS}	Male	45.7	42.9	45.2
	Female	54.3	57.1	54.8
Age ^{***}	18–29	10.4	16.7	14.4
	30–44	25.6	38.5	27.5
	45–59	22.5	22.9	28.0
	60 and over	41.5	21.9	30.1
Average age, years		51.8	45.0	48.2
Marital status ^{NS}	Single	37.0	32.7	31.7
	Married	63.0	67.3	68.3
Education ^{***}	Incomplete secondary, complete secondary	8.4	4.1	6.7
	Secondary vocational, technical	70.2	54.4	59.7
	Higher and postgraduate	21.5	41.5	33.6
Income level ^{***}	Low	26.7	9.4	26.9
	Medium	59.0	69.5	58.7
	High	14.3	21.0	14.4
Territory of residence ^{***}	Urban	49.9	84.2	75.7
	Rural	50.1	15.8	24.3
Employment ^{***}	Employed	59.3	74.4	62.3
	Unemployed	40.7	25.6	37.7
Behavioral characteristics				
Consider health a supreme life value ^{***}		85.1	85.2	73.1
Care for health ^{***}	Care little or not care at all	58.5	38.0	33.3
	Do care	41.5	62.0	66.7
Alcohol consumption ^{***}		67.9	65.2	54.6
Often drink beer (daily, on weekends) ^{NS}		38.2	39.3	36.1
Often drink unfortified wine (daily, on weekends) ^{***}		24.9	33.8	51.5
Often drink fortified wine (daily, on weekends) ^{**}		33.2	34.8	43.2
Often drink spirits (daily, on weekends) ^{***}		9.8	6.9	10.5
Smoking (currently) ^{NS}		30.8	30.2	25.9
Refusal to do physical exercises ^{***}		90.9	66.3	74.5
Refusal to follow a nutrition regimen ^{***}		53.8	42.5	35.6
Sought medical care during the year	in public facilities ^{***}	59.0	52.9	69.0
	in private facilities ^{NS}	19.8	23.7	22.4
Sought care for preventive reasons*		17.8	21.7	25.9
Sought care for treatment**		42.0	37.1	48.1
Sought care for occupational health examination*		12.8	13.1	18.1
Sought care for periodic health examination ^{***}		22.7	15.6	29.4
Did not seek medical care ^{***}		34.5	38.8	23.2
Health characteristics:				
Have chronic diseases ^{***}		33.9	13.7	25.0
Missed workdays due to sickness*		20.2	21.0	28.2
Self-rated health*	Very good, good	35.5	44.6	38.6
	So-so	53.8	50.8	53.6
	Poor, very poor	10.7	4.6	7.8
Note: *p < 0.05, ** p < 0.01, ***p < 0.001; ^{NS} – differences are statistically insignificant. Source: own calculation.				

Profile of cluster 1. This cluster is primarily represented by older people (42% aged 60 and over, average is 52 years), rural residents (50%), unemployed individuals (41%), and those with secondary vocational education (70%). On the one hand, its representatives are more likely to consider health a supreme life value (85%), but on the other hand, they show less care for health (59% care little for their health or not care at all) and are more vulnerable to behavioral risk factors than others: 91% do not do physical exercises, 68% consume alcohol, and 54% do not adhere to a nutrition regimen. One-third have chronic diseases (34%) and generally rate their health worse (36% rate “very good, good” and 11% rate “poor, very poor”).

Profile of cluster 2. This is a younger group compared to others: it has higher proportions of those under 30 (17%) and aged 30–44 (39%), with an average age of 45. It also has more urban residents (84%), employed individuals (74%), those with higher education (42%), middle and high income (70% and 21% respectively). This cluster demonstrates the most positive self-rated health (45% “good, very good”, only 14% have chronic diseases) and consequently seeks medical care less often (39% did not seek care during the year). Like representatives of the first cluster, they value health highly (85% consider it a supreme life value), but show greater care for health (62% care about their health), are more likely to do physical exercises (34%), yet are more prone to alcohol consumption compared to cluster 3 (62%).

Profile of cluster 3. This cluster has a higher proportion of individuals aged 45–59 (28%). Similar to cluster 2, it has a high proportion of urban residents (76%), and like cluster 1, many individuals with low income (27%). A specific feature of this group is more pronounced care for health (67%) and medical activity, particularly visits to public healthcare facilities (69%). Furthermore, the main motives for seeking medical care are more developed, including prevention (26% sought care

for preventive reasons, 29% underwent periodic health examinations) and treatment (29%). Notably, despite a lower total share of alcohol consumers, representatives of this cluster are more prone to frequent consumption of fortified and unfortified wines (52% and 43% respectively), spirits (11%), and more often missed workdays due to sickness (28%).

Differences between the identified groups in terms of gender, marital status, smoking, and visits to private healthcare facilities were statistically insignificant.

Discussion of findings and conclusion

To sum up, this study identified three key salutogenic factors based on data from a mass survey – “self-sufficiency and sociability”, “striving for knowledge and development”, “passivity and externality” – which correspond to Antonovsky’s main components of sense of coherence: meaning, comprehensibility, and manageability. The logistic models constructed to assess the relationship between salutogenic factors and public health indicators (alongside other socio-demographic, socio-economic, and behavioral factors) allowed drawing several important conclusions.

The study did not find a statistically significant association between salutogenic factors and self-rated health. This may be due to issues of bias and heterogeneity in self-assessments, or to a more complex (non-linear and/or mediated) nature of their relationship. Notably, as with the salutogenic factors, the modeling did not reveal an influence of care for health on self-rated health. This suggests that self-rated health is determined more by current well-being and existing functional limitations (the study found the strongest significant association between self-rated health and the presence of chronic diseases), as well as by socio-economic conditions (income level). Obviously, care for health is more reactive and intensifies with deteriorating health, indicating reverse causality (health problems promote care for health). The effect of salutogenic

resources in this situation is replaced by other factors, which does not negate their indirect influence on health – through stress resilience, physical activity, treatment adherence, and other behavioral mechanisms.

All three salutogenic factors were found to be significantly associated with the presence of chronic diseases among respondents: self-sufficiency and communicativeness, as well as striving for knowledge and development, notably reduce the probability of their development, while passivity and externality increase it. Only one salutogenic factor – self-sufficiency and communicativeness – demonstrated a significant association with sickness absence from work, decreasing its likelihood. These findings regarding the role of salutogenic factors in maintaining health align with the results of a qualitative study on longevity factors, which identified key factors such as “respondents’ responsible attitude to themselves, their health, setting of short- and long-term goals and objectives, as well as an their inexhaustible motivation for keeping their mental and physical health in a good condition, a broad circle of friends and, which is the most important, high cognitive activity give the long-livers an opportunity to effectively manage their lives, and therefore have confidence in the future” (Kalachikova et al., 2016).

Furthermore, a significant direct association was found between care for health and chronic diseases, as well as sickness absence from work. This can be explained by the reverse nature of their relationship (the presence of chronic diseases stimulates care for health), which is confirmed in other Russian studies (Pokida, Zygunovskaya, 2021). This result also serves as evidence of the prevalence of the instrumental value of health among people, with health acting as a tool for achieving goals rather than a goal itself (Zhuravleva, 2006). At the same time, the study showed that care for health correlates with income and education. Specifically, its probability is significantly higher

among those with high income compared to those with low income, and among individuals with higher and secondary vocational education compared to those with incomplete and complete secondary education. This aligns with findings from other scholars demonstrating a close relationship between health-related lifestyle and social status (Roshchina, 2016).

The identified associations of socio-demographic, socio-economic, and behavioral factors with self-rated health are also evidenced by Russian research. For instance, the significant influence of age, presence of chronic diseases, income level, smoking, and low physical activity was demonstrated by M.A. Kaneva (Kaneva, 2016). Furthermore, the findings regarding the absence of a relationship between self-rated health and alcohol consumption or employment status are consistent with that study. However, contrary to several works (Kaneva, 2016; Lebedeva-Nesevria et al., 2017), the present study did not find an influence of marital status on self-rated health. This result may be a consequence of its more complex relationship. A study by A.B. Sinel’nikov showed that the influence of marital status on health is heterogeneous: for men under 30 and women under 45, no association is observed; for men over 30 and women over 45, living as spouses (or partners) has a stronger positive effect on health than living with children; for the same men over 30 and women over 45, the worst family arrangement for health is to be single and without children (Sinel’nikov, 2012).

The absence of a relationship between education and self-rated health may be due to the mediating role of other factors. O.A. Kislitsyna demonstrated that inclusion of all possible explanatory factors in the model reduces the association between education and self-rated health by 52–62%. The main contribution to explaining this relationship comes from employment, income level, inability to meet with relatives and friends, and alcohol

consumption (Kislitsyna, 2023). Conversely, the higher probability of care for health among individuals with higher education was evidenced by A.N. Pokida and co-authors (Pokida et al., 2022).

The identified significant association between medium accessibility of private medical services and sickness absence from work may be explained by the increasing popularity of private facilities. K.G. Chetaeva notes that people are forced to visit private clinics due to long queues, inability to schedule an appointment at a specific time, lack of required specialists, and low service quality in public facilities (Chetaeva, 2025). The increased likelihood of care for health with greater accessibility of medical care corresponds with findings by A.N. Pokida and N.V. Zybunovskaya, indicating that the lack of access to necessary medical services due to the unavailability of required specialists leads to refusal to seek medical advice and high levels of self-treatment (Pokida, Zybunovskaya, 2021).

The assumption about the mediating role of care for health in the relationship between salutogenic factors and health indicators was partially supported. It was found that two salutogenic factors – striving for knowledge and development, and passivity and externality – are significantly associated with care for health. Both factors increase the likelihood of care for health, suggesting the existence of different behavioral patterns in society: for some, care for health is promoted by passivity and externality (which are associated with chronic diseases), while for others, it is promoted by striving for knowledge and development (through involvement in active health practices). For example, a Hungarian study based on survey of secondary school students (2024) provided evidence of a positive correlation between sense of coherence and physical activity (Karácsony, Hideg-Fehér, 2025). A qualitative study of physical activity among adults in Sweden showed that sense of coherence, especially its comprehensibility component, is strongly associated with knowledge about the benefits of physical activity and the ability

to apply this knowledge, enabling the achievement of recommended activity levels despite economic difficulties (Johansson et al., 2024).

Three population types based on salutogenic factor expression were identified: “cognitively deficient” (reduced knowledge and development, moderately increased self-sufficiency and sociability), “salutogenic-resource type” (increased sociability and self-sufficiency, striving for self-development and knowledge, reduced passivity and externality), and “socially inert type” (reduced sociability and self-sufficiency, notably increased passivity and externality). The profiles of these types reflecting their age, education, income level, employment, territory of residence, health behavior, and self-rated health allow considering them as new target groups for health promotion policy. For the salutogenic-resource type, despite its favorable salutogenic parameters and profile characteristics, measures to increase preventive medical activity (involvement in occupational and periodic health examinations) are relevant. For the cognitively deficient type, measures aimed at informing about health and a healthy lifestyle, stimulating care for health, increasing medical activity, and preventing behavioral risk factors are required. Given the high proportion of older individuals in this group, their broader involvement in active longevity programs is particularly important. For the socially inert type, measures to enhance the value of health and prevent behavioral risks, particularly excessive alcohol consumption, are advisable.

To sum up, it is important to list the limitations of the study: the specific nature of the information base (cross-sectional data) and logistic regression analysis do not allow identifying the direction of causal relationships between independent and dependent variables (e.g., the influence of salutogenic factors on chronic disease development, as reverse causality is possible, when the presence of a disease makes some salutogenic factors more pronounced); the subjective nature of survey data

has drawbacks, as self-rated health estimates are usually biased and heterogenous, requiring caution in interpreting the results; this study did not consider the full range of determinants mediating the relationship between salutogenic factors and self-rated health.

References

- Aksenova E.I., Aleksandrova O.A., Yarasheva A.V., Alikperova N.V. (2023). Behavior patterns of the population in relation to health. *Problemy sotsial'noi gigieny, zdavookhraneniya i istorii meditsiny=Problems of Social Hygiene, Public Health and History of Medicine*, 31(52), 1081–1086. DOI: 10.32687/0869-866X-2023-31-s2-1081-1086 (in Russian).
- Alkharafi N. (2025). Salutogenesis for thriving nations: Sense of coherence and longevity across income strata. *SSM – Population Health*, 31, 101839. DOI: 10.1016/j.ssmph.2025.101839
- Antonovsky A. (1988). *Unravelling the Mystery of Health: How People Manage Stress and Stay Well*. San Francisco: Jossey-Bass.
- Bochaver K.A., Danilov A.B., Nartova-Bochaver S.K., Kvitchasty A.V., Gavrilova O.Ya., Zyazina N.A. (2019). Future of salutogenic approach to prevention of burnout syndrome in Russian physicians. *Klinicheskaya i spetsial'naya psikhologiya=Clinical Psychology and Special Education*, 8(1), 58–77. DOI: 10.17759/cpse.2019080104 (in Russian).
- Chetaeva K.G. (2025). On the issue of access to health care in Russia. *EKO=ECO*, 6, 100–117. DOI: 10.30680/ECO0131–7652–2025–6–100–117 (in Russian).
- Johansson L.M., Fransson E.I., Lingfors H. et al. (2024). Exploring how people achieve recommended levels of physical activity, despite self-reported economic difficulties: A sense of coherence perspective. *BMC Primary Care*, 25, 105. DOI: 10.1186/s12875-024-02354-z
- Kalachikova O.N., Barsukov V.N., Korolenko A.V., Shulepov E.B. (2016). Determinants of active longevity: Results of a survey of Vologda long-livers. *Ekonomicheskie i sotsial'nye peremeny: fakty, tendentsii, prognoz=Economic and Social Changes: Facts, Trends, Forecast*, 5, 76–94. DOI: 10.15838/esc/2016.5.47.4 (in Russian).
- Kaneva M.A. (2016). Socio-economic, behavioral and psychological determinants of the Russian population's self-reported health assessment. *Natsional'nye interesy: priority i bezopasnost'=National Interests: Priorities and Security*, 6, 158–171 (in Russian).
- Kaneva M.A., Baidin V.M. (2018). Heterogeneity in reporting self-assessed health of the Russians. *Prikladnaya ekonometrika=Applied Econometrics*, 3(51), 102–125 (in Russian).
- Karácsony I., Hideg-Fehér G. (2025). Relationship between self-rated health, sense of coherence and physical activity in a survey of secondary school students: A correlational study. *Scientific Reports*, 15, 26600. DOI: 10.1038/s41598-025-12686-0
- Kislitsyna O.A. (2023). Social inequality in the health status of Russians: The role of material, psychosocial and behavioral factors. *Sotsial'nye aspekty zdorov'ya naseleniya=Social Aspects of Population Health*, 3(69). Available at: <http://vestnik.mednet.ru/content/view/1484/30/lang,ru/> DOI: 10.21045/2071-5021-2023-69-3-7 (in Russian).
- Kozyreva P.M., Smirnov A.I. (2020). Russian citizens' health self-assessment dynamics: Relevant trends of the post-Soviet era. *Sotsiologicheskie issledovaniya=Sociological Studies*, 4, 70–81. DOI: 10.31857/S013216250009116-0 (in Russian).
- Kuz'mich O.S., Roshchin S.Yu. (2008). Is it better to be healthy? The economic return on health in Russia. *Ekonomicheskii zhurnal Vysshei shkoly ekonomiki=HSE Economic Journal*, 12(1), 29–55 (in Russian).
- Lebedeva-Nesevria N.A., Barg A.O., Solov'ev S.S. (2017). Self-rated health of the working population in Russia. *Izvestiya Ural'skogo federal'nogo universiteta. Seriya 3: Obshchestvennye nauki*, 12, 3(167), 108–115 (in Russian).
- Lee H.-P., Hsu W.-Y., Liu Y.-H., Chang Y.-C., Cheng S.-M., Chiang H.-H. (2024). Sense of coherence as a mediator between functional status and health-related quality of life in patients with heart failure. *Journal of Nursing Research*, 32(1), e311. DOI: 10.1097/jnr.0000000000000590

- Lv J., Qian M., Deng M., Yu M. (2023). The association between sense of coherence and health outcomes among community-dwelling older adults: A systematic review. *Interdisciplinary Nursing Research*, 2(1), 46–57. DOI: 10.1097/NR9.0000000000000016
- Mana A., Super S., Sardu C. et al. (2021). Individual, social and national coping resources and their relationships with mental health and anxiety: A comparative study in Israel, Italy, Spain, and the Netherlands during the coronavirus pandemic. *Global Health Promotion*, 28(2), 17–26. DOI: 10.1177/1757975921992957
- Matić I., Vuletić G. (2025). Sense of coherence and health in adolescents: A longitudinal cohort study. *Psychology & Health*, 40(5), 783–795. DOI: 10.1080/08870446.2023.2256776
- Mittelmark M.B., Bauer G.F., Vaandrager L., et al. (Eds) (2022). *The Handbook of Salutogenesis. 2nd edition*. Cham (CH): Springer. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK584076/>. DOI: 10.1007/978-3-030-79515-3
- Orekhov A.A., Zakharov A.B. (2026). Health lifestyles among Russian youth: Gender differences. *Monitoring obshchestvennogo mneniya: ekonomicheskie i sotsial'nye peremeny=Monitoring of Public Opinion: Economic and Social Changes*, 2, 3–23. DOI: 10.14515/monitoring.2026.2.3059 (in Russian).
- Osin E.N. (2007). Sense of coherence as a mental health indicator and its diagnostics. *Psikhologicheskaya diagnostika*, 3, 22–40 (in Russian).
- Pijpker R., van der Kamp D., Vader S., den Broeder L., Wagemakers A. (2022). Socioeconomic status and mental health during the COVID-19 crisis: Are sense of coherence, sense of community coherence and sense of national coherence predictors for mental health? *Health Psychology Report*, 10(1). DOI: 10.5114/hpr.2022.114527
- Pokida A.N., Zybunovskaya N.V. (2021). Health in the perception of Russians and real medical practices. *Zdorov'e naseleniya i sreda obitaniya=Public Health and Life Environment*, 29(7), 19–27. DOI: 10.35627/2219-5238/2021-29-7-19-27 (in Russian).
- Pokida A.N., Zybunovskaya N.V., Gazieva I.A. (2022). The role of higher education in the formation of a healthy lifestyle: Results of sociological research. *Vysshee obrazovanie v Rossii= Higher Education in Russia*, 31(1), 72–88. DOI: 10.31992/0869-3617-2022-31-1-72-88 (in Russian).
- Poluektova N.M., Smirnova A.N. (2016). A man as an agent of health. *Chelovek*, 1, 5–16 (in Russian).
- Roshchina Ya.M. (2016). Health-related lifestyle: Does social inequality matter? *Ekonomicheskaya sotsiologiya=Journal of Economic Sociology*, 17(3), 13–36. DOI: <https://doi.org/10.17323/1726-3247-2016-3-13-36> (in Russian).
- Shabunova A.A., Natsun L.N., Korolenko A.V. (2021). Strengthening public health: Balance of responsibility of the state and a citizen. *Problemy razvitiya territorii=Problems of Territory's Development*, 25(4), 7–23. DOI: 10.15838/ptd.2021.4.114.1 (in Russian).
- Sinel'nikov A.B. (2012). Influence of family and demographic status on health and self-evaluation of health. *Sotsial'nye aspekty zdorov'ya naseleniya=Sociological Aspects of Population Health*, 6(28). Available at: <http://vestnik.mednet.ru/content/view/443/30> (in Russian).
- Tušl M., de Bloom J., Bauer G.F. (2022). Sense of coherence, off-job crafting, and mental well-being: A path of positive health development. *Health Promotion International*, 37(6), daac159. DOI: 10.1093/heapro/daac159
- Tville P.S., Sevanyan L.G., Trunkova K.S. (2025). From theory to practice: The historical development of salutogenesis and its implementation in medical settings as an element of patient-centered care. *Zdorov'e megapolisa=City Healthcare*, 6(1), 108–118. DOI: 10.47619/2713-2617.zm.2025.v6i1;108-118 (in Russian).
- Urzúa A., Henríquez D., Caqueo-Úrizar A. et al. (2025). Sense of coherence is associated with the presence of healthy lifestyles in the migrant population. *Frontiers in Psychology*, 16, 1543830. DOI: 10.3389/fpsyg.2025.1543830
- Zhuravleva I.V. (2006). *Otnoshenie k zdorov'yu individa i obshchestva* [Attitudes toward Individual and Public Health]. Moscow: Nauka.
- Zhuravleva I.V. (2025). Public health and salutogenesis. *Sotsiologicheskie issledovaniya=Sociological Studies*, 4, 123–134. DOI: 10.7868/S3034601025040114 (in Russian).

Appendix

Set of variables for logistic regression and their prevalence in the sample

Variable	Value	Prevalence, %, average
Dependent variables		
Good self-rated health	1 – Very good, good	39.9
	0 – So-so, poor, very poor	60.1
Chronic disease presence*	1 – Have chronic diseases	23.2
	0 – Do not have chronic diseases	76.8
Sickness absence from work	1 – Missed workdays due to sickness during the year	23.4
	0 – Did not miss workdays due to sickness	76.6
Independent variables		
Age, years		48.1
Gender	1 – Male	44.4
	0 – Female	55.6
Marital status	1 – Married	66.5
	0 – Single	33.5
Income level	1 – High	16.8
	2 – Medium	62.4
	3 – Low	20.8
Education	1 – Incomplete and complete secondary	6.1
	2 – Secondary technical or vocational	60.6
	3 – Higher and postgraduate	33.3
Territory of residence	1 – Urban	71.9
	0 – Rural	28.1
Employment	1 – Employed	65.8
	0 – Unemployed	34.2
Accessibility of medical care in public healthcare facilities	1 – High	19.6
	2 – Medium	53.7
	3 – Low	24.1
	4 – Services unavailable	2.7
Accessibility of medical care in private healthcare facilities	1 – High	31.4
	2 – Medium	45.0
	3 – Low	15.7
	4 – Services unavailable	8.0
Alcohol consumption	1 – Yes	61.5
	0 – No	38.5
Smoking currently	1 – Yes	28.6
	0 – No	71.4
Physical activity	1 – Not exercise (refusal)	75.9
	0 – Exercise	24.1
Nutrition regimen	1 – Not follow	78.9
	0 – Follow	21.1
Care for health**	1 – Yes (very much, in general)	58.4
	0 – Little or no care	41.6
* Acts as both an independent variable (in models on good self-rated health, sickness absence from work, care for health) and a dependent variable (in the chronic disease presence model). ** Acts as both an independent variable (in models on good self-rated health, chronic disease presence, sickness absence from work) and a dependent variable (in the care for health model). <i>Note:</i> mean values of the salutogenic variables are not shown as they are all equal to 0 because the data are standardized (centered and normalized) within the principal component analysis.		

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