



Comparative analysis of professional trust indices among physicians and faculty members

Sergey V. Russkikh¹, Evgenii V. Krasnov², Lena N. Afanasyeva³

¹ Federal State Budgetary Scientific Institution N.A. Semashko National Research Institute, 12 Vorontsovo Pole st., bldg. 1, Moscow

² Department of General Psychology, Vygotsky Institute of Psychology, Russian State University for the Humanities (RSUH), 6 Miusskaya sq., bldg. 7, Moscow

³ North-Eastern Federal University named after M. K. Ammosov, 58 Belinskogo st., Yakutsk, Republic of Sakha (Yakutia)

Abstract. The personnel sustainability of the healthcare and higher education systems constitutes a fundamental prerequisite for ensuring the quality of life of the population. Employees' trust in working conditions, management, and career progression prospects serves as an integral indicator reflecting the degree of congruence between the organizational environment and employee expectations. The objective of this study is to develop a methodological approach for constructing an employee trust index and to perform a comparative analysis of the indices and structure of trust among physicians and higher education faculty members. The empirical framework comprised data from two sociological surveys conducted in 2023 and 2025 among physicians and faculty members. Selecting significant statements involved binary probit regression. Common trust factors for both groups were identified (remuneration, management support, objectivity of evaluation, and attractiveness for young specialists) along the specific factors for physicians and faculty members. The results obtained may be utilised for the development of targeted human resources policy measures in healthcare and education

Keywords: medical determinant of public health, employee trust index, physicians, human resources policy.

Funding. The study had no sponsorship.

For citation: Russkikh S.V., Krasnov E.V., Afanasyeva L.N. Comparative Analysis of Professional Trust Indices Among Physicians and Faculty Members. Yakut Medical Journal. 2026. 94(2): 59-62. <https://doi.org/10.25789/YMJ.2026.94.15>

Introduction. Modern challenges associated with the COVID-19 pandemic, digitalisation, and the increasing administrative burden have actualised the problem of preserving human resources in socially significant sectors. In the healthcare system, elevated levels of professional burnout and staff shortages are observed; in the higher education sector, an ageing workforce and a decline in the attractiveness of the profession are evident [1]. Under these conditions, monitoring the subjective well-being of employees becomes a crucial management tool [2–5].

In modern literature, trust in the organisation and management is considered an integral characteristic reflecting the degree of congruence between the organisational environment and employee expectations. In accordance with the OECD Guidelines on Measuring Trust, Trust is defined as 'an individual's belief that another person or institution will act consistently with their expectations of positive behaviour'. With reference to professional activities, trust includes an assessment of material conditions, management culture, development opportunities, and the socio-psychological climate [6].

Comparative studies of trust across various professional groups within the

public sector remain limited. Filling this gap will enable the identification of specific management issues characteristic of each sector and the development of targeted human resources policy measures [7–9].

The objective of this study is to develop and validate a methodological approach for constructing an employee trust index and to perform a comparative analysis of the indices and structure of trust among physicians and higher education faculty members.

Materials and Methods. The empirical framework of the study comprised the results of two sociological surveys conducted in 2023 and 2025, involving a total of 783 respondents.

The first cohort (2023) – 346 physicians from various regions of Russia. Sampling method: physicians were selected using a targeted convenience sampling method. Criteria: valid certificate or accreditation, employment in a state medical organisation (hospital/poly-clinic) on a full-time basis, at least one year of experience. An anonymous electronic survey was conducted, distributed through regional medical associations and professional chats. 346 valid questionnaires were obtained.

The survey included 22 statements rated on a 10-point Likert scale (1: strong

disagreement, 10: strong agreement), as well as a section on personal characteristics (age, gender, tenure, marital status, dual employment, income). The patent for industrial design No. 140920, 03/06/2024, was obtained for the scheme "Methodology for calculating the index of trust of medical workers (IDMR)".

The second cohort (2025) – 437 respondents – the teaching staff of a federally administered university. This university is typical of the higher education system in terms of staffing structure and working conditions. The survey instrument contained 31 statements covering the same thematic blocks.

The methodology for constructing the trust index involved the following stages:

1. *The construction of the dependent variable* A proxy variable for trust in both groups was the response to a statement regarding the intention to continue working in the organisation for the next 5 years ('I intend to work in my organisation for the next 5 years'). The responses were binarized as follows: 8–10 points: high level of trust (1); 1–7 points: low level (0).

2. *Selection of significant statements* Binary probit regressions were constructed for each cohort. All statements, as well as personal parameters, were included in the models. The selec-

tion of significant predictors ($p < 0.1$) was performed using the stepwise method.

3. *Index calculation* For each respondent, the total score across significant statements was calculated, followed by normalization to the maximum possible total (80 points for physicians, 100 points for faculty members). The final index was defined as the median value of the normalized totals for the cohort. The statistical significance of the differences between the indices was verified using the Mann–Whitney U test.

Statistical processing was performed using Stata 17 and SPSS 26 software suites.

Results and Discussion. Descriptive Statistics A comparative analysis of the mean scores for key statements revealed both general trends and specific differences (Table 1). 1).

Physicians and faculty members both reported the highest satisfaction regarding work meaningfulness and socio-psychological climate, while citing low salary sufficiency and limited attractiveness for young professionals. Physicians gave higher ratings to overtime pay (7.97 vs. 6.11), whereas faculty members valued non-monetary incentives more (6.57 vs. 5.54).

Regression analysis and selection of significant statements As a result of the binary probit regression for the physician group, 8 statements emerged as significant predictors of loyalty (the intention to remain in the organisation) (Table 2).

10 statements for the faculty group (Table 3).

In both groups, material factors (overtime pay, salary, bonuses), non-monetary incentives, management support, objectivity of evaluation, and attractiveness to young specialists were found to be significant. However, for faculty members, additional significance was observed for workplace equipment, the socio-psychological climate within the collective, and career prospects. For physicians, the opportunity to assist patients remained a unique factor, reflecting the professional mission of medical activity [7].

Calculation of the trust index. Based on the selected statements, the total scores were calculated for each respondent. Median values and normalised indices are presented in Table 4.

The analysis revealed both common and specific trust factors.

Common to both groups: equitable remuneration (base salary, overtime, and bonuses), with low scores in this area indicating a systemic mismatch between effort and reward in the public sector; management support and objectivity of

Table 1		
Mean scores for key statements (physicians/faculty members)		
Statement	Physicians (n=346)	Faculty members (n=437)
My salary is sufficient to satisfy my needs	4.56 ± 0.11	4.23 ± 0.09
Additional overtime hours are paid in full	7.97 ± 0.08	6.11 ± 0.10
The amount of bonuses incentivises improving the quality of work	5.72 ± 0.10	5.32 ± 0.09
Non-monetary incentives motivate the high-quality performance of duties	5.54 ± 0.11	6.57 ± 0.10
My work helps to improve patient health/Satisfaction with outcomes	9.24 ± 0.06	8.97 ± 0.07
Workplace equipment is sufficient for high-quality work	6.97 ± 0.09	7.34 ± 0.08
The psychological climate within the collective is favourable	7.95 ± 0.08	8.11 ± 0.07
Management provides support in difficult life situations	7.00 ± 0.10	7.26 ± 0.09
Management does not take personal relationships into account	7.19 ± 0.09	6.89 ± 0.10
Young specialists are willing to join the organisation	5.52 ± 0.10	5.98 ± 0.09

Table 2			
Significant statements for constructing the physicians' trust index (coefficients, standard errors and p-values)			
Statement	Index	Standard error	p-value
Additional overtime hours are paid in full	0.0697	0.0287	0.015
My salary is sufficient to satisfy my needs	0.0628	0.0298	0.035
My work helps to improve patient health	0.0712	0.0311	0.022
The amount of bonuses received incentivises improving the quality of work	0.0584	0.0285	0.041
Non-monetary incentives motivate the high-quality performance of duties	0.0940	0.0342	0.006
Management provides support to physicians in difficult life situations	0.0940	0.0348	0.007
Management does not take personal relationships into account	0.0760	0.0345	0.028
Young specialists are willing to join the organisation	0.0638	0.0322	0.048

evaluation, which reflect the role of management culture; and the organisation's attractiveness to young specialist, which is an indicator of long-term personnel sustainability [7–9].

Specificity. For physicians, a unique factor is the opportunity to assist patients. Intrinsic motivation and professional mission may compensate for shortcomings in external conditions, but only if basic needs (remuneration, safety) are met at a minimum level.

For faculty members, workplace equip-

ment, the psychological climate within the collective, and career prospects are significant. This reflects their orientation toward environmental conditions and professional growth, which is inherently linked to the nature of academic activity, namely, autonomy, scientific development, and a favourable educational environment.

The higher trust index observed in the faculty group (67.0% vs. 62.5%) can be attributed to several factors: higher education institutions possess a more de-

Table 3

Significant statements for constructing the faculty members' trust index (coefficients, standard errors and p-values)

Statement	Index	Standard error	p-value
My salary is sufficient to satisfy my needs	0.071	0.0324	0.028
Additional overtime hours are paid in full	0.058	0.0292	0.047
The amount of bonuses received incentivises improving the quality of work	0.062	0.0310	0.045
Non-monetary incentives motivate the high-quality performance of duties	0.087	0.0342	0.011
Workplace equipment is sufficient for high-quality work	0.044	0.0253	0.082
The psychological climate within the collective is favourable	0.102	0.0363	0.005
Management provides support in difficult life situations	0.079	0.0330	0.017
Management does not take personal relationships into account	0.065	0.0301	0.031
Young specialists are willing to join the organisation	0.051	0.0280	0.069
My organisation offers prospects for career advancement	0.073	0.0321	0.023

Table 4

Physicians' and Faculty Members' Trust Indices

Indicator	Physicians	Faculty members
Number of significant statements	8	10
Maximum possible total score	80	100
Median total score	50	67
Normalised index (% of max)	62,5	67,0
Standard error of the index (SE), %	± 2.6	± 2.3

The trust index among faculty members was 4.5 percentage points higher than that of physicians. The difference is statistically significant (Mann–Whitney U test, $Z = 2.83$, $p < 0.01$).

veloped system of non-monetary incentives (awards, boards of honour, titles), which enhances perceived fairness; the academic environment traditionally provides greater autonomy and horizontal networking; conversely, the healthcare sector continued to experience a high post-pandemic workload at the time of the survey, which may have undermined trust levels.

At the same time, the influence of methodological characteristics, such as the varying number of statements and the potential non-equivalence of formulations, cannot be excluded. Nevertheless, the identified differences warrant attention and necessitate further investigation using a unified survey instrument.

Conclusions. The proposed methodological approach enabled the quantification of the trust index among employees of two socially significant professional groups. It was established that the structure of trust for both physicians and faculty members includes common material and management factors, yet differs by the presence of specific drivers: professional mission for physicians; organisational climate and resource provision for faculty members. The faculty members' trust index was found to be statistically significantly higher, which may indicate a more favourable organisational environment within higher education institutions.

The results of this study may be utilised in the development of human resources policies within the healthcare and education sectors, as well as for the organization of interagency monitoring. A promising direction for future research involves the development of a unified trust index (employee trust index) for public sector employees, with its subsequent integration into the performance evaluation system for organisational managers.

Reference

1. Кобякова О.С., Деев И.А., Куликов Е.С. и др. Факторы, ассоциированные с формированием профессионального выгорания у врачей. *Проблемы социальной гигиены, здравоохранения и истории медицины*. 2019;27(6):967–971. <https://doi.org/10.32687/0869-866X-2019-27-6-967-971>. / Kobyakova O.S., Deev I.A., Kulikov E.S. et al. Factors associated with the formation of profes-

sional burnout among doctors *Problemy social'noj gigieny, zdavoohraneniya i istorii mediciny*. 2019;27(6):967–971 (In Russian). <https://doi.org/10.32687/0869-866X-2019-27-6-967-971>.

2. Леванов В.М., Перевезенцев Е.А., Гарин Л.Ю. Управление медицинской организацией на основе системы ключевых показателей эффективности (KPI) (обзор). *Медицинский альманах*. 2018; 5: 12-16. <https://doi.org/10.21145/2499-9954-2018-5-12-16>. / Levanov V.M., Perevezentsev E.A., Garin L.Yu. Management of a medical organization based on a system of key performance indicators (KPIs) (review). *Medicinskij al'manah*. 2018;(5):12-16 (In Russian). <https://doi.org/10.21145/2499-9954-2018-5-12-16>.

3. Кобякова О.С., Деев И.А., Ходалова О.В. и др. Индексный метод в оценке кадровой политики на уровне регионального здравоохранения: методические рекомендации 04-23. Москва: ФГБУ «ЦНИИОИЗ» Минздрава России; 2023. 34 с. / Kobyakova O.S., Deev I.A., Khodakova O.V., et al. Index method in assessing human resources policy at the regional healthcare level: Methodological recommendations 04-23. Moscow: Federal State Budgetary Institution 'Central Research Institute for Health Organisation and Informatics' of the Ministry of Health of the Russian Federation; 2023. 34 p. (In Russian).

4. Тарасенко Е.А. Зарубежный и российский опыт управления кадровыми ресурсами в здравоохранении: структура «Прочего» или «Вспомогательного» персонала. *Менеджер здравоохранения*. 2016; (7): 57–64. / Tarasenko E.A. Foreign and Russian experience in healthcare human resource management: the structure of 'Other' or 'Support' staff. *Menedzher zdavoohraneniya*. 2016; (7): 57–64 (In Russian).

5. Miao Y, Li L, Bian Y. Gender differences in job quality and job satisfaction among doctors in rural western China. *BMC Health Serv Res*. 2017 Dec 28;17(1):848. doi: 10.1186/s12913-017-2786-y

6. OECD. OECD Guidelines on Measuring Trust. Paris, 2017. doi: 10.1787/9789264278219-en.

7. Русских С.В., Ларионов А.В., Васильев М.Д. Методический подход к построению индекса доверия врачей к своей деятельности. *Проблемы социальной гигиены, здравоохранения и истории медицины*. 2023;31(специальный выпуск 2):1183-1188. <https://doi.org/10.32687/0869-866X-2023-31-s2-1183-1188>. / Russkikh S.V.,

Larionov A.V., Vasiliev M.D. Methodological approach to constructing the doctors' trust index in their professional activities. *Problemy social'noj gigieny, zdravooohraneniya i istorii mediciny*. 2023;31 (Special Issue 2):1183–1188 (In Russian). <https://doi.org/10.32687/0869-866X-2023-31-s2-1183-1188>.

8. Улумбекова Г.Э., Гинойан А.Б. Рейтинг эффективности систем здравоохранения регионов Российской Федерации в 2019 году. ОРГЗДРАВ: новости, мнения, обучение.

Вестник ВШОУЗ. 2021;7(1):4–16. <https://doi.org/10.33029/2411-8621-2021-7-1-4-16> / Ulumbekova G.E., Ginoyan A.B. Rating of the effectiveness of healthcare systems in the regions of the Russian Federation in 2019. *Healthcare Management: News, Views, Education. Vestnik VSHOUZ*. 021;7(1):4–16 (In Russian). <https://doi.org/10.33029/2411-8621-2021-7-1-4-16>.

9. Лакман И.А., Тимирьянова В.М., Закирьянова Г.Т. Изучение влияния на смертность населения обеспеченности ресурсами здравоохранения с использованием метода иерархического линейного моделирования. *Здравоохранение Российской Федерации*. 2021; 65(6): 540–548. <https://doi.org/10.47470/0044-197X-2021-65-6-540-548>.

охранения с использованием метода иерархического линейного моделирования. *Здравоохранение Российской Федерации*. 2021; 65(6): 540–548. <https://doi.org/10.47470/0044-197X-2021-65-6-540-548>. / Lakman I.A., Timiryanova V.M., Zakiryanova G.T. Study of the impact of healthcare resource provision on population mortality using the hierarchical linear modelling method. *Zdravooohranenie Rossijskoj Federacii*. 2021; 65(6): 540–548 (In Russian). <https://doi.org/10.47470/0044-197X-2021-65-6-540-548>.

The authors declare no conflict of interest

Authors' contributions: Russkikh S.V. – research management, development of the research concept and design, methodology, statistical data analysis, scientific editing of the manuscript; Krasnov E.V. – data verification, collection of material, data administration; Afanasieva L.N. – processing of the material, writing the text.

Information about the authors: **Sergey V. Russkikh**, Ph.D. (Med.), Senior Researcher Federal State Budgetary Scientific Institution N.A. Semashko National Research Institute, russkikh1@mail.ru, ORCID: <http://orcid.org/0000-0002-3292-1424>; **Evgenii V. Krasnov** – Ph.D. (Psychology), Associate Professor, Department of General Psychology, Vygotsky Institute of Psychology, Russian State University for the Humanities (RSUH), evkrasnov@gmail.com, <http://orcid.org/0000-0001-7541-5145>; **Lena N. Afanasiyeva**, Dr. Sci. (Med), Associate Professor of M.K. Amosov North-Eastern Federal University, lenanik2007@mail.ru, <https://orcid.org/0000-0003-2592-5125>

Received by the editorial office: 28.02.2026 / **Accepted for publication:** 06.05.2026

HYGIENE, SANITATION, EPIDEMIOLOGY AND MEDICAL ECOLOGY

DOI 10.25789/YMJ.2026.94.16

UDC 614.7:612.799.1



The impact of the mining industry on the element homeostasis of the mother–placenta–fetus system

Guzel R. Allayarova, Elza N. Usmanova, Dmitry E. Musabirov, Svetlana R. Afonkina, Gyuzeliya F. Adieva, Elvira A. Aukhadieva, Tatiana K. Larionova, Evgeniya E. Zelenkovskaya

Ufa Research Institute of Occupational Health and Human Ecology of Rospotrebnadzor, st. Stepan Kuvykina, 94, Ufa, 450106, Russian Federation

Abstract. The study examined the elemental profiles of maternal and neonatal hair samples, as well as placental tissue, in a region with long-standing mining activity and specific biogeochemical conditions. The aim of the study was to investigate patterns of accumulation and distribution of chemical elements in biological environments to determine the influence of the ecological and geochemical conditions of areas with a significant mining sector on the physiology of the fetoplacental complex.

Biomonitoring of the elemental composition in the mother-placenta-newborn system revealed the accumulation of toxic (Pb, Cd, As, Ni, Cr, Hg) and essential (Fe, Mn, Ca, Mg) elements in mothers, their elevated levels in newborns (except Ca), and the inability of the placenta to effectively perform a barrier function.

Correlation analysis of mother-newborn bioenvironments revealed statistically significant relationships, the most pronounced of which was between arsenic levels in maternal hair and calcium in the placenta ($r = 0.763$). This likely reflects arsenic-induced impairment of placental function (oxidative stress, inflammation) and subsequent changes in calcium transport. The observed correlations (e.g., Hg in maternal hair – Zn, Cu, and Ca in the fetus's hair) are interpreted as a consequence of the combined maternal exposure to a complex of environmental pollutants and their subsequent distribution within the mother-placenta-fetus system.

The study revealed a system of statistically significant, moderate-strength inverse correlations between the levels of essential elements (zinc, calcium, and copper) in maternal hair and the toxic nickel content in the placenta and fetal hair. Adequate maternal supply of these trace elements was found to create a biochemical barrier that limits the transplacental transfer of nickel and promotes proper iron distribution in the fetus. These findings highlight the critical role of optimal maternal trace element status as a key factor in protecting the fetoplacental complex from toxicants.

Key words: heavy metals, biological environments, mother's hair, child's hair, placenta.

Funding: The study had no sponsorship.

For citation: Allayarova G.R., Usmanova E.N., Musabirov D.E., Afonkina S.R., Adieva G.F., Aukhadieva E.A., Larionova T.K., Zelenkovskaya E.E. The impact of the mining industry on the element homeostasis of the mother–placenta–fetus system. *Yakut Medical Journal*. 2026. 94(2): 62–67. <https://doi.org/10.25789/YMJ.2026.94.16>