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ORIGINAL RESEARCH

Impact of Structural Employee Empowerment on Hospital Ratings: Mediating Role of Social Climate and First-Line Managers' Resilience

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Objective: The purpose of this article is to investigate the relationship between the structural empowerment of first-line health managers and health facility performance, examining the mediating roles of resilience and social climate in shaping the ratings of Slovak hospitals. Additionally, we aim to investigate the deeper mechanisms of this relationship, particularly the impact of resilience and the social climate, which can positively influence it.

Materials and Methods: The data collection was conducted through a questionnaire survey in February 2022. Respondents included 540 healthcare managers at the first level of management from 44 Slovak hospitals, all of which were part of the evaluation by the Institute for Economic and Social Reforms (INEKO). The analysis involved the use of the PLS-SEM method to examine the relationships between variables and assess direct and indirect effects, utilizing SmartPLS 3.3 software.

Results: The findings reveal a positive association between the structural empowerment of first-level managers and the ranking of health facilities. The hypotheses regarding the mediation of both variables - First-Level Managers' (FLMs) resilience and social climate - are supported, whether considered separately or jointly. In the case of joint mediation, a significant portion of the indirect effect is conveyed through FLMs' resilience, suggesting a potential avenue of support from hospital management to enhance health facility ratings.

Conclusion: Structural empowerment of first-line managers establishes the conditions for improving the ratings of health facilities. The total effect is significantly more pronounced in promoting their resilience and fostering a supportive social climate.

Keywords: health facility performance, healthcare management, social climate, resilience, hospital rating

Introduction

Healthcare, a vital and rapidly growing economic sector, faces resource constraints, heightened patient demands, and the imperative for high-quality services, aligning with public health objectives.[1–3] Amid rapid economic, social, technological, and environmental shifts, the healthcare system grapples with substantial financial and existential pressures.[4] The contemporary public health system has undergone swift transformation to adapt to modern challenges and opportunities.[5] In this dynamic operating environment, healthcare facilities face significant demands for effective management.[6]

Governments acknowledge the importance of optimizing practices and care pathways, introducing innovative approaches like digital health, and ensuring transparent reporting through facility ratings.[7]

In healthcare organizations, safeguarding human life entails immense pressure to maintain high service quality.[8] First-line managers (FLMs), particularly department heads and head nurses, play a pivotal role in ensuring sustained facility performance, serving as the crucial link bridging health facility executives and management.[9] Their evolving roles shift from a dual focus on expertise and supervision to a more concentrated management role.[10]

The demanding role of FLMs, exacerbated post-COVID-19, underscores the pivotal role of their resilience.[11] Support mechanisms, empowerment, and a positive social climate are crucial for FLMs to navigate intense pressure and conflicting expectations effectively.[12] The resilience of FLMs becomes pivotal in adapting to the challenges faced post-COVID-19.[13]

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Effective support for FLMs in problem-solving and on-the-job learning is crucial for their demanding roles.[12] A positive social climate is closely linked to enhanced perceptions of the work environment's quality and subsequent satisfaction among both staff and patients.[14]

A large portion of conducted studies is related to the relationship between hospital ratings and patient satisfaction.[15–17] This fact is understandable, as assessors, rating agencies, and policymakers consider patient experiences crucial.[18] Only a few studies focus on the impact of managerial factors on hospital ratings – most commonly on the influence of communication skills on patient satisfaction scores, examined.[19,20] However, today we know that soft skills have a fundamental impact on organizational management.[21] We consider this fact to be a research gap and an area deserving greater scientific attention in the context of hospital rating examination. These facts form the basis of constructing our research model, the purpose of which is to explore the relationships between the variables of Structural Empowerment (SE) and Hospital Rating (HR), and the mediating role of First-Line Managers' Resilience (FLMR) and (social climate SC).

Literature Review and Hypotheses Development

Hospital Rating (HR)

Hospital ratings are pivotal indicators of healthcare quality, influencing patient choices and facilitating resource allocation.[22] Assessing care quality involves multifaceted dimensions, encompassing clinical outcomes and patient experiences.[23] Patients are recognized as healthcare consumers, emphasizing the importance of their experiences in evaluating system quality.[24]

Policymakers and hospital management consider patient experience crucial, reflected in hospital ratings as a key criterion for healthcare system effectiveness. Empirical evidence highlights correlations between economic outcomes, workplace quality of life, and care quality.[25–28] Assessing hospital performance through workplace quality of life gains prominence[29] with ratings aiding patients in selecting suitable facilities.[30]

Our study, within the Slovak healthcare context, utilizes INEKO ratings, assessing healthcare institutions based on indicators like patient satisfaction, healthcare quality measures, doctors' practical experience, diagnostic complexity, management, and transparency over four years. INEKO gathers data from diverse sources, ensuring comprehensive evaluations.[31]

Hospital Rating (HR) and Structural Empowerment (SE)

Structural Empowerment significantly contributes to individual ratings, representing the extent to which employees have access to resources, information, and support for effective job performance.[32] SE includes access to information, support, resources, and learning opportunities.[33,34] Learning opportunities involve challenging tasks and acquiring new skills, influencing professional growth.[35,36]

Access to information encompasses knowledge of organizational aspects, policies, and goals, while support involves feedback from various stakeholders.[37,38] SE significantly supports First-Line Managers (FLMs) and their role in creating empowering conditions for subordinates.[34,39] FLMs' access to empowering structures positively influences their performance, impacting subordinates.[40]

Promoting structural empowerment enhances job satisfaction for FLMs and fosters organizational citizenship behavior.[40] Access to empowering structures correlates with positive outcomes, including reduced turnover, prevention of burnout,[41] increased patient satisfaction,[42] higher staff-rated quality of care,[43] professional behaviors,[44] and evidence-based practices.[42]

Studies affirm the substantial influence of structural empowerment, clinical leadership, and a creative team climate on hospital performance.[45] Access to empowering structures not only positively affects FLMs' performance but also benefits patients, contributing to overall facility ratings.[43,46] An empowering environment can provide the best care and a healthy, engaged staff.

Based on the evaluation of hospitals' performance through their ratings, we formulate the following hypothesis:

H1: We Hypothesize That the SE of Healthcare Executives Positively Affects the HR of Hospitals.

First-Line Managers' Resilience (FLMR) and Structural Empowerment (SE)

The intricate relationship between Structural Empowerment (SE) and Hospital Rating (HR) is influenced by various factors, with the resilience of First-Line Managers (FLMs) emerging as a crucial variable, particularly in the context of the ongoing COVID-19 pandemic.[11,12] Resilience, defined as the capacity to endure and adapt to adverse conditions, plays a significant role in navigating workplace adversity and showcasing personal strength.[47–49]

In the realm of FLMs, resilience is recognized as a valuable strategy for addressing challenging situations in healthcare.[50–53] Resilience, considered a characteristic, process, and outcome, is stable as a personality trait but can evolve dynamically in response to various contexts and over time.[54,55]

Lower resilience levels among FLMs may pose challenges in empowering their subordinates, emphasizing the importance of creating conditions that enhance FLMs' access to empowering structures.[48,56] First-line managers resilience (FLMR) resilience in daily work is vital for organizational resilience and can be supported through a well-developed infrastructure, coordination between levels, and an extended model emphasizing coordination as a linking aspect between various resilience potentials.[57] Research highlights a significant increase in FLMs' resilience scores following an empowerment-focused educational intervention, leading to greater readiness to enhance quality outcomes, improve team performance, and ultimately elevate facility ratings.[29,49]

H2: We Hypothesize That the Relationship Between SE and HR is Mediated by FLMR.

Social Climate (SC)

The social climate (SC) is characterized by trust, cooperation, and shared codes that exist among individuals within the organization. The social climate of healthcare institutions is determined by many factors such as leadership, organizational structure, historical forces, level of accountability, behavior, and communication.[58] Through these social mechanisms, the resilience of employees,[59] institutional performance, and their external evaluation (HR) can be positively influenced.[60] Social climate, shaped by norms and interactions, influences how employees perceive their workplace interactions, fostering trust, collaboration, and shared values.[61–63] Positive social climates in healthcare, predominantly studied among doctors and nurses, contribute to high work engagement and well-being.[64] However, limited attention has been given to First-Line Managers (FLMs) in this context.

FLM engagement across medical specialties is influenced by the workplace's social climate, empowering them to lead effectively, act independently, and cope with demands, reducing burnout risk.[65,66] A negative social climate may lead FLMs to feel undervalued, and studies suggest a moderate link between climate and FLM structural empowerment.[67] Positive social climates yield favorable outcomes at both individual and organizational levels, mediated by FLM resilience.[63]

In healthcare settings, positive social climates enhance staff and patient satisfaction, interaction quality, and perception of wards as safe places.[68] Conversely, negative social climates are linked to increased aggression.[69,70] Social climate significantly influences patient satisfaction, impacting overall facility perception.[71] Active management and monitoring of social climate are crucial for healthcare facilities, given its potential impact on ratings.[14,72]

Understanding the connections between social climate, job satisfaction, engagement, and burnout is essential for effective climate management.[73,74] Recent research emphasizes the need for a positive organizational climate in the healthcare sector to maintain motivation, commitment, job satisfaction, and innovative behavior.[74–76] Empirical analysis supports a positive human resource-oriented social climate enhancing work engagement.[64] Consequently, we hypothesize that Social Climate (SC) mediates the relationship between Structural Empowerment (SE) and Hospital Rating (HR).

H3: We Hypothesize That the Relationship Between SE and HR is Mediated by SC.

Given that these factors do not operate in isolation but simultaneously, we investigate the model as a whole, assuming that the relationship between SE and HR is simultaneously mediated by First-Line Manager Resilience (FLMR) and Social Climate (SC).

H4: We Assume That the Relationship Between SE and HR is Mediated by FLMR and SC Simultaneously.

Figure 1 illustrates the theoretical model of the study.

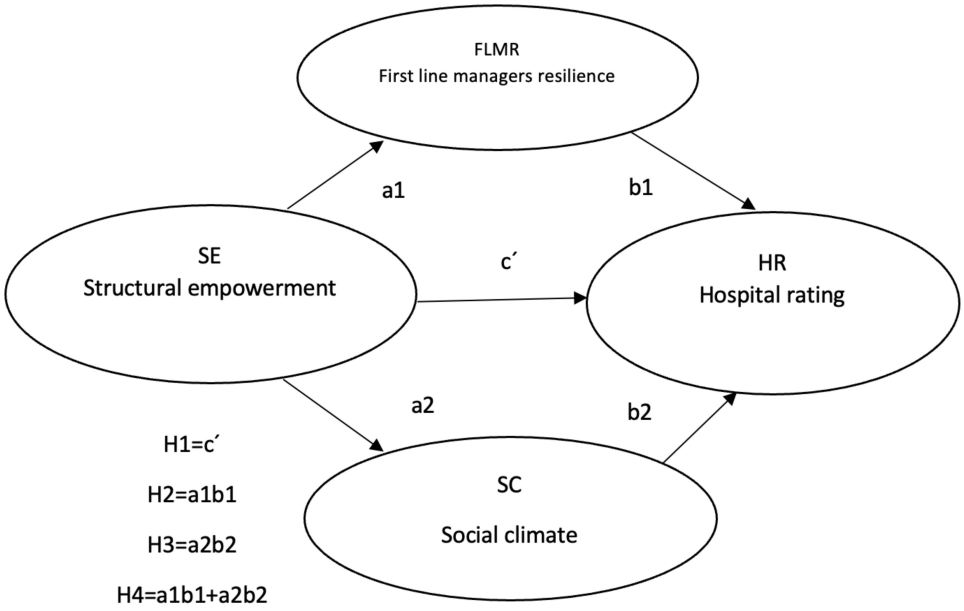


Figure 1 Theoretical model of the study.

Materials and Methods

Sample and Procedures

In this study, we employed quantitative research methods, with data collection conducted via a questionnaire. Prior to its implementation, we conducted a pilot survey in the form of interviews with 10 managers from healthcare facilities. The aim was to validate the relevance of the questions and the entire model in the context of their practical experience. After comparing and making slight modifications to the statements while retaining their relevance, we distributed questionnaire links to first-line managers at 11 university hospitals and 33 general hospitals. These hospitals were part of the Institute for Economic and Social Reforms (INEKO) monitoring program, which provided a set of indicators for their evaluation. Details on the method of data collection for determining the hospital rating are provided in the measurement section. The questionnaire distribution and data collection took place during January and February 2022.

The respondents were first-level managers in the hospitals, including chief executives and head nurses from various clinical areas. We approached them to collaborate in our research, explaining the study's purpose and offering the opportunity to access the research results if they were interested. At the end of the questionnaire, respondents provided their consent for data processing. A total of 1560 participation requests were sent, with a questionnaire return rate of 35%.

A total of 540 responses were collected from healthcare managers, with an average age of 47.5 years (min.=29, max.=64, SD=9.67) and an average of 14.72 years of experience in a management role (min.=1 year, max.=24 years, SD=10.41). Among these managers, 40% were female, and 60% were male, and all held a university degree. Additionally, 30% had completed specialization courses in management. The hospitals where these managers worked were both government-owned (51%) and privately-owned (49%), and all of them were facilities with a staff size exceeding 250.

All the measurement instruments used in the study were standardized. Since these instruments were not available in the Slovak language, we addressed intercultural complexities by following the recommendations of,[77] which included the process of back-translation before administering the instruments. The first step involved translating the instruments from English into Slovak, followed by back-translation to verify accuracy. Bilingual experts carried out the translation, and any ambiguities were resolved by modifying statements while preserving their intended meaning.

The questionnaire comprised 32 indicator variables, in addition to the identification data. To mitigate common method bias, a common challenge in research, we used concise, straightforward sentences. Items were randomly distributed and intermixed to prevent response interference. We also conducted collinearity statistics, including the calculation of the VIF.

The values found were less than or equal to 3.3, therefore we can conclude that our chosen model is not subject to common method bias.[78]

Measures

Hospital rating (HR) values were obtained from data from INEKO (Institute for Economic and Social Reforms), a non-governmental organization that annually awards the Hospital of the Year award and publishes a ranking of hospitals in Slovakia. This award does not comprehensively assess the quality of inpatient healthcare facilities but informs about their performance based on available selected indicators of patient satisfaction, indicators of the quality of healthcare provided, the operational experience of doctors, the complexity of diagnoses, management, and transparency over the past four-year period (HR1 to HR6). INEKO collects data from health insurance companies (VšZP, Dôvera, Union), health care institutions, the Ministry of Health of the Slovak Republic, the Ministry of Finance of the Slovak Republic, municipalities, the Health Care Supervision Authority of the Slovak Republic, the National Centre for Health Information, the Operational Centre of the Emergency Medical Service of the Slovak Republic, and Transparency International Slovakia. 11 university hospitals and 33 general hospitals in Slovakia passed the qualification criteria, which ensure the relevance of the assessment. The resulting hospital rating is calculated as a weighted average of the scores achieved for the above indicators.

The overall performance assessment of hospitals consists of 6 categories. Individual criteria contribute to the assessment with different weights. The criteria like quality + patient satisfaction, together comprise almost 60% of the overall assessment. However, other criteria also reflect performance, which is influenced by the management level at the FLM level. The quantity and complexity of services that a healthcare facility is capable of delivering in a year partly reflect the quality of its management. The same applies to economic results and the hospital's openness to its environment. These criteria, which are related to the quality of FLM management, are indirectly accounted for in the overall performance assessment of the facility with lesser weight. Table 1 describes the criteria included in the INEKO assessment.

The criteria were evaluated over a period of 4 years, ensuring stability of quality, with the weights of the data decreasing towards the past (the data from the last evaluated year having the highest weight). Individual criteria are converted into point values ranging from 0 to 100 points.

Table 1 Criteria Included in the INEKO Assessment

Criteria	Weight	Sub-criteria
Medical indicators		
Quality of provided healthcare	40%	Reoperation rate 30-day readmission rate Mortality rate Patient wait time after ambulance arrival Penalties
Experiences	10%	Number of performed Evidence-Based Hospital Referral (EBHR) procedures per year - 20 monitored categories of procedures
Complexity of diagnoses	10%	Average economic-medical complexity of patients hospitalized in the hospital
Non-medical indicators		
Patient satisfaction	18%	Overall patient satisfaction - 12 sub-indicators Complaints
Economy / Financial Management	12%	Ability to generate own resources Debt overdue and its year-on-year change
Transparency	10%	Index of transparency, openness of hospitals to the public - 25 sub-indicators
Total	**100%**	

In total, a facility can receive a maximum of 100 points, with a minimum of 0 points. The higher the score, the better the rating and ranking. The resilience of first-line managers (FLMR) was assessed using the Connor-Davidson Resilience Scale (CD-RISC) (Campbell-Sills & Stein, 2007). This validated 10-item Measure of Resilience is a shortened version of the original 25-item instrument for measuring resilience. Respondents rated these 10 resilience items using a 5-point Likert scale (1 = never, 2 = exceptionally, 3 = sometimes, 4 = often, 5 = almost always). This instrument has demonstrated satisfactory psychometric properties and has been used in other studies.[79]

Social climate (SC) was assessed using a 10-item instrument developed by.[62] Respondents rated these items on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This instrument has also shown satisfactory psychometric properties and has been utilized in other studies.[63]

Structural empowerment (SE) was assessed using the Conditions of Work Effectiveness Questionnaire-II (CWEQ-II),[80] which consists of 12 items. This instrument is built upon Kanter's model of work support and includes four dimensions: opportunities, information, support, and resources. The questionnaire's aim is to determine the extent of first-line managers' access to each dimension mentioned above. A five-point scale was used, ranging from 1 (no access) to 5 (full access). The published reliability coefficients for the scale items have been reported in the range of 0.78 to 0.89 in various studies.[56,81,82] Table 2 provides an overview of latent variable categories and descriptors utilized in the study, offering a comprehensive classification of the analyzed variables.

Age (in years), management experience (in years), gender (0 for male, 1 for female), and completion of specialization studies in management (0 for no, 1 for yes) were included as control variables. These control variables were chosen based on their theoretical relevance and the potential influence on the studied relationships. Notably, these same control variables have been employed in previous healthcare studies.[83–85]

Table 2 Latent Variable Categories and Descriptors

Firstline managers resilience (FLMR)		**Social climate (SC)**	
FLMR1	Able to adapt to change	SC1	Employees have confidence in other employees' intentions and behavior.
FLMR2	Can deal with whatever comes	SC2	Employees are skilled at collaborating with each other to diagnose and solve problems.
FLMR3	Tries to see humorous side of problems	SC3	Employees view themselves as partners in charting the direction of the organization.
FLMR4	Coping with stress can strengthen me	SC4	Employees share information and learn from one another.
FLMR5	Tend to bounce back after illness or hardship	SC5	Employees are aware and committed to the purpose and collective aspirations of the organization.
FLMR6	Can achieve goals despite obstacles	SC6	Employees apply knowledge from one area of the organization to solve problems and opportunities that arise in another.
FLMR7	Can stay focused under pressure.	SC7	Employees in the organization share a commonality of purpose and collective aspirations with others at work.
FLMR8	Not easily discouraged by failure	SC8	Employees in this organization have relationships based on trust and reciprocal faith.
FLMR9	Thinks of self as strong person	SC9	Employees interact and exchange ideas with people from different areas of the organization.
FLMR10	Can handle unpleasant feelings.	SC10	Employees interact with customers, suppliers, partners, etc., to develop solutions.

(*Continued*)

Table 2 (Continued).

Firstline managers resilience (FLMR)		**Social climate (SC)**	
Structural strengthening of employees' powers (SE)			
How much of each kind of opportunity do you have in your present job?		How much access to support do you have in your present job?	
SE1	Challenging work	SE7	The current state of the hospital
SE2	The chance to gain new skills and knowledge on the job	SE8	The values of top management
SE3	Tasks that use all of your own skills and knowledge	SE9	The goals of top management
How much access to support do you have in your present job?		How much access to resources do you have in your present job?	
SE4	Specific information about things you do well	SE10	Time available to do necessary paperwork
SE5	Specific comments about things you could improve	SE11	Time available to accomplish job requirements
SE6	Helpful hints or problem solving advice	SE12	Acquiring temporary help when needed
Hospital Rating (HR)			
HR1	Quality	HR4	Patient satisfaction
HR2	Operative experience of doctors	HR5	Management
HR3	Difficulty of patient diagnoses	HR6	Transparency

Data Analysis

Data analysis was performed using SmartPLS 3.3 software,[86] the primary software used in partial least squares structural equation modeling (PLS-SEM). We used this tool because of its ability to estimate complex models with many constructs, indicator variables, and structural paths (direct and indirect) without imposing distributional assumptions on the data. PLS-SEM allows for a better understanding of the relationships between the selected latent and observed variables. SmartPls as a software support allows to test multiple hypotheses simultaneously, examines direct and indirect effects in complex system, highlights and enables prediction in estimating statistical models.

Results

Our model comprises a set of variables, and it's crucial to assess the measurement model's reliability and validity to ensure it meets our predefined criteria. The reliability criterion is met as all standardized loadings exceed 0.70 (Chin, 2010). We retained variables SC1 and SC7 in the model, despite their lower factor loadings, and excluded variables SE1 and SE11 due to low factor loadings.

Furthermore, our intrinsic construct reliability, assessed using Cronbach's alpha, composite reliabilities (CR), and rho, also meets the requirements. Cronbach's alpha falls within the 0.7 to 0.95 range for all constructs. CR, the most liberal criterion, also satisfies these criteria. Rho_A falls between Cronbach's alpha and CR, aligning with theoretical expectations.[87]

Convergent validity was confirmed by calculating the average variance extracted (AVE), which exceeds the 0.5 threshold for most constructs, with SC and SE values coming close to 0.5. This indicates that the construct explains at least 50% of its item's variance. Discriminant validity was evaluated using three indicators. This adjustment maintains the original content while enhancing the text's overall flow and readability.

We ensured discriminant validity using two well-established methods. First, we applied the Fornell-Larcker criterion, where the square root of AVE for each construct exceeded the inter-construct correlation. Additionally, we utilized the heterotrait-monotrait ratio of correlations, which yielded values below the acceptable threshold of 0.90,[88] confirming the discriminant validity.

To further verify discriminant validity, we conducted cross-loading calculations to assess how factors loaded onto their respective constructs. While we successfully established discriminant validity, we refrain from providing specific values due to the extensive volume of data. Tables 3–5 offer a detailed analysis of model performance, including loadings, reliability, and validity measures, as well as criteria for discriminant validity.

Structural Model

We evaluated the model's predictive significance and path significance using R2 and Q2 values, both of which meet the defined criteria. With an R2 value exceeding 0.1, we confirm the model's predictive capability. Furthermore, Q2 values above 0 indicate the model's predictive relevance. The SRMR value of 0.056 demonstrates an acceptable model fit. Tables 6–8 provide essential insights into model fit, R Square statistics, and construct cross validated redundancy, contributing to a comprehensive understanding of the model's efficacy.

Table 9 presents all observed results (path coefficients) and other related values (STDev, T statistics, p values).

Table 3 Loadings, Reliability and Validity

	Construct/ Indicator	Factor Loading	Composite Reliability (CR)	rho_A	Cronbach´s Alpha	Average Variance Extracted (AVE)
FLMR	FLMR1	0.811	0.942	0.947	0.932	0.619
	FLMR2	0.834				
	FLMR3	0.861				
	FLMR4	0.803				
	FLMR5	0.787				
	FLMR6	0.706				
	FLMR7	0.722				
	FLMR8	0.801				
	FLMR9	0.758				
	FLMR10	0.770				
SC	SC1	0.542	0.901	0.892	0.880	0.479
	SC2	0.756				
	SC3	0.754				
	SC4	0.695				
	SC5	0.725				
	SC6	0.684				
	SC7	0.513				
	SC8	0.757				
	SC9	0.752				
	SC10	0.693				

(*Continued*)

Table 3 (Continued).

	Construct/ Indicator	Factor Loading	Composite Reliability (CR)	rho_A	Cronbach´s Alpha	Average Variance Extracted (AVE)
SE	SE1	0.369	0.894	0.892	0.872	0.422
	SE2	0.709				
	SE3	0.727				
	SE4	0.735				
	SE5	0.708				
	SE6	0.633				
	SE7	0.636				
	SE8	0.730				
	SE9	0.690				
	SE10	0.719				
	SE11	0.346				
	SE12	0.633				
HR	HR1	0.877	0.939	0.926	0.922	0.720
	HR2	0.858				
	HR3	0.843				
	HR4	0.868				
	HR5	0.824				
	HR6	0.818				

Abbreviations: SE, Structural Empowerment; HR, Hospital Ranking; FLMR, Firstline Manager Resilience; SC, Social Climate.

Table 4 Discriminant Validity (Fornell-Lacker Criterion)

	FLMR	HR	SC	SE
FLMR	0.787			
HR	0.366	0.848		
SC	0.633	0.290	0.692	
SE	0.147	0.279	0.215	0.649

Notes: Diagonal elements are the square root of variance shared between the constructs and their measures (AVE). Off-diagonal elements are the correlations among constructs. For discriminant validity, the diagonal elements should be larger than the off-diagonal elements.

Abbreviations: SE, Structural Empowerment; HR, Hospital Ranking; FLMR, Firstline Manager Resilience; SC, Social Climate.

Table 5 Discriminant Validity (HTMT Criterion)

	FLMR	HR	SC	SE
FLMR				
HR	0.373			
SC	0.660	0.305		
SE	0.156	0.302	0.241	

Abbreviations: SE, Structural Empowerment; HR, Hospital Ranking; FLMR, Firstline Manager Resilience; SC, Social Climate.

Table 6 Model Fit

	Saturated Model	Estimated Model
SRMR	0.056	0.056
d_ULS	2.298	2.308
d_G	18.964	18.992
Chi-Square	22,425.471	22,436.528
NFI	0.524	0.524

Table 7 R Square Statistics

	R Square	R Square Adjusted
FLMR	0.855	0.855
HR	0.960	0.960
SC	0.915	0.915

Abbreviations: HR, Hospital Ranking; FLMR, Firstline Manager Resilience; SC, Social Climate.

Table 8 Construct Cross Validated Redundancy

	SSO	SSE	Q^2 (=1-SSE/SSO)
FLMR	5400.000	2252.215	0.583
HR	3240.000	791.190	0.756
SC	5400.000	1465.323	0.729
SE	6480.000	6480.000	

Abbreviations: SE, Structural Empowerment; HR, Hospital Ranking; FLMR, Firstline Manager Resilience; SC, Social Climate.

All direct effects are statistically significant, and the same holds for indirect effects. The results provide support for Hypothesis H1, indicating that SE significantly influences HR ($\beta = 0.858$, $p < 0.05$).

Hypothesis H2 is also supported. The relationship between SE and HR is mediated by FLMR, with a significant indirect effect ($\beta = 0.602$, $p < 0.05$). This mediation is incomplete, as the indirect effect size is less than 80%. FLMR

Table 9 Path Coefficients, Total Effects Results, Direct and Indirect Effects Results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P values
Mediation through both FLMR and SC simultaneously					
SE -> HR (total effect)	0.858	0.859	0.016	54.340	0.000
SE -> HR (direct effect)	0.194	0.192	0.068	2.863	0.004
SE -> HR (total indirect effect)	0.664	0.667	0.061	10.951	0.000
SE -> FLMR -> HR (indirect effect)	0.409	0.418	0.090	4.534	0.000
SE -> SC -> HR (indirect effect)	0.256	0.249	0.094	2.711	0.007
SE -> SC	0.907	0.908	0.011	81.937	0.000
SE -> FLMR	0.906	0.908	0.010	87.850	0.000
SC -> HR	0.282	0.274	0.104	2.718	0.007
FLMR -> HR	0.451	0.460	0.098	4.590	0.000
Mediation through FLMR					
SE -> HR (total effect)	0.858	0.857	0.016	54.731	0.000
SE -> HR (direct effect)	0.256	0.252	0.061	4.168	0.000
SE -> FLMR -> HR (indirect effect)	0.602	0.605	0.054	11.069	0.000
SE -> FLMR	0.906	0.907	0.011	83.867	0.000
FLMR -> HR	0.664	0.667	0.057	11.607	0.000
Mediation through SC					
SE -> HR (total effect)	0.858	0.859	0.015	56.500	0.000
SE -> HR (direct effect)	0.291	0.290	0.063	4.654	0.000
SE -> SC-> HR (indirect effect)	0.567	0.568	0.057	9.890	0.000
SE -> SC	0.907	0.908	0.011	83.499	0.000
SC -> HR	0.625	0.626	0.061	10.187	0.000

Note: $p < 0.05$.
Abbreviations: SE, Structural Empowerment; HR, Hospital Ranking; FLMR, Firstline Manager Resilience; SC, Social Climate.

explains 70% of the total effect as an indirect effect, while the direct effect contributes to the remaining 30% of the total effect. Hypothesis H3 is supported as well. It shows that the relationship between SE and HR is mediated by SC, with a significant indirect effect ($\beta = 0.567$, $p < 0.05$). Similar to H2, this mediation is incomplete, with the indirect effect size below 80% (66% indirect, 34% direct effect). The effect size is comparable to the mediation by FLMR.

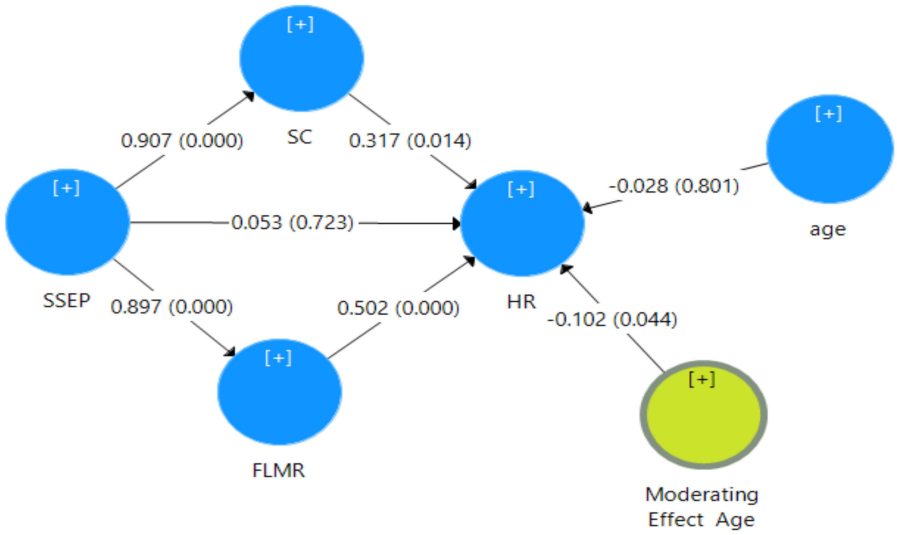
Additionally, we find support for Hypothesis H4, which indicates a mediation effect involving two mediators, following a pattern of incomplete mediation. Of the total effect of SE on HR (0.858), the direct effect accounts for only 23% (0.194), while the remaining 77% of the total effect passes through both mediators simultaneously. Notably, FLMR contributes to a larger share of the indirect effect (61%), compared to the 39% attributed to SC.

We incorporated control variables into the model through multigroup analysis (MGA) and moderation. Once we established measurement invariance of composite models (MICOM), we proceeded with multigroup analysis. The outcomes indicated significant differences in certain pathways under examination. Specifically, we observed disparities

in the SE and FLMR pathway and the SE and SC pathway in favor of women. Other coefficients related to the various pathways did not exhibit statistical significance.

Concurrently, we identified a statistically significant difference between managers with a specialization in management and those without in the SE and HR pathway (β=0.313 for those with a management specialization and β=−0.090 for those without) and the FLMR and HR pathway (β=0.524 for those with a management specialization and β=−0.030 for those without).

Furthermore, to assess the impact of managerial experience length and FLMs' age on the SE and HR relationship, we conducted moderation analysis. Figure 2 illustrates the results of moderation analysis.



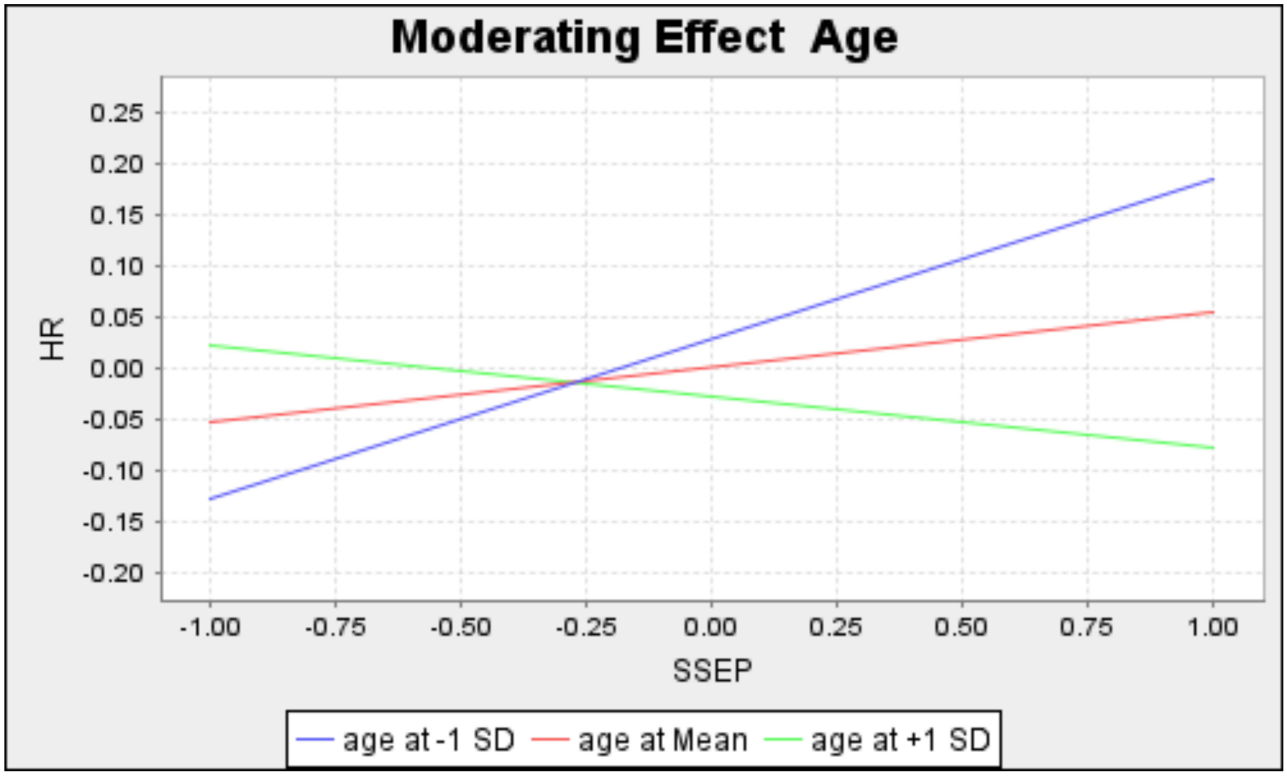
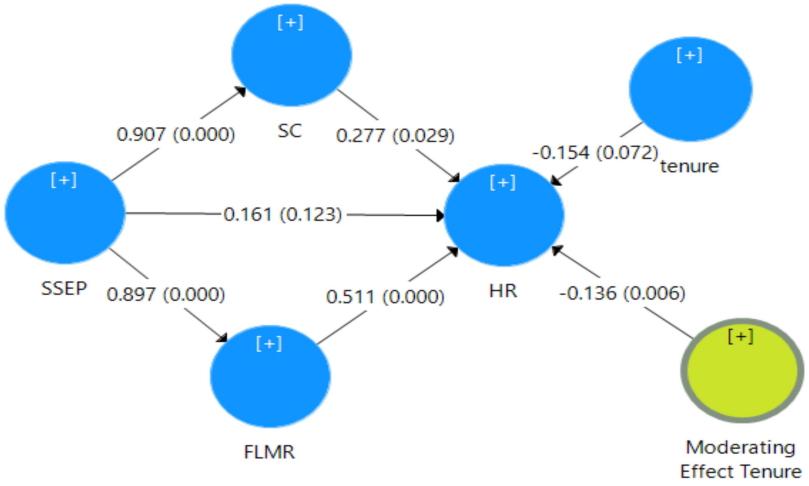


Figure 2 Moderation effect of the variable age of FLMs on the relationship between SE and HR.

The results indicate that the moderating effect of age is significant and negative (β = −0.102, p = 0.044), suggesting that the relationship between SE and HR is more pronounced for younger managers. Figure 3 illustrates the moderating effect of the management practice variable on the relationship between SE and HR.

The moderating effect of management experience length is indeed significant, albeit in a negative direction (β= −0.136, p=0.006). This suggests that the relationship between SE and HR is amplified among managers with less experience in their roles. Those with shorter tenure in management positions tend to derive more substantial benefits from structural empowerment.



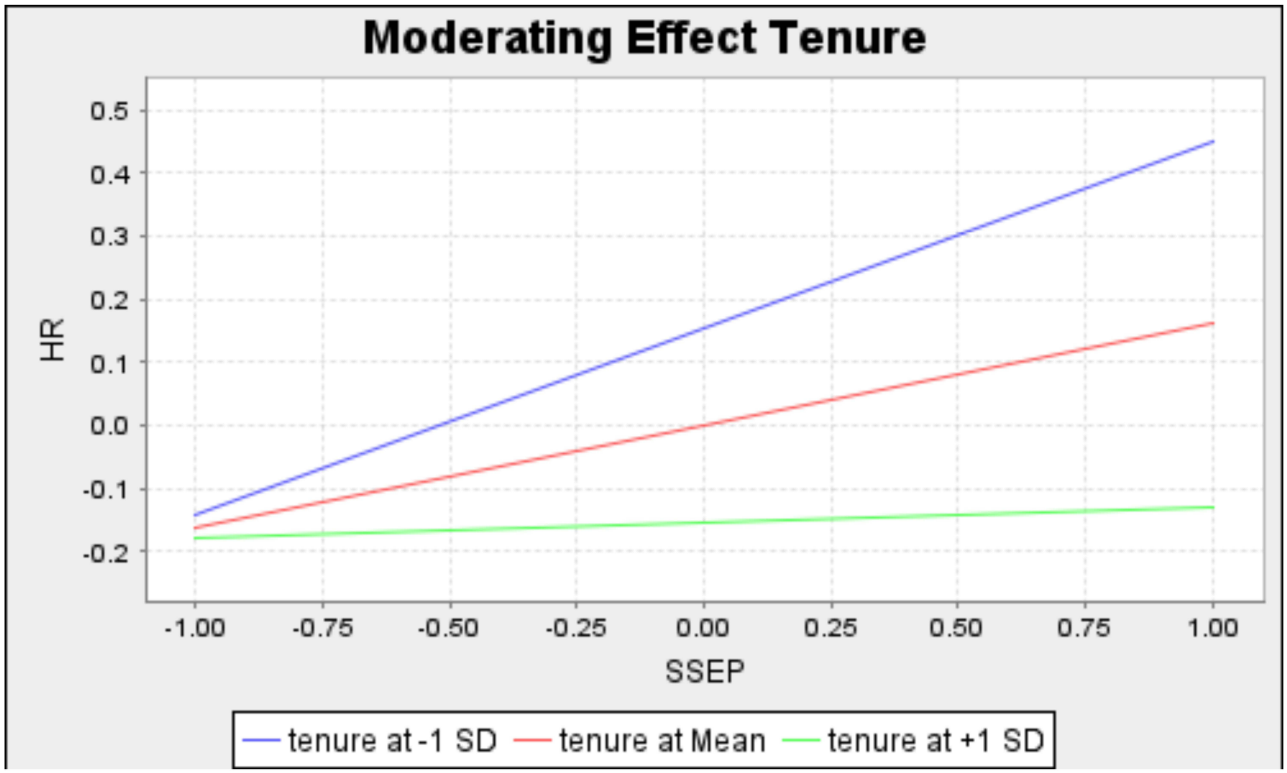


Figure 3 Moderating effect of the management practice variable on the relationship between SE and HR.

Discussion

Hospital ratings serve as vital healthcare quality indicators, influencing patient decisions on hospital selection. In the Slovak context, INEKO assesses hospitals over four years, incorporating indicators like surgery volume, diagnostic complexity, patient satisfaction, management, and transparency. Despite varied methodologies, rating systems consistently demonstrate high predictive capacity, acting as a robust performance gauge.

Our study delves into the impact of structural empowerment (SE) on Hospital Rating (HR), examining the mediating roles of first-line managers' resilience (FLMR) and social climate (SC). FLMs, crucial in healthcare, face complex demands impacting overall facility performance.[89,90] SE significantly influences FLM performance ($\beta = 0.896$), aligning with previous studies (Al-Habib, 2020; Donahue et al, 2008; Hagerman et al, 2017). SE enhances employee performance, fostering resilience and reducing burnout.[41,56]

Positive associations exist between staff SE access and patient satisfaction, quality of care, and professional behaviors.[42,44] Our study investigates the direct SE-FLMR-HR relationship, confirming FLMR and SC as significant mediators. FLMR and SC together mediate 77% of the total effect, with FLMR ($\beta = 0.409$) outweighing SC ($\beta = 0.256$).

Our findings resonate with studies highlighting FLMR's positive impact on job performance.[72] FLMR serves as a coping strategy, aiding effective navigation of challenges.[51,53] FLMR, constituting 70% of the total effect, significantly contributes to HR. SC, vital in bolstering FLM performance, aligns with previous research emphasizing its role in motivation and innovative behavior.[74,75]

Age and management experience moderate SE- HR relationships, with younger and less experienced managers benefitting more. Significant gender and education differences exist, with women and managerially educated FLMs experiencing stronger effects. To address global healthcare challenges, our study advocates a proactive approach, structurally strengthening FLMs, fostering resilience, and cultivating a positive social climate. An integrated strategy, empowering FLMs, building resilience, and nurturing a collaborative social climate, holds promise for enhanced healthcare facility ratings.

Conclusion

The COVID-19 pandemic had a significantly detrimental impact on almost all the monitored indicators of healthcare quality, leading to a decline in various aspects. According to INEKO's report in 2022, there was a notable reduction in the number of surgical procedures performed, delays in planned operations, and a decrease in the availability and quality of healthcare services. In the Slovak Republic, these issues have resulted in numerous challenges, including doctors going on strike and the resignation of around 2000 medical professionals due to inadequate wages and poor working conditions, as of October 31, 2022. The OECD has repeatedly warned Slovakia about its underfunded healthcare system and has urged the government to urgently implement necessary reforms. Health institutions' management now faces the daunting task of maintaining the required healthcare performance and quality standards during these challenging conditions. In addition to awaiting systemic changes, they must also mobilize all available internal resources.

Our study offers valuable theoretical and practical insights for healthcare facility management. Theoretical implications encompass a deeper understanding of how the structural empowerment of first-line managers (FLMs) influences the quality of healthcare services. Moreover, our findings shed light on the underlying mechanisms governing this relationship. These implications are not only relevant within the context of the study but also have global applicability. Contemporary healthcare systems face similar challenges across developed countries, and although there may be local specificities, the effects of the variables examined can be considered universal.

On a practical level, our findings have important implications for the top management of healthcare facilities. Ongoing organisational changes, global shortages of healthcare staff, their enormous workload in the context of the ongoing pandemic, and problems with staff retention significantly threaten the quality of healthcare provided. They are therefore global challenges for managers not only in Slovakia (WHO, 2020). To address this situation in healthcare, a proactive approach to structurally strengthening FMLs is emphasized,[34] which is considered one of the key factors for ensuring occupational health and organizational performance.[29]

First-line management plays a pivotal role, facing the dual challenge of achieving organizational objectives and fostering the commitment of their subordinates. To effectively fulfill these roles, their success hinges on the support of senior management and the establishment of enabling conditions, often in the form of structural empowerment. This requirement is especially pronounced for younger and less experienced first-line managers. Research by[75] has demonstrated that when first-line managers, as well as other employees, perceive a lack of structural empowerment, it results in diminished engagement in hospital politics and a reduced awareness of organizational goals.

The positive effects of structural empowerment (SE) can be significantly enhanced by bolstering the resilience of first-line managers and cultivating a positive social climate grounded in trust. Healthcare facilities should take these considerations into account when shaping their human resource management processes, aligning with the recommendations of.[91]

Another noteworthy finding is that all the factors under examination work more effectively when interconnected, amplifying their impact. Therefore, a suitable strategy for healthcare facilities is to create an environment that empowers first-line managers, fosters their resilience in dealing with demanding tasks, and cultivates a social climate based on trust and collaborative synergy across organizational structures. In accordance with the insights of,[29] it's also crucial for first-line managers to have access to career and training opportunities beyond the healthcare team and to develop the skills required for this. These processes necessitate a transformation of management practices, extending from top-level management to the first line of management, with the aim of genuinely empowering staff sustainably.[92,93] Such an approach holds the potential to significantly boost the ratings of healthcare facilities through the performance of their key personnel.

Limitations of Research

While our study brings new findings, it also has its limitations that need to be acknowledged. One of them is the use of cross-sectional data. A limitation of our research is also partially the use of the PLS-SEM method. Given that we are working with multilevel data, evaluating data from 44 clinics (units at the macro level) and from FLM (units at the micro level), the most appropriate method for this research would be multilevel analysis, as multilevel data are collected. We see this as a path for future follow-up research. As part of the future direction of the research, we would also like to focus on a deeper examination of the impact of SE on selected HR items such as quality of healthcare and patient satisfaction.

Abbreviations

FLMs, First-line Managers; FLMR, First-line Managers' Resilience; SE, Structural Empowerment; SC, Social Climate; INEKO, Institute for Economic and Social Reforms.

Ethical Approval

Ethical clearance for the study was granted by the Ethics Committee of the University of Economics in Bratislava. All ethical considerations pertaining to the research were meticulously observed. The research objectives were clearly communicated to the participants, who were encouraged to contribute their data. Data collection was conducted with utmost regard for the confidentiality of the respondents. Participants signified their agreement to partake in the study. The voluntary consent to participate was upheld as a fundamental ethical tenet, with a simultaneous emphasis on ensuring participants were thoroughly informed about the study's objectives, procedures, and potential risks. The study adhered to the guidelines outlined in the Declaration of Helsinki.

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Author Contributions

Each author contributed significantly to the conception and design, data acquisition, analysis, and interpretation of the study. They actively participated in drafting the article and critically revising it for important intellectual content. All authors

endorsed the submission to the present journal, provided final approval for the version intended for publication, and committed to being accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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