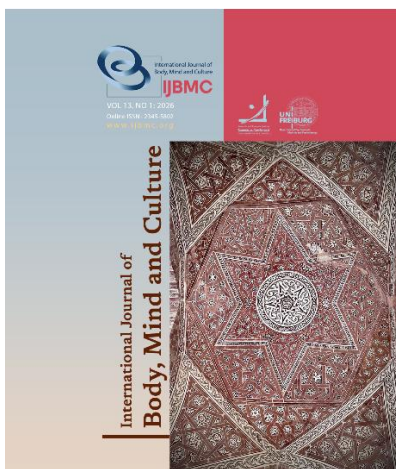


Article type:  
Original Research

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Article history:

Received 18 Sep 2025  
Revised 24 Nov 2025  
Accepted 12 Dec 2025  
Published online 01 Jan 2026



How to cite this article:

Nik Khesal, M., Shaki, M. H., & Jafari Kelarijani, S. A. (2026). Factors Affecting the Effectiveness of Human Resource Management in the Iranian Health System: A Mixed-Methods Study. *International Journal of Body, Mind and Culture*, 13(1), 202–210.



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# Factors Affecting the Effectiveness of Human Resource Management in the Iranian Health System: A Mixed-Methods Study

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## ABSTRACT

**Objective:** This study aimed to identify the factors affecting the effectiveness of human resource management in the Iranian health system, with Babol University of Medical Sciences as a case study.

**Methods and Materials:** This mixed-methods study used an exploratory sequential design. In the qualitative phase, semi-structured interviews were conducted with 10 experts and senior health managers selected through purposive and snowball sampling, and data were analyzed using thematic analysis. In the quantitative phase, a researcher-made questionnaire based on the qualitative findings was administered to 384 managers and health-sector experts selected through stratified random sampling. Data were analyzed using descriptive statistics, confirmatory factor analysis, structural equation modeling, and Delphi rounds.

**Findings:** Qualitative analysis identified five main categories affecting HRM effectiveness: organizing and aligning human resources, meritocracy in managerial appointments, empowerment of managers and staff, retention and maintenance of human resources, and use of information and communication technology. In the Delphi phase, consensus increased across three rounds, with Kendall's W rising from 0.35 in round 1 to 0.78 in round 3 ( $p = 0.001$ ). The highest-ranked indicators were complete transparency in performance evaluation (mean rank = 4.78, SD = 0.42), low turnover rate of key employees (4.72, SD = 0.46), quick and reliable access to personnel data (4.65, SD = 0.50), fair distribution of allocated resources (4.59, SD = 0.48), and employee participation in decision-making (4.53, SD = 0.51).

**Conclusion:** Systematic attention to meritocracy, retention, empowerment, organization, and information technology can improve the effectiveness of human resource management in health organizations.

**Keywords:** Personnel Management, Health Personnel, Health Systems, Organizational Innovation, Leadership.

## Introduction

The health system, as one of the most vital sectors of any society, plays a fundamental role in improving the quality of life, human development, and social sustainability. Achieving the goals of the health system depends more than any other factor on the effectiveness of human resource management, because the health workforce—due to the specialized, ethics-based, and sensitive nature of healthcare services—has a decisive role in the performance and effectiveness of health organizations. Therefore, identifying and strengthening the factors that affect the effectiveness of human resource management is a key priority for policymakers and managers in the health system (Esfahani et al., 2018).

In recent years, increasing complexity in the health system, rising social expectations, growing workload pressures, and financial resource constraints have made the need for modern managerial approaches more prominent than ever. Evidence shows that the health sector is one of the largest and most costly economic sectors in the world, and its continuity and sustainability require improvements in managerial effectiveness, especially in human resources. In this regard, human resource management, as one of the most important sources of organizational capability creation, plays a key role in increasing productivity, improving performance, and enhancing the quality of health services (Akramirad et al., 2022; Li et al., 2019).

The shift from traditional human resource management approaches to strategic human resource management has led to human resources being viewed not only as an operational factor but also as a strategic asset and a source of sustainable competitive advantage. This issue is of even greater importance in service organizations, particularly in the health system, because the quality of services provided depends directly on employees' performance, motivation, skills, and interactions. Therefore, improving the effectiveness of human resource management requires identifying a set of individual, managerial, organizational, and technological factors that can lead to better workforce performance (Cooke, 2001; Namazie & Pahlavnejad, 2016).

Despite this importance, Iran's health system faces numerous challenges in the field of human resources, including shortages and unequal distribution, job

burnout, high workloads, low job satisfaction, weaknesses in managerial meritocracy, inefficiencies in some policies, and poor use of modern managerial technologies. These challenges not only reduce employee productivity but also affect the quality of healthcare services and patient safety (Zalani et al., 2018). The existence of these issues indicates that without accurately identifying the factors that affect the effectiveness of human resource management, achieving the health system's macro-level goals will be difficult.

In this context, researchers believe that improving the effectiveness of human resource management is not achieved only through structural and technical factors; rather, a set of soft and intangible factors also play an important role. One such factor is social capital, which includes mutual trust, communication networks, shared norms, and a spirit of cooperation among employees. Social capital can help improve human resource performance and the effectiveness of its management by facilitating knowledge flow, reducing organizational conflicts, and strengthening professional collaboration (Askarian et al., 2015; Diaz-Carrion et al., 2017).

Previous studies have shown that social capital, alongside other managerial, human, and organizational factors, can play an effective role in improving organizational performance, increasing job satisfaction, and developing human resources (Razmi & Bazazan, 2012; Tajpour & Hosseini, 2019). However, a review of the literature indicates that, in Iran's health system, studies that comprehensively identify the factors affecting the effectiveness of human resource management are limited, and most research has focused only on certain isolated dimensions (Pucci et al., 2015; Salehi et al., 2020).

Accordingly, the present study was conducted to identify the factors affecting the effectiveness of human resource management in Iran's health system and, with a focus on Babol University of Medical Sciences, to identify and explain the key dimensions and components influencing its effectiveness. It is expected that the findings of this study, in addition to enriching the theoretical literature, will provide a basis for practical solutions for managers and policymakers in the health system to improve the effectiveness of human resource management.

## Methods and Materials

### Study Design

The present study is a mixed-methods research with an exploratory sequential design aimed at identifying and validating the factors affecting the effectiveness of human resource management (HRM) in the Iranian health system. In the first stage, qualitative exploratory methods were used to identify the dimensions, components, and indicators affecting the effectiveness of HRM. In this stage, data were collected through library studies and semi-structured interviews with experts in human resource management and the health system. Purposive and snowball sampling were used, and the interviews continued until theoretical saturation was achieved (10 participants). The qualitative data were analyzed using thematic analysis and the three-phase coding method (open, axial, and selective) in MAXQDA.

Based on the results of the qualitative stage, the study's conceptual framework was developed, and a researcher-developed questionnaire was designed. In the second stage (quantitative), the Delphi technique was used to validate the extracted factors and components. The statistical population for this phase comprised managers, department heads, and senior human resource management experts at medical universities nationwide, with a sample of 384 individuals selected through stratified random sampling.

Subsequently, the quantitative data were analyzed using descriptive and inferential statistics, confirmatory

factor analysis, and structural equation modeling (SEM) in SPSS and AMOS. The validity of the research instrument was confirmed through content validity, convergent and discriminant validity, and reliability was assessed using Cronbach's alpha and composite reliability. Ethical considerations, including informed consent from participants and confidentiality of information, were strictly observed.

### Findings and Results

This section presents the study's findings based on data analysis in two main domains: descriptive (qualitative) and quantitative (Delphi results). These findings provide a framework for understanding the relationship between HRM effectiveness and the dimensions of social capital in the health system.

#### *Part One: Descriptive (Qualitative) Findings*

The first section of the findings focuses on the sample's demographic characteristics and the content coding process.

#### *Description of the Demographic Characteristics of the Interviewees*

In this research, in-depth semi-structured interviews were conducted with individuals with managerial and professional backgrounds in human resources and health planning. Descriptive results of the sample's demographic characteristics are presented in the tables below.

**Table 1**

*Distribution of Gender and Frequency of Interviewees*

Frequency	Percentage	Group
8	80%	Male
2	20%	Female
10	100%	Total

As shown, the gender distribution of the sample is relatively balanced, although a small number of women had higher participation rates.

**Table 2**

*Distribution of Work Experience and Frequency of Interviewees*

Frequency	Percentage	Group
3	30%	Less than 10 years
5	50%	10 to 20 years
2	20%	More than 20 years
10	100%	Total

The results show that a significant portion of the experts have considerable work experience (more than

10 years) in the health sector, indicating deep practical knowledge in the field.

**Table 3**

*Distribution of Educational Level and Frequency of Interviewees*

Frequency	Percentage	Group
2	20%	Master’s Degree
8	80%	Doctorate
10	100%	Total

More than half of the interviewees hold a master’s degree or higher in fields related to management or health sciences.

**Table 4**

*Distribution of Age and Frequency of Interviewees*

Frequency	Percentage	Group
1	10%	Less than 35 years
6	60%	35 to 50 years
3	30%	Over 50 years
10	100%	Total

The age group of 35 to 50 years comprised the largest portion of the sample, emphasizing their professional experience.

This process included open, axial, and selective coding to extract key concepts related to HRM effectiveness and social capital.

*Content Coding and Categorization Process*

The qualitative data from the interviews were analyzed using thematic analysis and MAXQDA software.

**Table 5**

*Summary of the Content Coding Process*

Category	Axial Code	Open Code
<b>Organizing and Aligning Human Resources</b>	Optimization of human resource structure	Clear definition of employees’ roles
<b>Organizing and Aligning Human Resources</b>	Improving the recruitment process	Recruiting qualified human resources
<b>Meritocracy in Managerial Appointments</b>	Managerial meritocracy	Appointing managers based on merit
<b>Empowering Employees</b>	Developing specialized skills	Training new employees
<b>Job Satisfaction and Motivation</b>	Retaining human resources	Creating motivation for employee retention

As shown in Table 5, after refinement and categorization, 90 final codes were extracted as key concepts, forming the basis of the main categories.

**Table 6**

*Main Categories of HRM Effectiveness and Social Capital Dimensions*

HRM Effectiveness Main Categories	Related Dimensions of Social Capital
Organizing	Structural
Meritocracy	Structural
Empowerment	Cognitive
Retention and Maintenance of Human Resources	Relational
Use of Information Technology	Cognitive and Relational

The coding results indicated that five main categories define HRM effectiveness from the experts' perspective, each of which overlaps meaningfully with one or more dimensions of social capital (structural, cognitive, and relational).

*Part Two: Quantitative Findings (Delphi Results)*

The second part of the findings focuses on validating and prioritizing the indicators extracted from the qualitative phase using the Delphi method. The purpose

of this technique was to reach consensus among experts on the most influential indicators.

*Delphi Technique Results and Indicator Validation*

Three rounds of the Delphi technique were conducted, allowing for iterative evaluation and refinement of the responses. The convergence of results across rounds indicated the degree of acceptance and consensus among the experts regarding the indicators.

**Table 7**

*Summary of Convergence Results in Three Rounds of Delphi*

Number of Indicators	Average Kendall's W	Significance Level (Sig.)	Delphi Round
50	0.35	0.001	Round 1
45	0.62	0.001	Round 2
40	0.78	0.001	Round 3

As shown in Table 7, the Kendall's W coefficient significantly increased from 0.35 in Round 1 to 0.78 in Round 3. This upward trend reflects a strong consensus among the experts on the final indicators. All results were statistically significant at  $p < 0.01$ , indicating high validity and significance of the findings. As a result, the selected indicators in Round 3 were confirmed as key indicators for HRM effectiveness and social capital in this study.

*Final Confirmed Main Indicators*

After applying consensus filters (typically a Kendall's W coefficient above 0.7 and a specified ranking average), forty final indicators were confirmed in the form of five categories of HRM effectiveness. Below are the top five indicators, based on the experts' average ranking on a 5-point Likert scale (1 = least important, 5 = most important).

**Table 8**

*Prioritization and Ranking of the Top 5 HRM Effectiveness Indicators in the Context of Social Capital*

Rank Average	Standard Deviation (SD)	Main Indicator	HRM Category
4.78	0.42	Complete transparency in performance evaluation	Meritocracy
4.72	0.46	Low turnover rate of key employees	Retention and Maintenance
4.65	0.50	Quick and reliable access to personnel data	Information Technology
4.59	0.48	Fair distribution of allocated resources	Organizing
4.53	0.51	Employee participation in decision-making	Empowerment

As shown in Table 8, experts in the health system considered indicators related to meritocracy, retention, and maintenance to be the most important (with average rankings above 4.7). This emphasizes the importance of ensuring procedural justice in evaluation and reducing

the attrition of skilled personnel as key managerial challenges within the health system's existing social capital. The low standard deviations across all indicators indicate a relatively high level of certainty among the experts regarding the rankings provided.

## Discussion and Conclusion

The findings of this research provide a multi-layered and integrated picture of the effectiveness of human resource management (HRM) in the health system, with an emphasis on social capital. The results suggest that while the overall structure of HRM at Babol University of Medical Sciences is acceptable, the sustainability and deepening of this favorable situation depend heavily on the quality of the organization's social capital. In fact, social capital not only acts as a background variable but also as a facilitating mechanism that plays a decisive role in the effectiveness of HRM policies and practices.

In the quantitative dimension, the results show that various aspects of HRM effectiveness, as perceived by employees and managers, are not uniform. The highest level of satisfaction pertains to areas directly related to growth, learning, and empowerment of individuals. This indicates that the organization's investment in developing professional and educational competencies has generated a positive perception among employees. This situation can be seen as a strengthening of the cognitive aspect of social capital, in which shared understanding, values, and organizational goals lay the foundation for acceptance of developmental programs.

In contrast, lower evaluations in the areas of retention and sustainable support for human resources indicate a significant gap between competency development and job security. This finding shows that while the organization has been more successful in empowering human capital, it faces challenges in translating these capabilities into a sense of security, belonging, and long-term loyalty. From a social capital perspective, this weakness may stem from deficiencies in the relational dimension, particularly regarding organizational trust, perceived fairness, and the quality of relationships between managers and employees.

The analysis of social capital also indicates that the cognitive dimension is stronger compared to the other dimensions. This suggests that employees largely share a common understanding of the organization's mission, professional values, and overall goals. Such cognitive alignment is considered a strategic advantage for the organization, as it can facilitate the acceptance of changes, managerial reforms, and organizational innovations. However, cognitive alignment without

sufficient structural and relational support may, in the long term, lead to motivational erosion.

In the structural dimension of social capital, the results indicate that organizational communication networks are at a medium-to-high level, though their distribution is uneven. Some units and groups have stronger ties and more effective interactions, while in other areas, signs of communication breakdowns and island-like performance are observed. This situation could limit the effectiveness of HRM policies, especially in areas such as organizational structure and resource allocation. In other words, the lack of adequate structural cohesion prevents HRM decisions from being implemented uniformly across the organization.

The relational dimension of social capital, although overall in a satisfactory state, exhibits the highest dispersion in views. This indicates that experiences of trust, mutual respect, and transparent communication are not consistent across groups within the organization. Such heterogeneity can negatively impact perceptions of organizational justice and, consequently, employees' attitudes toward meritocracy, performance evaluation, and reward systems. From this perspective, improving the quality of interpersonal relationships and strengthening both vertical and horizontal communication are essential preconditions for enhancing the effectiveness of HRM.

The qualitative findings complement and deepen this quantitative picture. Analysis of the interviews reveals that many experts consider empowerment and continuous learning as the most important achievements of the current organization, attributing them to the formation of a certain level of social capital. At the same time, they point to barriers such as external pressures on appointment processes, weak incentive systems, and ambiguity in career advancement paths, which can undermine existing social capital.

Notably, in the participants' view, transparency and fairness are not merely ethical values but vital factors in maintaining social capital and preventing the erosion of organizational trust. This suggests that the effectiveness of HRM in the health system is more closely tied to the quality of relationships, perceptions of fairness, and a genuine sense of employee involvement than to formal tools and structures.

In conclusion, the integration of quantitative and qualitative findings indicates that social capital at the

university studied is relatively strong, particularly in the cognitive and, to some extent, the structural dimensions. At the same time, in the relational and welfare dimensions, targeted strengthening remains necessary. Improving the effectiveness of HRM in such an environment requires a comprehensive approach that simultaneously addresses competency development, structural reforms, increased transparency in decision-making, and a revision of incentive systems. Only in this way can social capital be transformed from a potential capacity into a sustainable competitive advantage for the health system.

The results of this study align well with the findings from both domestic and international studies. The integrated analysis of quantitative and qualitative data indicates that strong social capital, particularly in the cognitive and relational dimensions, facilitates the enhancement of individual competencies, goal-oriented interaction, and the empowerment of human resources, ultimately improving organizational performance at Babol University of Medical Sciences.

This finding is fully consistent with the results of Botelho (2023), who showed that social capital directly affects the effectiveness of HRM units and plays an intermediary role in fostering trust and collaboration. Moreover, Guerrero et al. (2022) confirm that strengthening the cognitive aspect of social capital by shaping shared values and goals among employees increases job performance and organizational satisfaction—an emerging pattern also evident in the present results.

In the quantitative section, the "empowerment" dimension was identified as the most important aspect of HRM effectiveness with the highest average ranking (3.81). This aligns with Sanchez (2011), who found that empowerment is a direct outcome of the formation of social capital and the development of organizational learning in professional environments. This suggests that knowledge sharing, constructive interaction, and autonomy in decision-making are among the most important outputs of organizations with high levels of social capital.

In contrast, the "retention and welfare" dimension was found to be the weakest area in the current results—a theme also seen in Ellinger et al. (2013). They emphasized that investing in employee welfare and fostering a sense of belonging increases job loyalty and

reduces workforce turnover. Therefore, the findings of this study are aligned with the need to review payment policies, rewards, and welfare provisions.

From a social capital model perspective, the results suggest that cognitive level and the formation of shared values and identity significantly impact employee motivation and collaboration. This theme is also identified by Guerrero et al. (2022) as a primary driver of improvements in employee performance. Conversely, a relative weakness in the formal networks and information flow in the structural aspect of social capital was observed, which aligns with Chuang et al. (2013), who indicated that the robustness of organizational networks and strong structural ties is essential for empowerment and innovation in HRM.

In the relational aspect, while the level of team interaction and cohesion was acceptable, some dispersion in relationships between managers and employees was observed, similar to the findings of Oluoch (2013). He showed that relational social capital plays a key role in retaining human resources, but a lack of complete cohesion in relationships can limit the effectiveness of HRM.

Thus, comparing the data from this research with the existing scientific literature reveals that sustainable success in HRM relies on simultaneously strengthening all three dimensions of social capital—structural, cognitive, and relational. In this way, social capital, as an intangible asset, can serve as the foundation for effective HR processes and create a long-term competitive advantage for health organizations.

This study examines the effectiveness of HRM at Babol University of Medical Sciences, focusing on social capital. The main goal was to identify strengths and opportunities for improvement in the health system transformation process. The quantitative and qualitative findings provide a clear picture of the advantages and challenges that can aid in strategic decision-making and macro-level policymaking. Regarding recruitment and human resource organization, the results indicate relative satisfaction with merit-based recruitment policies and individual competency assessments. However, there is still a need to optimize job turnover processes and make better use of existing capacities. Additionally, while the appointment of competent managers has generally been satisfactory, greater

transparency in the manager selection process is necessary.

Empowerment of managers and employees, as a fundamental strength, requires enhancing regular training and skills development. Furthermore, succession planning and increasing participation at different levels should be emphasized. In the welfare and retention area, good performance has been observed in some welfare and compensation indicators. However, greater coherence in the incentive system and updates to compensation policies are still needed. The extensive use of information and communication technology has sped up processes and increased transparency, although improvements in technical and educational infrastructure are still required. Social capital in the structural, cognitive, and relational dimensions plays a key role in the success of HRM in the health system. Strengthening communication infrastructure and shared values, and increasing mutual trust, can foster synergy and help retain key personnel in the organization.

#### Acknowledgments

The authors express their gratitude and appreciation to all participants.

#### Declaration of Interest

The authors of this article declared no conflict of interest.

#### Ethical Considerations

The study protocol adhered to the principles outlined in the Declaration of Helsinki, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

#### Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

#### Funding

This research was carried out independently, with personal funding, and without financial support from any governmental or private institution or organization.

#### Authors' Contributions

All authors equally contribute to this study.

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