

DETERMINANTS OF HUMAN RESOURCE MANAGEMENT RISK IN DISTRICT PUBLIC HOSPITALS

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Purpose: The aim of this paper was to identify the determinants of human resources management (HRM) risk in district public hospitals (PSP) and to estimate the impact of macroenvironmental factors on HRM risk.

Design/methodology/approach: The research process was carried out in two ways. Firstly, a critical analysis of the literature of an integrative nature was performed. Secondly, the empirical research used a qualitative approach using a multiple case study strategy and survey research conducted in selected PSPs.

Findings: The distribution of the indicator values is characterized by relatively high left-sided skewness, which means that most of the values of this indicator have a value higher than the average. Moreover, taking into account the fact that each of the partial measures included in the construction of the Indicator-Macro was assessed on a 4-point scale, it can be concluded that this indicator has an average value at a relatively high level (2.52). Taking into account the average value of the Indicator-Macro (2.52), it can be assumed that there is a high level of influence of macroenvironmental factors on HRM risk, which confirms the truthfulness of the formulated hypothesis.

Research limitations/implications: There is a need for further broad research in this problem, in order to compare different hospitals in different regions of the country.

Practical implications: It was emphasized that there are difficulties in achieving the goals of public hospitals experiencing a shortage of medical staff, therefore this area should receive special care by the management staff of these entities, as well as decision-makers in the health care system.

Social implications: The factors indicated by the respondents were also confirmed in the literature, where both the problem of staff shortages and the relatively low valuation of medical services have been raised for years. Therefore these factors strongly influence health care quality and should be monitored carefully.

Originality/value: The obtained research results fill the theoretical gap in the identification of HRM risk determinants in organizations, with particular emphasis on district public hospitals.

Keywords: Human resource management, hospitals, risk.

Category of the paper: Research paper.

1. Introduction

The health care sector is one of the key pillars of the modern economy. The main reason for this is the broadly understood care for the health of the citizens of a given country. At the same time, this critical element of human capital (Pocztowski, 2018) directly affects the competitive capabilities of the knowledge-based economy. As indicated by the World Health Organization (WHO), the foundation of a well-functioning health care system are human resources, their availability and quality.

In terms of quality, it is primarily about qualified medical and administrative staff focused on the proper implementation of medical services. In turn, availability comes down to the amount of health care human resources at the disposal of healthcare entities (Buchelt, 2017, p. 104). It should be emphasized that activities related to the appropriate development of highly qualified human resources in health care take place at the macro-, meso- and micro-environment level.

It should be recognized that each of these levels is coupled with the appropriate human resources management (HRM) policy implemented by entities providing medical services. Entities conducting medical activities include primarily: hospitals, primary health care facilities (general practice, GP), and outpatient specialist care facilities (OSCF). Taking into account the amount of public expenditure on health care, it should be stated that hospitals are the central element of the system. According to data from the Polish Central Statistical Office (Główny Urząd Statystyczny, GUS), in 2021, 38.4% of current expenditure on health care was allocated to the functioning of these entities (GUS, 2023). In the Polish health care system, hospitals generally operate at three reference levels:

- first level: "first contact" hospitals - district hospitals, the functioning of which is dedicated to procedures of the lowest level of complexity;
- second level: "second contact" hospitals - provincial, specialized, which should focus on providing specialized services;
- third level: "third contact" hospitals - clinical, highly specialized hospitals.

Each of these levels, apart from the basic function of providing health services, is characterized by its own specificity. District public hospitals (district public hospitals, PSP) are specific organizations that play a key role in the health care system, they are the so-called the foundation of the health care system - a first-contact hospital (Buchelt, Frączkiewicz-Wronka, 2017). A large number of patients go there and, when necessary, are referred to higher reference facilities. At the same time, PSP is subject to strong political influence due to its social importance, often as the largest local employer. In mid-2022, there were 313 of them in Poland, which, according to the Central Statistical Office, constituted approximately 1/3 of all hospitals in Poland. The analysis of available data shows that the basic problems in the functioning of these medical entities are limited financial resources and a shortage of human resources,

especially medical staff (Najwyższa Izba Kontroli-NIK, 2024). Taking into account this second aspect of the functioning of PSP, it seems obvious that hospitals should strive to implement the HRM process in a way that not only ensures the recruitment of appropriate medical staff, but also their retention. Unfortunately, in our country, hospital policy regarding human resources is closer to the administration of personnel matters than to actual HRM (Buchelt, 2017; Jończyk, 2008, 2014). In this context, from a practical point of view, it is extremely important to conduct research aimed at identifying the state of HRM in PSP and identifying opportunities to improve existing HRM practices in these entities. From a theoretical point of view, it is crucial to identify and fill the knowledge gap in the implementation of the broadly understood personnel function and the risks associated with its implementation in these entities.

The aim of this article is to identify the determinants of human resources management (HRM) risk in district public hospitals (PSP) and to estimate the impact of macroenvironmental factors on HRM risk. The research process was carried out in two ways. Firstly, a critical analysis of the literature of an integrative nature was used to construct the theoretical foundations of the studied problem. This type of research often requires more creative data collection, as it is usually not an analysis of all articles ever published on a given topic, but rather an integrative review aimed at assessing, critiquing, and synthesizing the literature that should result in the development of knowledge and theoretical frameworks (Snyder, 2019; MacInnes, 2011; Torraco, 2005). The analyzed literature included Emerald, Web of Science and Google Scholar databases. Secondly, the empirical research used a qualitative approach using a multiple case study strategy and survey research conducted in selected PSPs. The research process defined in this way determined the structure of this study.

2. The substance and sources of HRM risk

The issue of risk in management sciences has been continuously explored for many years. Its interdisciplinarity and multidimensionality result in a number of diversified definitions, and researchers dealing with the above topics clearly emphasize that the obstacle to developing a universal definition of risk are various criteria for its division and typologies (Nahatko, 2001; Williams, Smith, Young, 2002; Karmańska, 2008; Kaczmarek, 2010; Pawelec, Jończyk, 2018). Most often, risk is defined as:

- a feature of decisions made to achieve specific results - uncertainty resulting from making specific decisions (Hagigi, Sivakumar, 2009; Haugan, 2010; Łada, 2010; Winch, Maytorena, 2012),
- lack of information or its complete absence - the information aspect of risk (Kreim, 1988; Kaczmarek, 2008; Czerwonka, Cież, 2009; Dudziak, Szpakowska, 2013),

- specific feature of market activity – risk of future income (Kerzner, 2009; Hubbard, 2009; Lehtiranta, 2014; Sheikhzadeh, 2013),
- potential variability of events (Williams, Shmith, Young, 2002; Hagigi, Sivakumar, 2009; Janasz, 2013),
- the probability of an event occurring that has a positive or negative impact on the organization's results (Lipka, 2002; Jajuga, 2009; Kungwani, 2014).

A specific category of risk is personnel risk, also called personnel risk or human factor risk (Korombel, Bitkowska, Moczydłowska, 2016; Janasz, 2013). It is one of those concepts that has not been widely accepted (Dudek, 2014; Kapuścińska, Lachiewicz, Matejun, 2015; Bombiak, 2018; Bylok, Kutęba, Pietruszewski, 2021; Gołębski, Wojtkowiak, 2016). A critical analysis of the literature on the subject indicates that defining the term "personal risk" may concern both (1) the shape of the human capital structure and (2) the functioning of the human resources management system, or (3) both of these dimensions (Figure 1).

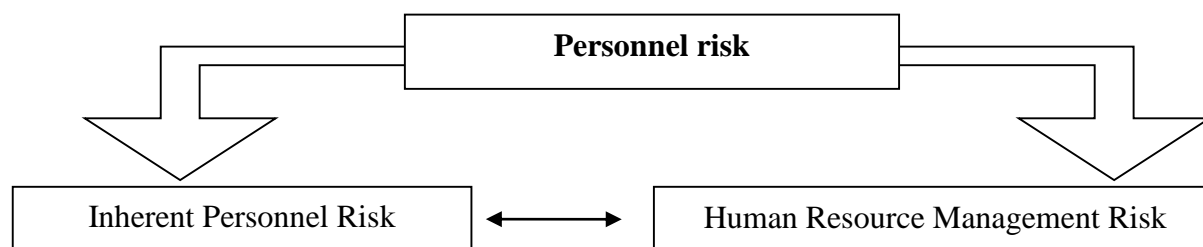


Figure 1. A comprehensive approach to personnel risk.

Source: self-elaboration based on: (Korombel, Bitkowska, Moczydłowska, 2016).

Chosen definitions of personnel risk are presented in Table 1.

Table 1.

Chosen definitions of personnel risk

Author/authors	Definition
Lipka, 2002	The result of the impact of a difficult to define set of elements that may cause deviations in the implemented personnel activities (between the assumed goals and the actual result).
Kloti, 2008	The sum of all unexpected results of norm violations and the risk of "exit", motivational risk, risk of overload, risk of adaptation, risk of mismatch, cultural risk.
Bizon-Górecka, Nogalski, 2009	The probability of not achieving the goals of personnel management processes.
Bijańska, Wodarski, 2014	Risk is the danger associated with the possibility of not achieving planned results or incurring unintended losses.
Czerska, Rutka, 2016	The function of the probability of a negative event occurring as a result of personnel decisions made by the organization and the scale of the negative effects of this event on the proper functioning of the organization.

Source: self-elaboration.

For the purposes of this work, it was assumed that personnel risk is understood to mean the possibility of a positive or negative deviation from the organization's goals as a result of the participation of human resources in its activities (e.g. mismatch of the level and structure of human capital to the needs of the organization) - human resources risk. However, the risk of

human resources management is deviations from activities related to the development of human capital, such as: acquisition, retention, development or remuneration.

An important issue in the context of this study is to indicate the sources (determinants) of HRM risk that can be identified in the literature on the subject. Researchers generally divide them into those coming from the macro-environment, the closer environment and the organization (Borkowski, 2007; Adamska, 2009; Kokot-Stępień, 2015; Jadczyk, Ledzian, 2016; Jędrzejewski, 2017; Goszczyński, 2018; Cornwell et al., 2022). In the specialist literature referring strictly to HRM risk, the sources of this risk have not been clearly categorized and exposed. It is therefore assumed, on the basis of congruence, that the universal system of sources (determinants) of HRM risk is identical to management risk.

3. Methodology

In management sciences, it is possible to use three research approaches: quantitative, qualitative and mixed (Creswell, 2013; Sułkowski, Lenart-Gansiniec, 2021, 2023). In recent years, the dominant part of scientific research has been carried out using a quantitative approach. The validity of such an approach is difficult to deny, and scientific exploration is not only about confirming or denying the occurrence of certain phenomena, but about getting to know them better. The empirical research presented in this publication, which is part of a broader study on HRM risk in district hospitals, is embedded in a qualitative research strategy (multiple case study). The research was conducted in four district public hospitals in the Podlaskie Voivodeship, whose managers agreed to participate in the study (although with the reservation of not disclosing detailed data allowing for the clear identification of the medical entities participating in the study). It is worth emphasizing that all respondents were assured of the anonymity of their statements, thus encouraging them to honestly share information about their practices. In this way, attempts were made to minimize the so-called the phenomenon of officialization, often found in the public sector. A nomothetic approach was used to select cases, i.e. one that assumes the existence of similarities between the analyzed entities. The hospitals selected for research are multi-unit and have emergency departments within their structures. The essential similarity was homogeneity regarding the basic area of activity. All selected hospitals are public sector entities, the so-called district hospitals and in all of them the main source of revenue is the contract with the National Health Fund. 155 people representing management staff at various levels took part in the research. They were conducted between January and March 2022, i.e. during the COVID-19 pandemic, which additionally limited access to respondents. Among the various aspects of HRM risk, the questionnaire also included issues related to macroenvironmental factors determining this risk. These factors were identified based on a previously conducted critical review of the literature on the subject.

As already noted above, for the purposes of this article, part of the survey questionnaire relating to the determinants of the macro-environment of HRM risk in district public hospitals (PSP) was used.

Therefore, the aim of the article is to identify the determinants of human resources management (HRM) risk in district public hospitals and to estimate the impact of macroenvironmental factors on the risk of HRM. The above goal allowed for the formulation of the research hypothesis that there is a high level of influence of macroenvironmental factors on the risk of HRM. Therefore, first of all, based on the analysis of the literature on the subject, a set of macro-environmental factors in district public hospitals affecting the level of risk was developed (Table 2).

Table 2.

Macro-environmental factors (partial measures) of district public hospitals, defined in the research questionnaire

No.	Factors (partial measures)
F.1	Demographic changes: aging society and, consequently, a constant increase in demand for medical services
F.2	Growing patient expectations regarding the quality of medical services
F.3	Growing patient expectations regarding the availability of medical services
F.4	Greater patient awareness of preventive health care, resulting in an increase in demand for preventive services
F.5	The trend for a healthy lifestyle and the availability of telemedicine are factors increasing the demand for medical services
F.6	Tendency to shorten hospitalization time
F.7	Growing pressure to be accredited
F.8	Growing pressure on a pro-client approach towards patients in the process of providing medical services
F.9	Shortage of public financial resources in the health care system
F.10	Increase in private funds in health care
F.11	Possibility of access to EU funds
F.12	Shortage of medical staff
F.13	Outflow of medical staff from public hospitals caused by migration outside the country
F.14	Education system of medical staff not adapted to the needs
F.15	Complicated system of internships and specialist training
F.16	Frequent changes in legal regulations regulating the possibility of practicing medical professions
F.17	Determining the remuneration of medical staff by regulation
F.18	Frequent changes in the health care system (no continuation of previous assumptions)
F.19	The increasing dynamics of medical technology development creates the need for continuous development of specialist competences of medical staff
F.20	Lack of stability in the health care system
F.21	Possibility of another pandemic
F.22	Increasing bureaucratization of the provision of medical services (more and more documents to complete)

Source: self-elaboration based on: (Buchelt, 2017; Buchelt, 2021; Buchelt, Kowalska-Bobko, Masłyk, 2021).

The research process used methodological recommendations developed by the OECD (Nardo et al., 2008) regarding the construction of composite indicators, e.g. regarding the macro-environment (the Indicator-Macro). The adopted methodology included the following stages: determining the scope of measurement and the appropriateness of using the composite

indicator, selecting partial measures, assessing the quality of empirical data, assessing the relationship between partial measures, assigning weights to the measures and components and their aggregation into the Indicator-Macro.

To construct the Indicator-Macro, 22 detailed measures were used (Table 2), which refer to various components of the macroenvironment. The measures were rated by respondents on a 3-point scale (where level "0" meant "no impact" and level "3" meant "large impact (decisive)". Estimation of the level of impact of macroenvironmental factors on HRM risk in PSP using the Indicator-Macro refers to the principle that the higher the average assessment of respondents regarding the impact of individual components of the macroenvironment, the greater the impact of the entire macroenvironment.

To verify the quality of the data, scale reliability analysis was used using Cronbach's alpha coefficient. For the full list of 22 measures, the value of this coefficient $\alpha = 0.945$. To assess the relationship between partial measures and their aggregation into the Indicator-Macro composite indicator, the factor analysis method was used - principal components analysis PCA (Hudrliková, 2013). In order to check the correctness of the PCA analysis, the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity were used. In the analyzed case, the KMO coefficient was 0.848. Bartlett's test of sphericity showed that the hypothesis of uncorrelated coefficients can be rejected (significance level lower than 0.001). Varimax rotation with Kaiser normalization was used in the analysis. The rotation converged in 6 iterations and provided the basis for qualifying 22 partial measures into 5 components, the sum of squares after rotation was approximately 75.7% (Table 3).

Table 3.

List of components and total explained variance – for the purposes of constructing the Indicator-Macro

Component	Initial eigenvalues			Sums of squared charges after extraction			Sums of squared charges after rotation		
	Total	% variance	% cumulative	Total	% variance	% cumulative	Total	% variance	% cumulative
S1	10,27	46,68	46,68	10,27	46,68	46,68	5,02	22,86	22,86
S2	2,89	13,17	59,85	2,89	13,17	59,85	3,78	17,18	40,04
S3	1,25	5,70	65,55	1,25	5,70	65,55	2,92	13,31	53,35
S4	1,19	5,41	70,96	1,19	5,41	70,96	2,80	12,74	66,10
S5	1,03	4,71	75,68	1,03	4,71	75,68	2,10	9,58	75,68

Source: self-elaboration.

Assigning partial measures to the components of the Indicator-Macro made it possible to assign weights to these components - the weights were normalized by the sums of squares of loadings, which correspond to the part of the variance explained by a given component (Table 4).

Table 4.

Partial measures forming individual components and component weights - for the purposes of constructing the Indicator-Macro

Component	Partial meters	Sums of squared charges after rotation (% variance)	Component weight
S1	9-13, 16, 21	22,86	0,30
S2	1-5, 17	17,18	0,22
S3	6-8	13,31	0,18
S4	14-15, 18-19	12,74	0,17
S5	20, 22	9,58	0,13

Source: self-elaboration.

Thus, the Indicator-Macro adopted a formula:

$$WWC_{\text{makro}} = 0,3 * S1 + 0,22 * S2 + 0,18 * S3 + 0,17 * S4 + 0,13 * S5.$$

This formula was used for statistical calculations and verification of the hypothesis.

4. Results

The developed WWCmakro indicator formula provided the basis for calculating basic descriptive statistics (Table 5). The distribution of indicator values is characterized by relatively high left-sided skewness, which means that most of the values of this indicator have a value higher than the average.

Table 5.

Basic descriptive statistics – for the Indicator-Macro

Descriptive statistics	Important	155
	No data	0
Mean		2,52
Median		2,67
Dominant		3
Standard deviation		0,505
Variance		0,255
Skewness		-0,781
Kurtosis		-0,448
Gap		2
Minimum		1
Maximum		3

Source: self-elaboration.

Moreover, taking into account the fact that each of the partial measures included in the construction of the Indicator-Macro was assessed on a 4-point scale, it can be concluded that this indicator has an average value at a relatively high level (2.52) - the median for the 4-point scale rating (starting from the value "0") is at the level of 1.5. The distribution of the Indicator-Macro index values is presented in a histogram (Figure 2).

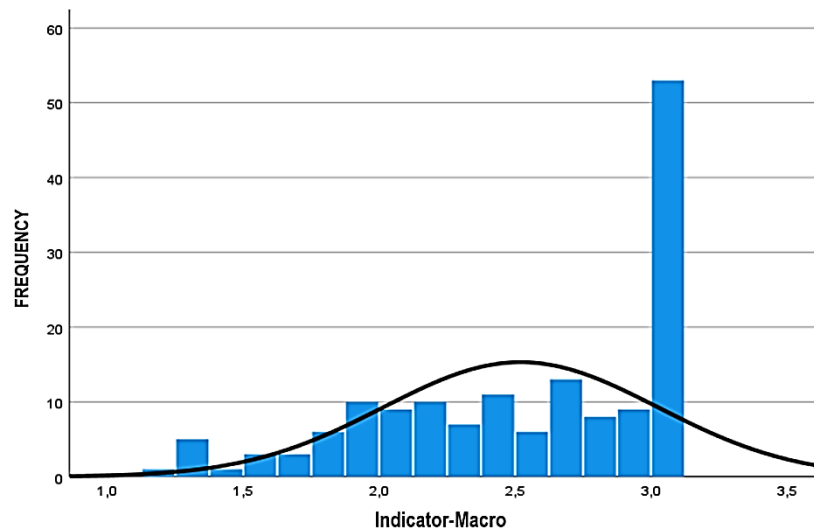


Figure 2. Distribution of the Indicator-Macro values.

Source: self-elaboration.

In the analysis of the impact of macroenvironmental factors on the risk of HRM in public hospitals (based on the use of individual partial measures), the following levels were adopted, for which ranges were assigned on a 3-point scale¹:

- "low" level - the Indicator-Macro is in the range $<0; 1)$,
- "moderate" level - the Indicator-Macro is in the range $<1; 2)$,
- "high" level - the Indicator-Macro is in the range $<2; 3)$.

Taking into account the average value of the Indicator-Macro index, (2.52), it can be assumed that there is a high level of influence of macroenvironmental factors on HRM risk, which confirms the truthfulness of the formulated hypothesis.

5. Conclusion

It is assumed that the key subsystems that generate risk for a health care organization are the economic, legal, social and demographic environments, as well as the detailed factors that arise in these subsystems. These include, among others: unfavorable demographic processes taking place in the labor market, globalization resulting in the emigration of doctors and nurses, the pace of technological changes, changing expectations of users and consumers, lack of stability of medical entities, shortage of resources, including human resources, and rising costs (Buchelt, 2011; Walshe, Smith, 2011; Nojszewska, Sielska, Gołab-Beltowicz, 2019),

¹ The above division into levels is conventional and is a simplification of the complex reality of the functioning of public hospitals and the implementation of risk management processes in their structures. In order to precisely determine the impact of macroenvironmental factors on HRM risk, each public hospital should be considered individually, taking into account its potential and development and management constraints.

also referring to the risk of HRM in PSP. The group of determinants of this risk with the highest importance (component weight: 0.30) included: shortage of public financial resources in the health care system, increase in private funds in health care, possibility of access to EU funds, shortage of medical staff, outflow of medical staff from hospitals public services caused by migration outside the country, frequent changes in legal regulations regulating the possibility of practicing medical professions and lack of stability in the health care system. It should be emphasized that other macro-environmental factors were also considered important in the respondents' opinion, although the component weights assigned to them were slightly lower (from 0.17 to 0.22). It can therefore be concluded that the purpose of this publication has been achieved and the hypothesis that there is a high level of influence of macroenvironmental factors on the risk of HRM in PSP has been confirmed. The factors indicated by the respondents are also confirmed in the literature on the subject, where both the problem of staff shortages and the relatively low valuation of medical services have been raised for years (Domagała, 2020; Striker, 2016). Many authors emphasize the difficulties in achieving the goals of public hospitals experiencing a shortage of medical staff, therefore this area should receive special care by the management staff of these entities, as well as decision-makers in the health care system.

To sum up, the obtained research results fill the theoretical gap in the identification of HRM risk determinants in organizations, with particular emphasis on district public hospitals. Based on them, the following actions are recommended:

- increasing the awareness of the management staff of district public hospitals in the identification of HRM risk types, their determinants and risk management,
- developing procedures to identify and monitor individual types of HRM risks,
- implementation of good practices regarding HRM risk management instruments in district public hospitals.

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