

How to Cite:

Hrynzovskyi A. M., Dovhan, V. I., Bielai, S. V., Arziantseva D. A., & Zakharkevych N. P. (2022). Public health through the prism of personnel security. *International Journal of Health Sciences*, 6(S4), 12054–12064. <https://doi.org/10.53730/ijhs.v6nS4.11800>

Public health through the prism of personnel security

Anatolii M Hrynzovskyi

MD–PhD, Professor, Department of Emergency Medicine and Tactical Medicine, Bogomolets National Medical University, Kyiv, Ukraine

Corresponding author email: grin_am@ukr.net

Valerii I. Dovhan

Doctor of Science in Public Administration, Professor, Senior Researcher of the Research Department, National Academy of the State Border Guard Service of Ukraine named after Bohdan Khmelnytsky Khmelnytsky, Ukraine

Serhii V. Bielai

Doctor of Science in Public Administration, Professor, Chief of the Department of Military-Social and Psychological Support National Academy of the National Guard of Ukraine, Kharkiv, Ukraine

Daria A. Arziantseva

PhD in Economics, Associate Professor, Assistant Professor of the Department of Management, Finance, Banking and Insurance Khmelnytsky University of Management and Law named after Leonid Yuzkov Khmelnytsky, Ukraine

Nataliya P. Zakharkevych

PhD in Economics, Associate Professor, Assistant Professor of the Department of Management, Finance, Banking and Insurance Khmelnytsky University of Management and Law named after Leonid Yuzkov Khmelnytsky, Ukraine

Abstract---The functional safety is a key management task, considering that public organizations have to work in the rapidly changing environment, in the conditions of growing competition in the medical sphere, and spread of influence of information technology on the development of a public organizations. The situations when administration is more interested in the impact of natural and technological aspects on the safety of an organization happens more often, while the main threats are coming from people though, and in many cases from employees. The aim is to substantiate the scientific and theoretical provisions on the essence of personnel safety of a public organizations and to establish future measures to strengthen

it. We used methods of analysis and synthesis, comparative and monographic methods. The results and conclusions of our work are the management of personnel safety of a health care institution is an integral part of the personnel management system of a public organizations, aimed at identifying, neutralizing and preventing risks and threats that are associated with the use of personnel and can potentially lead to negative consequences for a public organizations. It also requires the protection of employees, the creating of favorable conditions for work, meeting needs and achieving development goals. The effectiveness of personnel safety management is ensured by taking into account all aspects and areas of personnel management.

Keywords---public health, personnel security, health policy, health workforce, public sector.

Introduction

The staff of a public organizations can harm it unintentionally or intentionally. The consequences can be both material (financial losses caused by theft, procurement abuses, corrupt actions, etc.) and non-material (loss of reputation, etc.) in nature. In this regard, the importance of personnel safety for an organization grows in significance. The responsibility for identifying potential weaknesses in an organization's management system and for creating and using means to prevent potential incidents is placed on managers of a public organizations. Personnel safety was and remains a complex and multifaceted concept. Famous foreign and domestic scientists have made a great contribution to the study of the problems of the theory and practice of personnel safety, namely: Alaverdov A.R., Bagley D.Yu., Badalova A.H., Bulonova E.N., Vodianova V.V., Voronov S.A., Zubareva L.V., Lashchenko O.Yu., Marenich A.I., Shehelman I.R., Rudakov M.N., Teres D, Brown RB, Lemeshow S, Parsells JL. A, Quilitch H. Robert, Samantha L. Hardesty, Melissa M. McIvor, Kim T. Suda, Raymond G., Louis D. Burgio, Kathryn L. Burgio and others. The study of the theoretical and practical research of domestic and foreign scientists allows us to conclude that the issues of personnel safety management of a public organizations have been insufficiently developed. There is a discord in the choice of indicators that comprehensively characterize the level of personnel safety and its impact on the performance of a healthcare institution. The significance and relevance of the study of the issues have led to the choice of the subject and specified the purpose of the scientific publication.

The aim

Is to substantiate the scientific and theoretical provisions on the essence of personnel safety of a public organizations and to establish future measures to strengthen it.

Materials and Methods

We used methods of analysis and synthesis, comparative and monographic methods. Our findings are based on a structured review of published literature, including articles, reviews, comparative studies, observational studies, and dissertation. The search focused on the literature between 1975 and 2021. To identify literature in electronic databases, we searched Web of Science Core Collection, Wiley Online Library, V.I. Vernadsky National Library of Ukraine, e-Library.ru, by using the following subject heading terms: employees in public organ, public organization and administration, staff staffing, staffing, personnel, safety, personnel safety, management, employees in public organ management. Although we searched for English-language citations, subsequent article review involved mainly Russian and Ukrainian -language publications. As for the search strategy, the analysis focused first on evidence and theoretical perspectives drawn from the health care sector; however, as we advanced in the analysis, it has become evident that staff resource management and safety management is complex multidisciplinary topic that overlaps with several other fields. Although our selection of articles was clearly focused on human resources and safety management in health care, we had to extend our investigation to a wider range of literature in order to fill some gaps of evidence, gain insight from other areas.

Review and Discussion

Personnel safety is the most important security factor in all areas of an organization's activities, neglect of which can seriously affect an institution as well as destroy it. The consideration of ways to prevent violations caused by a personnel and at the same time to solve problems connected with the enhancement of their professional and intellectual potential, and with the protection from external abuse has determined the need for a deep and systematic definition of the nature of personnel safety, its content, main components and their correlations.

The term “safety” was first used at the end of the 12th century. It was interpreted as a certain state when nothing threatened someone or something. The personnel safety of an organization plays a leading role in ensuring its safe operation, since it is the human resources that are the key carrier of dangers and threats. Hence, there is a variety of definitions of the concept of “personnel safety of an organization”, and at the same time, it determines the relevance of the analysis of approaches to the definition of this concept. The essence of the concept of “personnel safety” has been considered in the works of many scientists. According to V.V. Vodianova “... personnel safety is an integral part of the economic security of an organization, the priority tasks of which are protection against threats and risks in order to create conditions for the most effective personnel management, as far as it is a defining resource to ensure a high level of competitiveness of an organization ...” [1] .

V.V. Pankratiev defines that “... the personnel safety of an organization is the most important component of economic security, the purpose of which is to identify, neutralize, avert, avoid, and prevent threats, hazards and risks that are directed at personnel and their intellectual potential, and those ones that come

directly from the personnel. It should be revealed in the human resources management system and in an organization's personnel policy ... ”[2]. O.Yu. Kalmykova interprets personnel safety as “... the general direction of personnel work, a set of principles, methods, forms of the organizational mechanism for the development of goals and tasks aimed at maintaining, strengthening and developing personnel potential, at creating a responsible and highly productive cohesive team capable to respond in a timely manner to the changing requirements of the market, taking into account the strategy of an organization development...”[3].

Based on the definition given by A.R. Alaverdov, “... the personnel safety of an organization is the legal and information support of the personnel management process: solution of legal issues on labor relations, preparation of regulatory documents, necessary information support to all departments of personnel management” [4]. According to A. H. Badalova, “...personnel safety of an organization is the process of preventing negative impacts on its economic security through risks and threats associated with personnel, their intellectual potential and labor relations in general ...” [5]. In turn, V. K. Senchagov interprets the organization's personnel safety as “... its provision with human resources, the formation of an effective system of personnel management and communication policy” [6].

According to N.D. Eriashvili “... the personnel safety of an organization is a set of means (tools), with the help of which the administration of an organization contributes to the preservation, strengthening and development of personnel to ensure the effective functioning of an organization and protection from risks associated with employees, and it jointly should influence an organization . . .”[7]. H. V. Shchokin believes that “... the personnel safety of an organization relates to preventing negative impacts on the economic security of an organization through risks and threats associated with personnel, their intellectual potential and labor relations....” [8]. The analysis of the definitions presented above enables us to define the constituent elements of the definition of “personnel safety of a public organizations” (Table 1.1).

Table 1.1. Analysis of the Components of the Concept of “Personnel Security of a Public organizations”

Origin	Process of preventing negative actions caused	Security status of a public organization	Effective personnel management	Stable development of a public	Risks and threats from staff	Intellectual potential	Prevention negative consequences for a public organization
Bagley D.Yu.		+	+		+		
Kalinichenko L. L.			+	+			
Kibanov A.Ya.			+				+
Kyrychenko O.A.		+	+				
Knytkov M.V.		+					
Kozachenko H.V.	+				+	+	
Lashchenko O.Yu.		+	+		+		+
Lytovchenko O.Yu.			+	+			

Nazarova H.O.		+		+	+		
Shavaev A.H		+	+				+
Shvets N.K.			+				

Note. Systematized by the authors [9].

The data presented indicate that the authors consider the category of “personnel safety of an organization” from the point of view of the target, process, structural and functional approaches. Thus, the target approach involves considering personnel safety as the condition of an organization's safety that is the priority goal of its activities. The process approach implies an understanding of personnel safety as a dynamic phenomenon rather than a static one. In particular, as a process to prevent negative impacts on safety. The structural approach involves the analysis of personnel safety as an important and defining structural element of economic security. The functional approach, according to the authors, is in the interpretation of personnel safety as a type of activity, a set of measures to combat threats and dangers that are embodied in planning, organizing, controlling, motivation, and coordination of managerial influences [9].

Based on the review, it can be concluded that a threat to safety is of specific and targeted character. It has a subject and an object of threats, as well as a clear intention (to damage). As V.I.Korolev notes, subjects of safety threats have the possibility to conduct the destructive activity in the relation of a safety object and they are the cause of a dangerous situation, represented by such elements that generate these types of threats, namely, the are:

- agents of threats, which can be individuals and social groups, formal and informal structures;
- sources of natural and man-made threats, phenomena and processes [10].

At the same time, the destructive (damaging) potential of threats can be more powerful because of the associated interaction and mutual reinforcement of its sources - competitors, influence groups, etc. [11]. The study of the essence of subject-object relations of personnel safety allows us to conclude that they are based on safety threats that are implemented by the subject of threats in relation to the safety object, which are the resources of an organization (material, human, information, etc.). At the same time, the personnel of an organization can act simultaneously both as a subject and as an object of threats that means that threats to personnel safety are of a dual track counter nature.

When researching personnel as a subject of a threat, the employer's resources (information, intellectual, material, etc.) are the object of safety. In this case, not only employees who are in labor relations with the employer can be the subject of a threat to personnel safety. It is also justified to include applicants for vacant positions, as well as former employees of the organization in the composition of the subject of a threat. Work requirements hinder a worker with a negative attitude towards involvement, while work resources are negatively associated with burnout [12]. In the case of considering personnel as an object of safety, the employer, criminal structures, social environment, etc. can be the subjects of threats. A healthy work environment is affected by workplace incivility (WPI) in terms of costs and productivity. [13]. modern conditions, many organizations

have faced with the need to develop fundamentally new approaches to ensuring safety, including its personnel component, which is considered as a necessary condition for preserving the most qualified employees from being poached by competitors, as well as protecting an organization's financial, information and property resources. To assess the threats coming from the personnel and the vulnerabilities of the personnel safety of a public organizations, we propose the use a safety profile of a position, which can act as an independent tool for ensuring the personnel safety of an organization or be used as an addition to the profile of a position. One of the threats is workplace violence, which has a potentially high prevalence, in addition to a positive correlation with the risk of physical and mental disorders, absenteeism, high staff turnover, reduced productivity and a poor organizational environment. [14]

The profile creating has become widespread in HR management. In the theory and practice of personnel management, various profiles are developed such as job profiles, personnel risk profiles [15; 16; 17; 18], profiles of a key employee, etc. Profiling allows you to determine what competencies an employee holding a particular position should have, which of them are the most important ones, and it is one of the tools for personnel assessing [19]. The forecast indicates the need to expand the number / capacity of health facilities to reach WHO[20]. At the same time, the use of these profiles does not allow assessing the threats that come from each workplace (position), and vulnerabilities (weak points that make the threats implementation possible), as well as determining a set of measures that ensure a sufficient level of protection of an organization's resources. In this regard, we suggest using the safety profile of a position.

The purpose of creating a safety profile of a public organizations lies in assessing the threats coming from each workplace (position) and the vulnerabilities of personnel safety, as well as in determining measures to ensure the protection of resources of a public organizations. The safety profile of a position should have six sections. Thus, Section 1 "General requirements for the safety of a position" contains the name of the position, its involvement in the business processes of a public organizations, risk potential, as well as an assessment of availability of a possible conflict of interest. Depending on the position held (work performed, profession, etc.), employees of a public organizations can be attributed to the following risk areas:

- a zone of maximum risk. It includes the director of a public organizations, his deputies, employees who ensure the organizational safety (employees of human resources department, heads of structural units), the most valuable (key) employees.
- a zone of increased risk: employees who have access to information and financial resources, tangible assets, possess confidential information; employees who would be difficult to replace (representatives of "scarce" professions, employees with useful contacts and acquaintances, etc.).
- a zone of moderate risk: employees who own fragmentary information about the activities of an organization (employees who have limited access to information with a confidentiality stamp, etc.), employees who perform the functions of servicing personnel who belong to the zone of maximum and increased risk (cleaners, secretaries, security guards, drivers, etc.)

- a zone of low (insignificant) risk: the rest of an organization's personnel.

The delineation of the core and the periphery in the model is necessary for ranking an organization's employees in terms of possible harm to its property and non-property interests: the closer to the center of the core, the more destructive is the potential of threats coming from the personnel. Accordingly, the investments in protecting the interests of an organization against a particular group of personnel should be higher.

Section 2 "Possible Forms and Methods of Implementing Threats" describes in detail the forms and methods of implementing threats that may emanate from a certain workplace (position). As an example, the methods of implementing fraudulent actions of the head of the personnel department may include the following: overestimation (falsification) of certain parameters of remuneration, which leads to an increase (formation) of amounts of money that are eventually pocketed, or in collusion with the employee to whom the legal part of these payments is allotted; misleading employees or using their legal illiteracy for personal purposes, associated with payrolling and subsequent appropriation of payments prescribed by law; receiving illegal remuneration from the interested persons ("kickback") for providing certain benefits and advantages, for failure to comply with specific duties; abuse of office and authority for personal gain. For each threat, an expert assessment of the likelihood of its implementation and possible losses has been given.

Section 3 contains the requirements for the existence of personal, professionally important qualities, behaviors necessary to ensure safety. Thus, from the point of view of ensuring personnel safety, it is important to understand how threats are associated with certain personal qualities and characteristics of an employee, since it is their existence or absence that makes an employee dangerous or safe. These circumstances made it possible to formulate an assumption about the possibility of creating an employee's profile that is "safe" for the organization. It is also necessary to develop and test an organizational tool for employee job satisfaction, to increase accuracy for strategic improvements in employee performance[21]. It is important to study the indirect effects of working time on job satisfaction to ensure staff safety[22].

In total, six groups of characteristics have been identified. They form a generalized profile of a safe employee: he/she knows and understands the rules and procedures for ensuring the personnel safety of a public organizations, professionally reliable, does not suffer from all kinds of addictions, he/she does not have an increased vulnerability to the external environment, he/she is morally and psychologically reliable. It should be noted that the proposed characteristics can be updated based on the competency model of a health worker.

For a quantitative assessment of the degree of manifestation of certain characteristics, it is advisable to use the methods of expert assessment. As experts, it is recommended to involve specialists from the human resources department, an immediate supervisor of an employee, as well as an employee's subordinates (if any). Using the vulnerability profile (Section 4), it is possible to

assess the degree of compliance of an employee holding a particular position with HR requirements. The intruder's potential (Section 5) is determined by identifying vulnerabilities in the protection system, as well as his/her motivation to implement threats[23]. The assessment can be carried out using the following indicators:

- the competence of an intruder – it characterizes what level of knowledge and level of training in the field of safety an intruder must possess in order to identify and use vulnerabilities to implement a security threat.
- an intruder's equipment – it characterizes what additional resources (technical means, human resources, equipment, etc.) an intruder needs to identify and use vulnerabilities to implement security threats.
- awareness of information about the vulnerability of an employer – it shows the extent to which an employee has information about the dishonesty in the actions of the authority. At the same time, awareness of the violation of the current legislation, of existing frauds, corruption actions allow the employee to keep the employer (authority) on the hook, influence the decision-making process, and manipulate the actions of various subjects ensuring personnel safety.
- the possibility to access the protected resources that is largely determined by the intruder's involvement in the business processes of a public organizations.
- awareness of the requirements for ensuring safety in the process of performing work duties as well as when interacting with the external environment.
- motivation in the implementation of threats – it is a kind of “a trigger” in the process of implementation of threats. It shows whether the employee has an intention to carry out illegal actions against the employer, and reveals the motives for the implementation of safety threats (insult, revenge, etc.).

Based on the findings, it is possible to draw up a ranked list of employees of an organization, depending on the potential, threats to the personnel safety of an institution. Section 6 “Recorded Cases of Violation of Safety Requirements” includes the records of incidents of personnel safety violation, including those identified during special inspections. The filling in of the section is necessary to reflect violations, as well as to supplement the forms and methods of implementing threats to personnel safety (Section 2 of the profile).

Thus, with the help of the proposed safety profile, it is possible to assess the threats emanating from each employee in the context of all professional positions, vulnerabilities, and, as a result, to develop a set of measures to ensure a sufficient level of protection of the resources of a public organizations.

The advantages of the profile include the following:

1. The use of the safety profile of a position at the stage of recruitment and selection of personnel allows you to form a system of requirements for an employee from the standpoint of ensuring personnel safety, to introduce effective protection against unscrupulous employees at the stage of an employee's “entry” into an organization.

2. With the help of the security profile it is possible to resolve the issues of formalizing the organization's requirements for ensuring personnel safety in relation to candidates for the positions from the external labor market as well as matters of the search for "safe" internal candidates from among the employees of the organization.
3. The process of assessing an employee's safety is structured, since the profile establishes requirements for the presence (absence) of personal, professional qualities, behaviors necessary to ensure safety, requirements for awareness of internal corporate standards for ensuring safety, rules and means of ensuring the safety of activities.
4. The relationship of an employee holding a certain position with other departments and officials, as well as with the external environment, is clarified, and, accordingly, it becomes possible to assess a potential conflict of interest.
5. Using the profile it is possible to identify the business processes of a public organizations with a high risk implementation of personnel threats, to assess their vulnerability, to develop lists of high-risk employee positions (i.e. to assess the core of personnel safety), and to minimize the risk of attracting employees to abuse.

The restrictions of using the profile include the facts that the identification of threats to personnel safety should be systematic and carried out at all stages of the employee's life cycle (admission, career advancement, dismissal) that increases the complexity of assessing threats coming from the personnel. It requires periodic inspection of conformity with existing technologies for personnel management and internal control, safety policy, that is, screening the safety requirements of a public organizations. In addition, it can be noted that the psychological and emotional state of an employee is constantly changing, which increases human efforts on assessing the psychological reliability of personnel, significantly devalues its results, forces the overestimation of threats.

Conclusions and prospects for further research

Consequently, the management of personnel safety of a health care institution is an integral part of the personnel management system of a public organizations, aimed at identifying, neutralizing and preventing risks and threats that are associated with the use of personnel and can potentially lead to negative consequences for a public organizations. It also requires the protection of employees, the creating of favorable conditions for work, meeting needs and achieving development goals. The effectiveness of personnel safety management is ensured by taking into account all aspects and areas of personnel management. It involves the implementation of the above functions in the personnel management system and the need for managers of personnel services to obtain relevant knowledge, skills and abilities.

At present the issues of personnel safety management of healthcare institutions require further scientific research, since they determine the degree of protection of an organization in terms of professional, intellectual, social and economic, cultural and other parameters of personnel and other resources. They characterize the degree of development and regeneration of intellectual potential

at the levels of the system, establish a framework for determining the directions of its progressive development.

Funding

None of the authors received research grants, speaker's fees from any companies and is not a member of commissions.

Conflicts of Interest of any kind concerning commercial, financial, and authorial relations, relations with organizations or persons who in any way can be connected with the research are absent.

References

1. Ahmadi F. Relationship between Professional Ethics and Organizational Commitment. *International Journal of Learning & Development*. 2011. Vol 1. No 1. pp. 178-190
2. Alaverdov A.R. (2015). Personnel safety as a factor in the competitiveness of a modern organization. *Modern competition*. 2015. Vol. 9, No. 5 (53). P. 25-38.
3. Asamani JA, Chebere MM, Barton PM, D'Almeida SA, Odame EA, Oppong R. Forecast of Healthcare Facilities and Health Workforce Requirements for the Public Sector in Ghana, 2016-2026. *Int J Health Policy Manag*. 2018;7(11):1040-1052. Published 2018 Nov 1. doi:10.15171/ijhpm.2018.64
4. Badalova A.H., Moskvityn K.P. (2015). Upravlenye kadrovymy riskamy orhanyzatsyy. *Rossyiskoe predprynymatelstvo*. № 7. S. 95–98.
5. Bulanova E.N. (2008). Risk management procedure in the execution of personnel decisions. *Bulletin of the Russian State Pedagogical University. A. I. Herzen*. № 54. P. 25 - 28.
6. Dong R, Wu H, Ni S, Lu T. The nonlinear consequences of working hours for job satisfaction: The moderating role of job autonomy [published online ahead of print, 2021 Nov 12]. *Curr Psychol*. 2021;1-22. doi:10.1007/s12144-021-02463-3
7. Eryashvily N.D. (2015). Economic security in the context of the formation of the national security system of the state. *Economic security bulletin*. № 3. P.31-34
8. Hryniovskyi A.M., Bielai S.V., Tkachenko O.V., Reshetnyk S.M., Kalashchenko S.I., Koliushcheva O.S. Legal basis of professionals' competence formation of emergency and medical specialists in the first aid approaches. *Wiadomości Lekarskie*. 2019. 72 (7). 1371-1379. URL: <https://wiadlek.pl/wp-content/uploads/2020/01/WL-7-2019.pdf>.
9. Korolev M. Y. (2011). Korolev and M.I. The economic mechanism of the firm's defense: structure and functioning algorithm. *Bulletin of the Institute of Economics of the Russian Academy of Sciences*. № 3. S. 17-22.
10. Korolev V. Y. (2013). Metodolohyia postroenyia modely uhroz bezopasnosti terrytoryalno-raspredeleennykh ob"ektov. *Tekhnolohyia tekhnosfernoi bezopasnosti: ynternet-zhurnal*. 2013. № 2 (48). URL: <http://ipb.mos.ru/ttb>.
11. Lacey SR, Teasley SL, Cox KS, Olney A, Kramer M, Schmalenberg C. Development and testing of an organizational job satisfaction tool: increasing precision for strategic improvements. *J Nurs Adm*. 2011;41(1):15-22. doi:10.1097/NNA.0b013e3182002871

12. Lewis PS, Malecha A. The impact of workplace incivility on the work environment, manager skill, and productivity. *J Nurs Adm.* 2011;41(1):41-47. doi:10.1097/NNA.0b013e3182002a4c
13. Mishina S.V., Mishin A.Yu., Approaches to the definition of the essence of the concept of "personnel security". URL: <http://repository.hneu.edu.ua/bitstream/123456789/11905/1/%D0%9C%D0%B8%D1%88%D0%B8%D0%BD.pdf>
14. Myung E, Domingos-Neto J, Murta GA, et al. ANAMT Technical Guideline (DT 07): epidemiological mapping and preventive interventions against workplace violence. *Rev Bras Med Trab.* 2020;17(2):268-281. Published 2020 Feb 12. doi:10.5327/Z1679443520190448
15. Nahrgang JD, Morgeson FP, Hofmann DA. Safety at work: a meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *J Appl Psychol.* 2011;96(1):71-94. doi:10.1037/a0021484
16. Nechaeva E.S. (2013). Analiz y prohnozyrovanye kadrovyykh ryskov v orhanyzatsiyakh. *Yzvestiya Tulsokho hosudarstvennoho unyversyteta. Ekonomycheskiye y yurydycheskiye nauky.* 2013. № 1-1. S. 145-153.
17. Pankratev, V.V. (2016). Kadrovaia bezopasnost. URL: <https://vvpankrat.ru/programmy-po-kadrovoy-bezopasnosti>
18. Prykhodko I. I., Bielai S. V., Hrynzovskiy A. M., Zhelaho A. M., Hodlevskiy S. O., Kalashchenko S. I. Medical and psychological aspects of safety and adaptation of military personnel to extreme conditions. *Wiadomości Lekarskie.* 2020. 73 (4). 679-683. DOI: <http://dx.doi.org/10.36740/WLek202004110>.
19. Prykhodko I., Matsehora Y., Bielai S., Hunbin K., Kalashchenko S. Lassification of coping strategies influencing mental health of military personnel having different combat experience. *Georgian Medical News.* № 12 (297) 2019. 130-135. URL: https://cdn.website-editor.net/480918712df344a4a77508d4cd7815ab/files/uploaded/V297_N12_December2019.pdf.
20. Senchahov, V.K. (2008). Methodology for ensuring economic security. *Economy of the region.* №3. S.28-39.
21. Shchekyn, H.V. (2009). Human resource management system: monograph. K.: State Enterprise "Publishing house. House "Personnel". 1472 p.
22. Vodianova V.V. (2010). Economic security. Systemic representation: Monograph. Moscow: GUU. 176 p.
23. Voronov S.A., Zubareva L.V. (2012). Systematyzatsyy metodov otsenky kadrovyykh ryskov pry formirovaniy stratehiy razvytyia orhanyzatsyy v usloviyakh ee restrukturyzatsyy. *Upravlenye ekonomycheskymy sistemamy.* 2012. № 2. URL: <http://www.uecs.ru/uecs-38-382012/item/1033-2012-02-14-05-48-17>
24. Widana, I.K., Sumetri, N.W., Sutapa, I.K., Suryasa, W. (2021). Anthropometric measures for better cardiovascular and musculoskeletal health. *Computer Applications in Engineering Education*, 29(3), 550–561. <https://doi.org/10.1002/cae.22202>